

77 Documents

Publication numbers	Title	Current assignees
IL-222558 A	Solar panel cleaning system	MOSHE SARAF
CN102347400 A	Automatic tracking and automatic cleaning device for solar cell panel	LIU CHUN SHENG
CN103624013 A	Cleaning system for photovoltaic power station and control method thereof	JIANGXI JINKO PHOTOVOLTAIC MATERIALS
CN105680789 A	Automatic cleaning system for solar cell panel	SHANDONG HAOWO ELECTRIC
CN104174616 A	Photovoltaic cell panel washing device	STATE GRID CORPORATION OF CHINA (SGCC), ...
CN202142537U U	Device for automatically tracking and cleaning solar cell panel	LIU CHUN SHENG
CN105322874 A	Tracking solar panel	CHENGDU JIUSHIDU INDUSTRIAL PRODUCT DESIGN
CN104550160 A	Efficient and intelligent solar cell panel cleaning device	JIANGSU UNIVERSITY
CN104467649 A	Photovoltaic assembly and automatic cleaning device therefor	KASHGAR SOL BRIGHT PHOTOVOLTAIC TECHNOLOGY
CN104320065 A	Solar panel cleaning vehicle with waste water recycling device	ZHEJIANG UNIVERSITY OF TECHNOLOGY
CN106345712 A	Washing method of electric power generation and energy storage equipment	ZHAOYUAN POWER SUPPLY
CN205988911U U	Automatic cleaning device of solar cell panel	SHAO QI
CN202555569U U	Automatic cleaning system of solar cell panel	YAN KAIFENG
CN201815506U U	Large-range cleaning device of solar cell panel	JING CHENG TECHNOLOGY
CN101859152 A	Solar-cell panel sun tracking system and control method thereof	SOUTHWEST UNIVERSITY FOR NATIONALITIES
CN204517742U U	The regular dust collector of guide tracked solar cell panel array	QINGHUA UNIVERSITY
CN106502279 A	Brush carrier adaptive tracking system and method of solar panel cleaning device	HENAN SENYUAN HEAVY INDUSTRY
WO2011161696 A2	Sun tracking mechanism with automated cleaning arrangement for solar panel	INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
CN205049976U U	Solar cell panel sunshine automatic tracking system	GUILIN UNIVERSITY OF ELECTRONIC

Publication numbers	Title	Current assignees
		TECHNOLOGY
CN102244481 A	Solar orientation biaxial fully-automatic tracking control power generation equipment	SHANGHAI SOLAR ENERGY TECHNOLOGY
CN205647402U U	Automatic cleaning system of solar cell panel	SHANDONG HAOWO ELECTRIC
CN201846283U U	Synchronous solar photovoltaic tracking generating device	HUANG JINJING
CN205142102U U	Tracking formula solar panel	CHENGDU JIUSHIDU INDUSTRIAL PRODUCT DESIGN
JP2002273351 A	Method and apparatus for cleaning outer face of solar cell panel	HINO JUSHI
CN206186808U U	Solar energy new energy automobile's solar cell cleaning device	JIANGXI GONGQINGCHENG HANERGY FILM SOLAR ENERGY
CN202160132U U	Automatic tracking focus type solar concentrated photovoltaic power generation system	You Lu
CN201674423U U	Solar automatic tracking system	BEIJING XISHAN SHINKANSEN ENVIRONMENTAL PROTECTION EQUIPMENT
CN204131458U U	Solar power generating panel cleaning vehicle with wastewater recycling device	ZHEJIANG UNIVERSITY OF TECHNOLOGY
CN102931880 A	Automatic focus tracking type solar concentrating photovoltaic power generation system	You Lu
CN201728195U U	Automatic dust removing device of solar panel	JING CHENG TECHNOLOGY
CN205797845U U	Mechanical people of anhydrous cleanness of photovoltaic cell board	JILIN JIANGJI SPECIAL INDUSTRIAL
CN203522623U U	Automatic tracking and dust removing photovoltaic power generation device	HUAIAN COLLEGE OF INFORMATION TECHNOLOGY
CN204349898U U	Automatic cleaning and dedusting system for photovoltaic array assembly	ANYANG YUTONG TECHNOLOGY
KR20120070549 A	Scrolling poster advertisement device that equip solar tracker and lbs(location based service) module	SEO JIN SU
CN101532733 A	Auto-focusing system of solar cooker	BEIJING JIAOTONG UNIVERSITY
CN202150473U U	Solar panel dust eraser	DEZHOU UNIVERSITY
JP2012195548 A	Solar panel with sunlight tracking and wind damage protection functions	KAWAI TSUSHIN

Publication numbers	Title	Current assignees
CN206228287U U	Automatic two -sided cleaned glass brush device of solar energy	HUANGHUI UNIVERSITY
CN105889866 A	Uniaxial tracking solar road lamp	TIANJIN JIENENG HENG TONG TECHNOLOGY
CN103594558 A	Preparation method of efficient solar cell	JINLING INSTITUTE OF TECHNOLOGY
JP09228022 A	Sound insulating wall and method for washing sound insulating wall	TOTO
CN204442263U U	Automatic dust-removal tracking type photovoltaic power generation device	GANSU SHANGHANG ELECTRICAL MAINTENANCE
CN205463405U U	Solar energy hawthorn stirring belt cleaning device	BAO LILI
CN105471377 A	Horizontal single axis sun-tracking support apparatus	Sun Min, ...
CN105789376 A	Preparation method of solar cell	ZHEJIANG JINGNENG PHOTOELECTRIC
US4119863 A	Combined high density solar panels and vertical wind turbines	KELLY DONALD A
CN105845748 A	Polycrystalline solar cell surface silicon nitride antireflection film preparation method	ZHEJIANG GUANGLONG ENERGY TECHNOLOGY
CN205690259U U	Single -axis tracking solar street lamp	TIANJIN JIENENG HENG TONG TECHNOLOGY
CN205847190U U	Solar panel sweeping apparatus	JIANGSU HUAXI NEW ENERGY ENGINEERING TECHNOLOGY
CN203933500U U	Automatic rotation solar energy storage device	HENAN LONGJING TECHNOLOGY
CN203222752U U	Amphibious cleaning device	QINGDAO UNIVERSITY
DE19831474 A1	System for cleaning roof gutters especially for multi-storey building dirt collection clearing	LAMSTER JOERG DR MEDICAL
RU---6183 U1	Micro-aviation robotic system	
CN205638040U U	Can multi -functional window of automatic closed induction type self -cleaning	HU JIANWEI
CN102060157 A	Intelligent solar trash compressor	TIANJIN AMJOYI TECHNOLOGY
CN202125028U U	Solar power generating telescopic awning	XINJIANG HAOTIANNENG ENVIRONMENTAL PROTECTION TECHNOLOGY
CN204866683U U	Automatic cleaning device of warmhouse booth	CHANGYUAN LUYU ECOLOGICAL FARMING COOPERATIVES

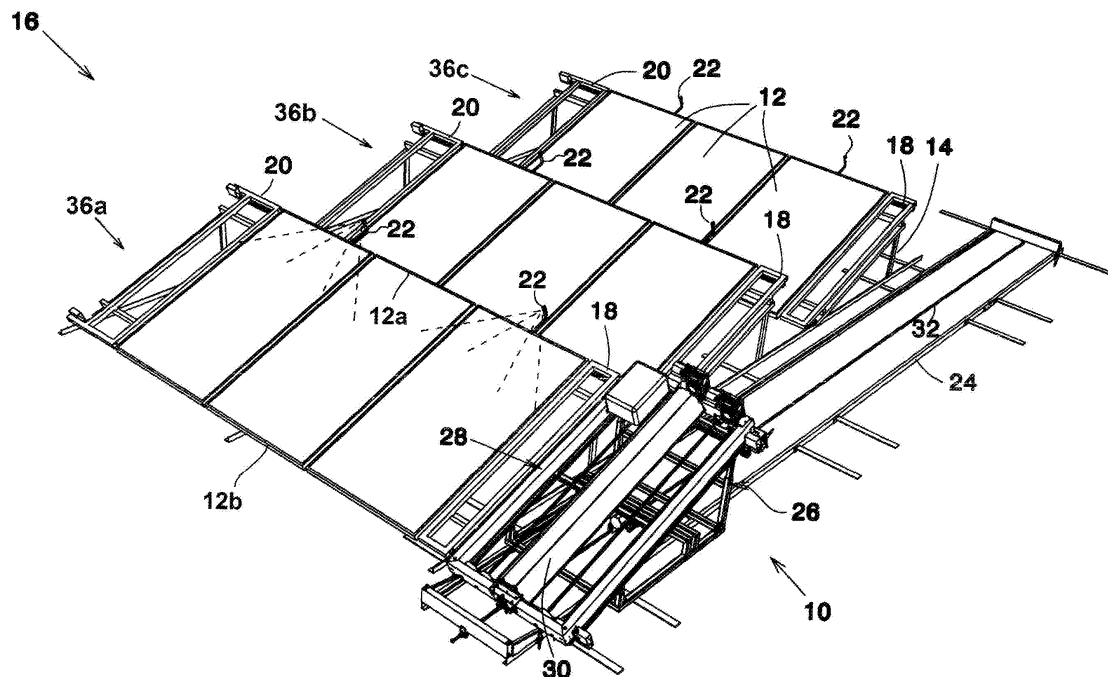
Publication numbers	Title	Current assignees
CN204965244U U	Photovoltaic power generation power supply system based on singlechip	ANHUI UNIVERSITY OF SCIENCE & TECHNOLOGY
CN105675829 A	Solar energy wind energy online multi-parameter water quality monitor	QINGDAO QINGQUAN BIOTECHNOLOGY
CN205407714U U	Solar battery board	WUXI CHANGJIANG ELECTRICAL APPLIANCE EQUIPMENT
CN204870703U U	No touch high pressure cleaning car	WANG CHEN
CN201197083U Y	Solar multi-electrodynamic force machine	GAN LIZHANG
CN202792613U U	Omni-directional light-receiving rapid-heating solar water purifier	HU YINGQI
CN102820737 A	Method and device for driving fan blades of clean-energy generator	YANG QINGSHAN, ...
CN205264280U U	Electronic information display screen	HEILONGJIANG UNIVERSITY OF SCIENCE & TECHNOLOGY
CN104521698 A	Light-small automatic walk canal feeding type irrigator	NORTH WEST AGRICULTURE & FORESTRY UNIVERSITY
CN106667681 A	Multifunctional wheelchair for department of cardiology	An Congcong
CN204561092U U	Electronic shoes of environmental protection	YU CHANGJING
CN205334910U U	Highway construction sign plate	SHAO ZHANGSHUN
FR2691751 A1	Equipment to drain and refill engine oil conveniently - uses pumps similar to automatic petrol pump but using suction from dipstick tube to drain with normal pump filling	GHANEM ELIAS
CN204618115U U	Novel drag ground robot	LI QIANG
CN204383730U U	Combined type rubbish fishing ship	QUZHOU TUYI INDUSTRIAL DESIGN
CN104443292 A	Combined type rubbish fishing boat	QUZHOU LECHUANG ENERGY SAVING TECHNOLOGY
WO2010150030 A2	Wind turbine in a combined nozzle	VRSALOVIC IVAN
CA2608174 A1	Agricultural products	VOON GERARD G V
CN204110030U U	Rail transport system for use in suspended transport of road transport vehicles	LU YONGFEI, ...
CN103235483 A	Large-area nanometer imaging device and large-area nanometer imaging method	QINGDAO BAONA PHOTOELECTRIC EQUIPMENT

Family 1/77 - 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

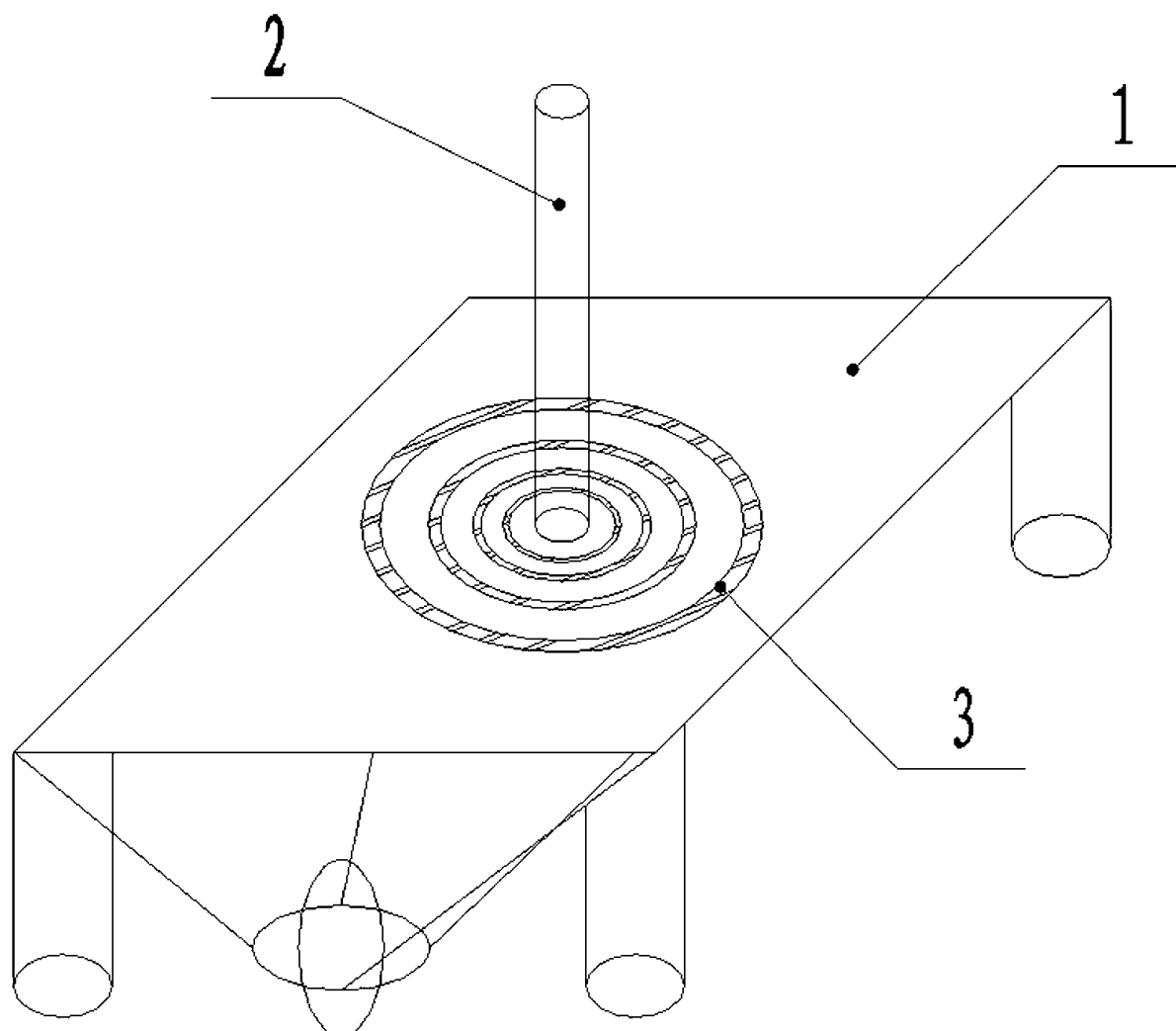
MOSHE SARAF

Family 2/77 - 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

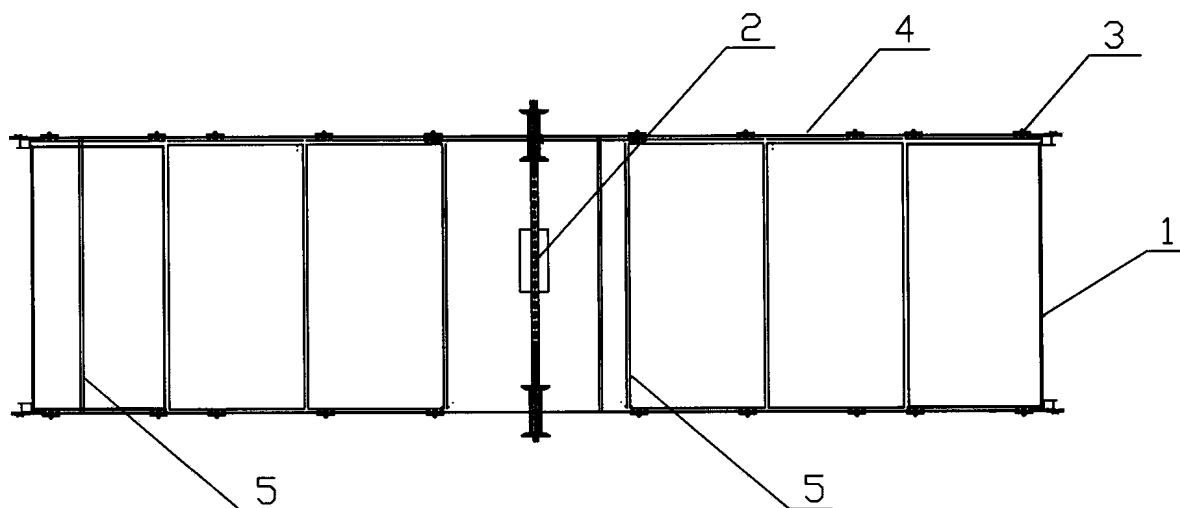
Family 3/77 - FAMPAT - ©Questel

Title

(CN103624013)

Cleaning system for photovoltaic power station and control method thereof

Images



Publication data including kind & date

CN103624013	A	2014-03-12	CN103624013
CN103624013	B	2015-11-25	CN103624013B



Abstract

(CN103624013B)

The invention provides a cleaning system for a photovoltaic power station and a control method thereof. The cleaning system for the photovoltaic power station and the control method of the cleaning system are used for conducting all-weather full-automatic cleaning on panel glass and solve the problems that the electricity generating power is affected and the hot spot effect is generated due to the fact that the panel glass is covered by dust and sundries, thereby improving the electricity generating power of the photovoltaic power station and prolonging the service life of the photovoltaic power station. The cleaning system for the photovoltaic power station comprises a framework used for installing the panel glass, a motor and a pulley are installed on the framework, a steel wire which is driven by the motor is movably erected on the pulley and a cleaner is fixed to the steel wire. The control method of the cleaning system comprises the following steps that timing is conducted through a timer and a rain sensor is used for detecting whether rainfall exists or not; if rainfall does not exist in a preset time span, a control unit controls the cleaner to conduct cleaning; if rainfall exist in a preset time, the control unit enables timing to be stopped when rain falls and controls the cleaner to conduct cleaning; the control unit enables timing to be started again through the timer every time cleaning is completed.

Inventors

ZHU JUFEN
TAI XIAOJUN
WANG DONGJUN
YU WENBIN
YANG LONG
TIAN QIAN

Latest standardized assignees - inventors removed

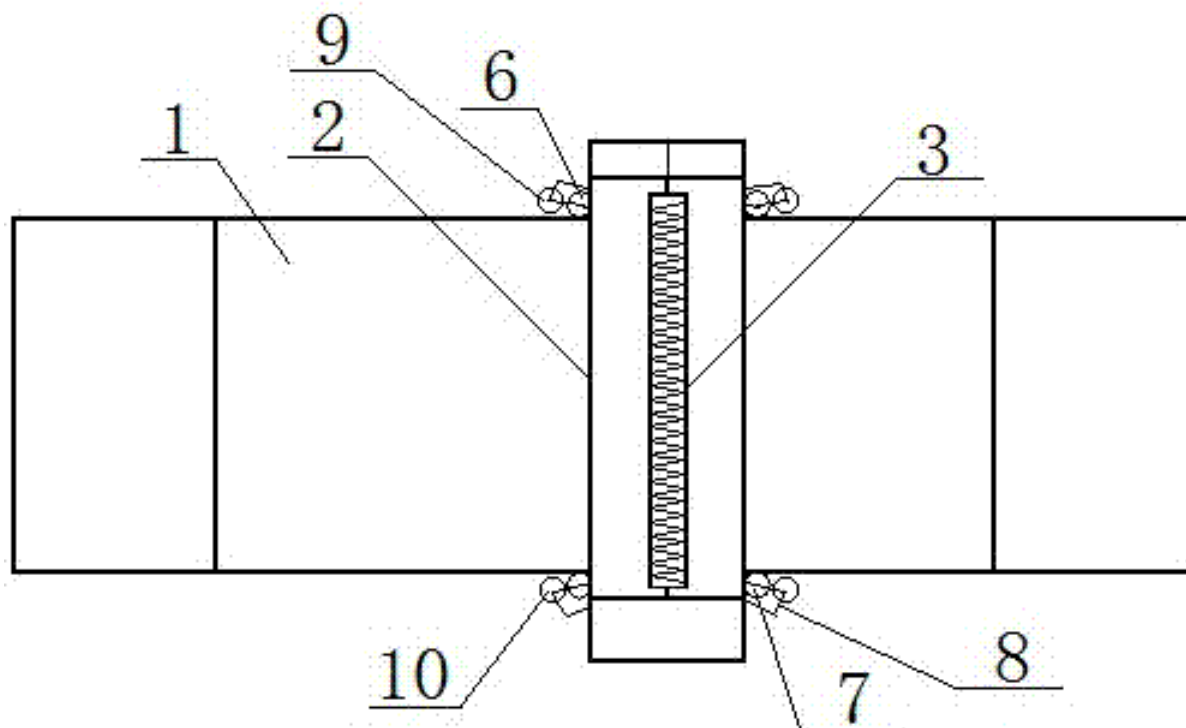
JIANGXI JINKO PHOTOVOLTAIC MATERIALS

Family 4/77 - 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

DONG GUOWEI
CUI XINYUAN
XUE KE
ZHANG MENG

Latest standardized assignees - inventors removed

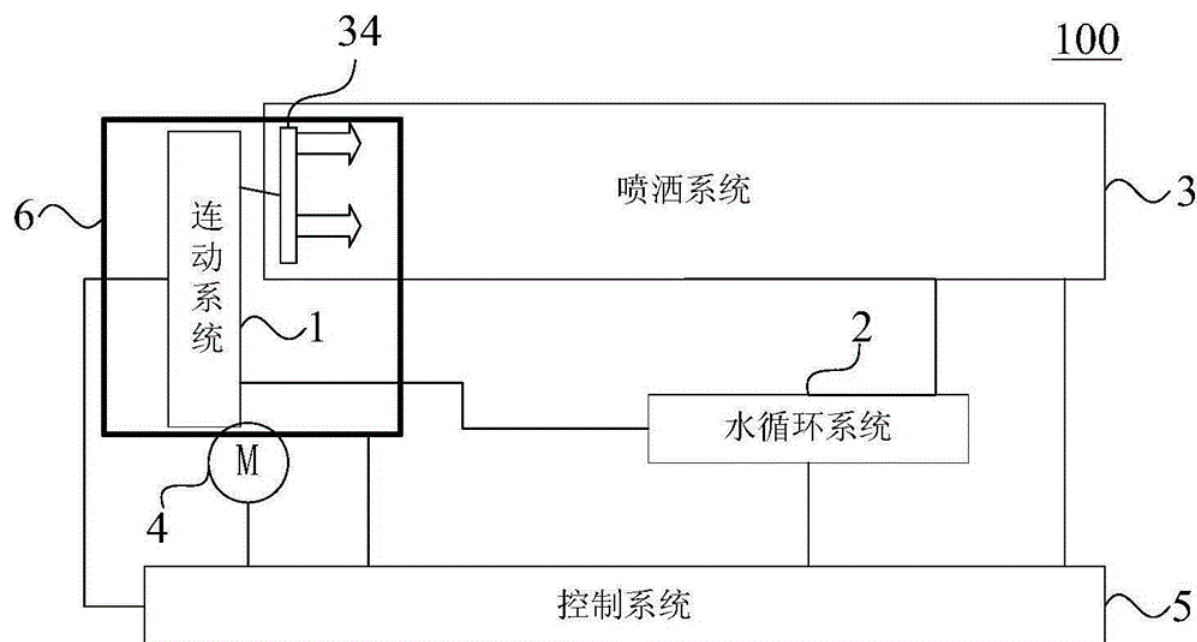
SHANDONG HAOWO ELECTRIC

Family 5/77 - FAMPAT - ©Questel

Title

(CN104174616)

Photovoltaic cell panel washing device

Images**Publication data including kind & date**

CN104174616	A	2014-12-03	CN104174616
CN104174616	B	2016-06-22	CN104174616B

**Abstract**

(CN104174616B)

The invention provides a photovoltaic cell panel washing device. The photovoltaic cell panel washing device comprises an electric system which is connected with a linkage system and used to provide traction force, the linkage system which is arranged on a photovoltaic cell panel, and used to wash the photovoltaic cell panel, collect rainwater and clean water after used for washing the photovoltaic cell panel and store the rainwater and the clean water in a water circulation system, the water circulation system which is connected with the linkage system and a sprinkling system, and used to filter the stored rainwater and the stored clean water and transport the rainwater and the clean water which are filtered to the sprinkling system, the sprinkling system which is connected with the linkage system, and used to sprinkle the photovoltaic cell panel with the rainwater and the clean water which are filtered so as to enable the linkage system to wash the photovoltaic cell panel, a control system which is connected with the electric system, the linkage system, the sprinkling system and the water circulation system through control signal lines, and used to control coordination actions among all the systems connected with the control system, and the photovoltaic cell panel which is connected with the control system and the electric system through power lines and used to provide electric energy to the control system and the electric system.

Inventors

ZHANG FAN

Li Bing

YIN XIUGUI

LIU FANG

SHI JIANLEI

CHEN TAIPING

WANG MIANBIN

WANG QIUYUN

GENG PENGYUN

WANG ZHENG

GENG XIAOCHAO

Latest standardized assignees - inventors removed

STATE GRID CORPORATION OF CHINA (SGCC)

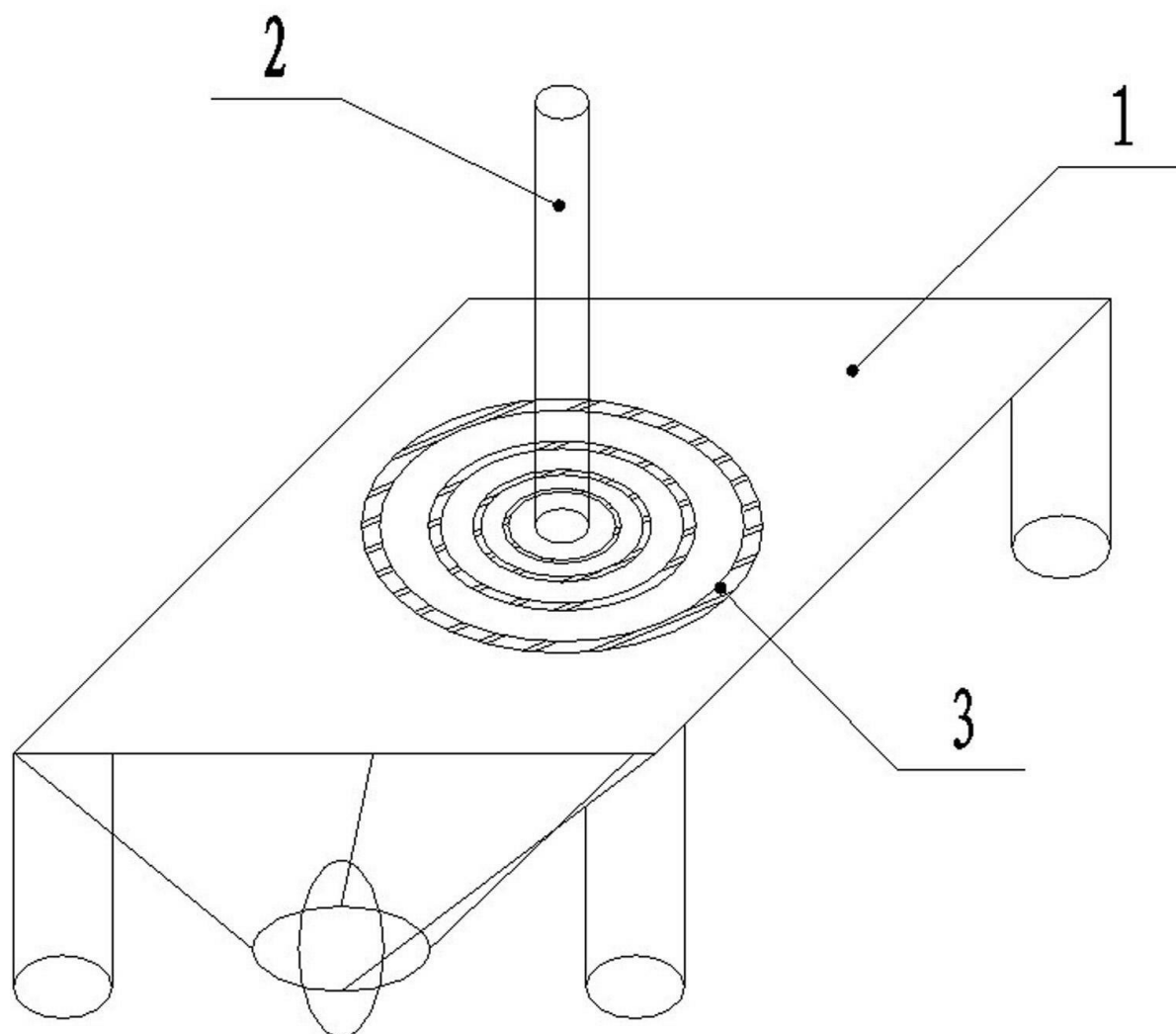
ECONOMIC TECHNOLOGY RESEARCH INSTITUTE OF STATE GRID JIBEI ELECTRIC POWER

Family 6/77 - 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

WU ZHONGJU

GENG TIANYI

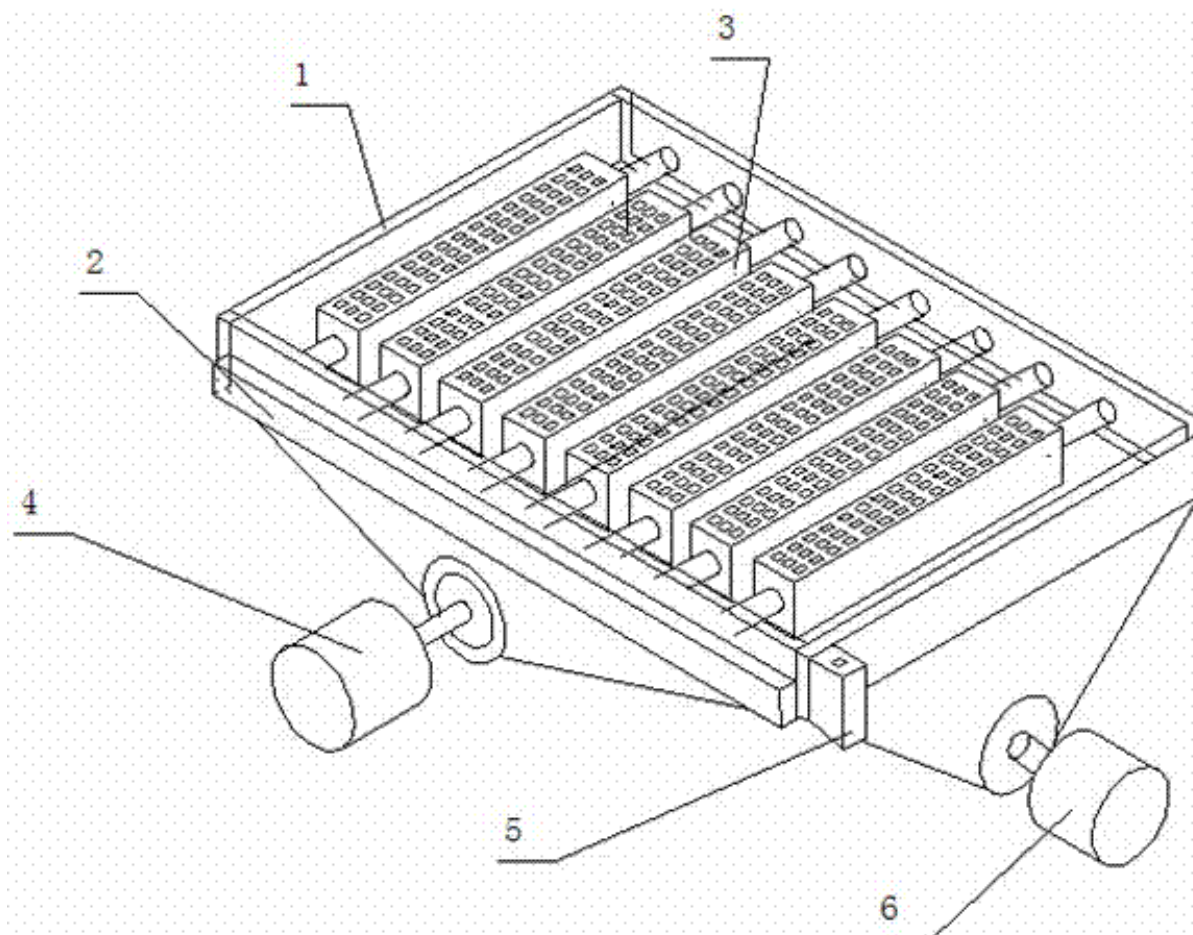
LIU CHUNSHENG

Family 7/77 - 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

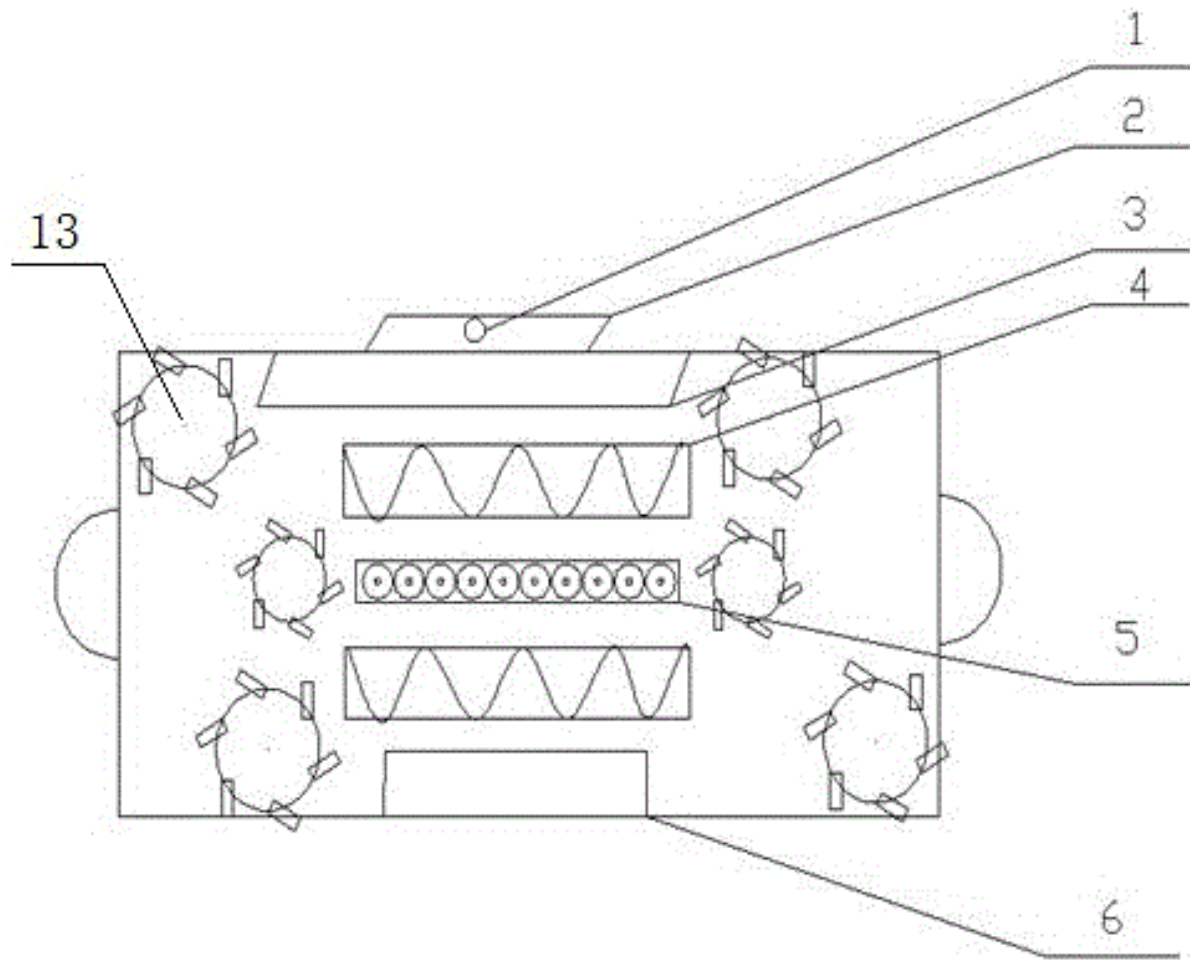
CHENGDU JIUSHIDU INDUSTRIAL PRODUCT DESIGN

Family 8/77 - FAMPAT - ©Questel

Title

(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

Family 9/77 - FAMPAT - ©Questel

Title

(WO2016206204)

Photovoltaic assembly and automatic cleaning device therefor

Images

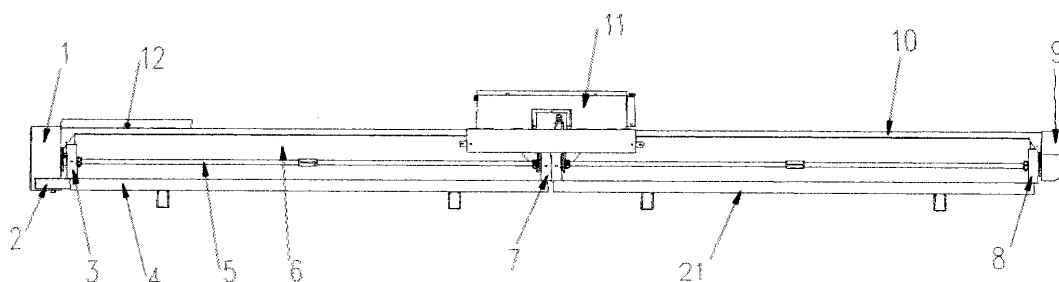


图 1 / Fig. 1

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
IN201617042016	A	2017-03-17	IN201617042016
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

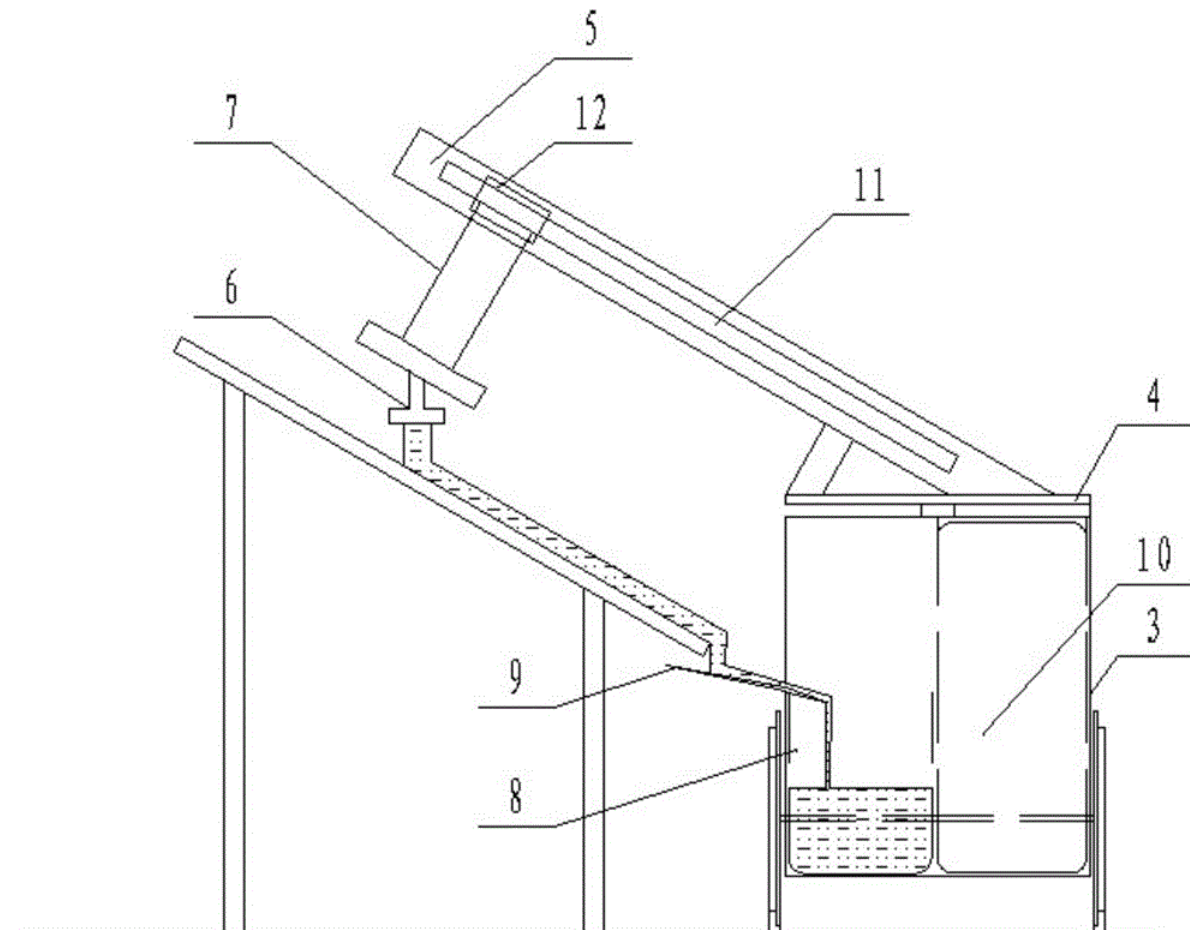
KASHGAR SOL BRIGHT PHOTOVOLTAIC TECHNOLOGY

Family 10/77 - 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

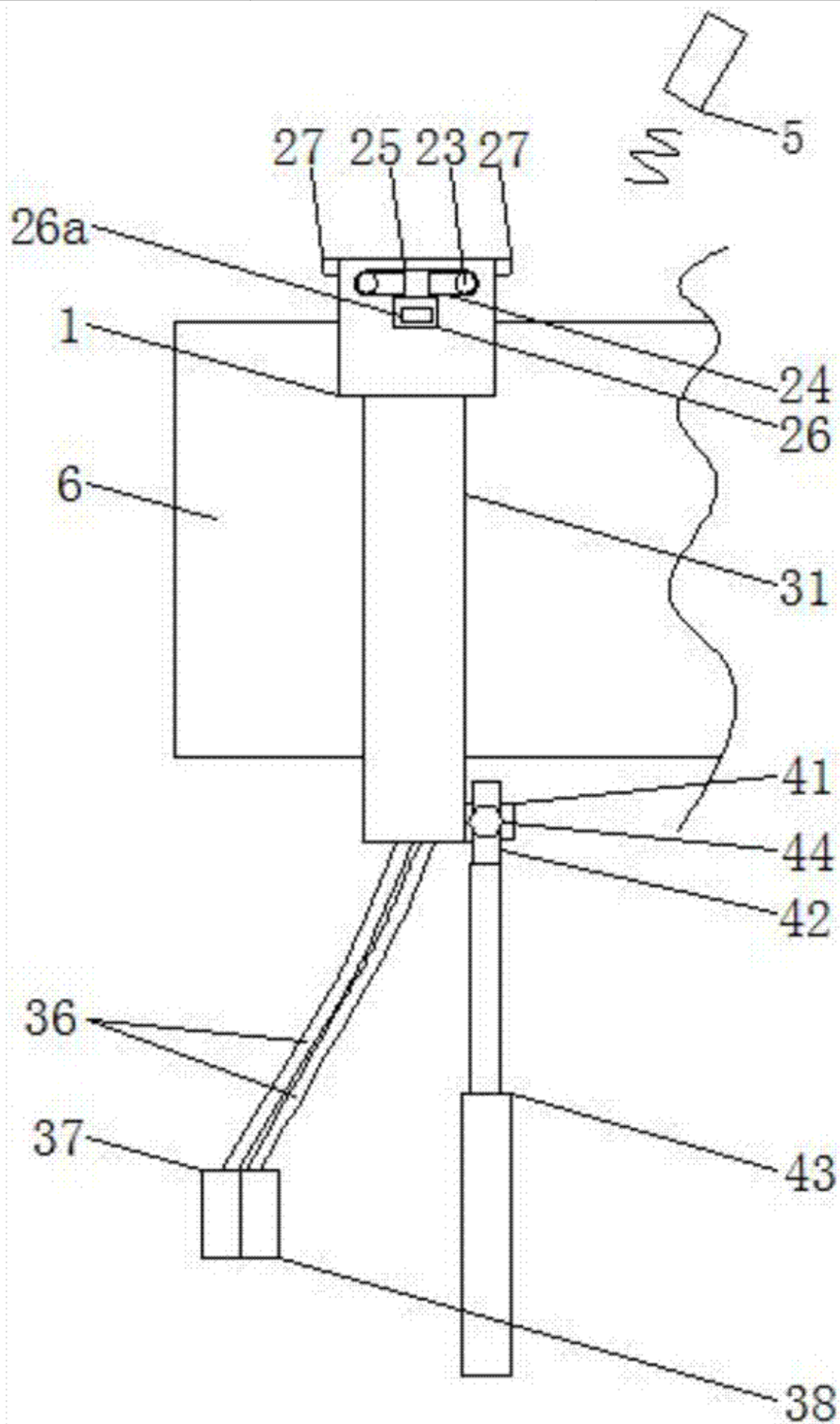
Family 11/77 - FAMPAT - ©Questel

Title

(CN106345712)

Washing method of electric power generation and energy storage equipment

Images



Publication data including kind & date

CN106345712	A	2017-01-25	CN106345712
CN106423929	A	2017-02-22	CN106423929
CN106423929	B	2017-07-11	CN106423929B
CN106345712	B	2017-07-11	CN106345712B

**Abstract**

(CN106345712B)

The invention relates to a washing method which is especially suitable for washing a mounted gas-liquid dual-purpose photovoltaic power generation panel. A washing device is applied and comprises a hanging device which is hung on the upper edge of the photovoltaic power generation panel, a driving device arranged in the hanging device, a washing device arranged below the hanging device and a lifting device arranged below the washing device, and further comprises a wireless transmission device; the washing method comprises the following steps: adjusting the lifting device; mounting; moving and turning round; washing; detaching. The washing method provided by the invention is especially suitable for the small-scale photovoltaic power generation panels which are mounted at a high position through a bracket, and each photovoltaic power generation panel can be conveniently mounted and detached so that each photovoltaic power generation panel can be washed; the washing device can move back and forth along the photovoltaic power generation panels through manners of automatically turning round or manually turning round and the like, so that a plurality of times of washing can be carried out; the photovoltaic power generation panels can also be washed through air spraying and liquid spraying manners.

Inventors

WANG XUEFENG

DONG HUI

LI BO

LI ZHANGFENG

CHEN SHAOLI

WANG YAWEI

WANG NINI

SUN YONG

YANG SHAOJIN

SHI KEGUANG

HUA YE

QIN DEZHAN

Huan sea

LI CHEN

YANG XIANGWEI

Latest standardized assignees - inventors removed

ZHAOYUAN POWER SUPPLY

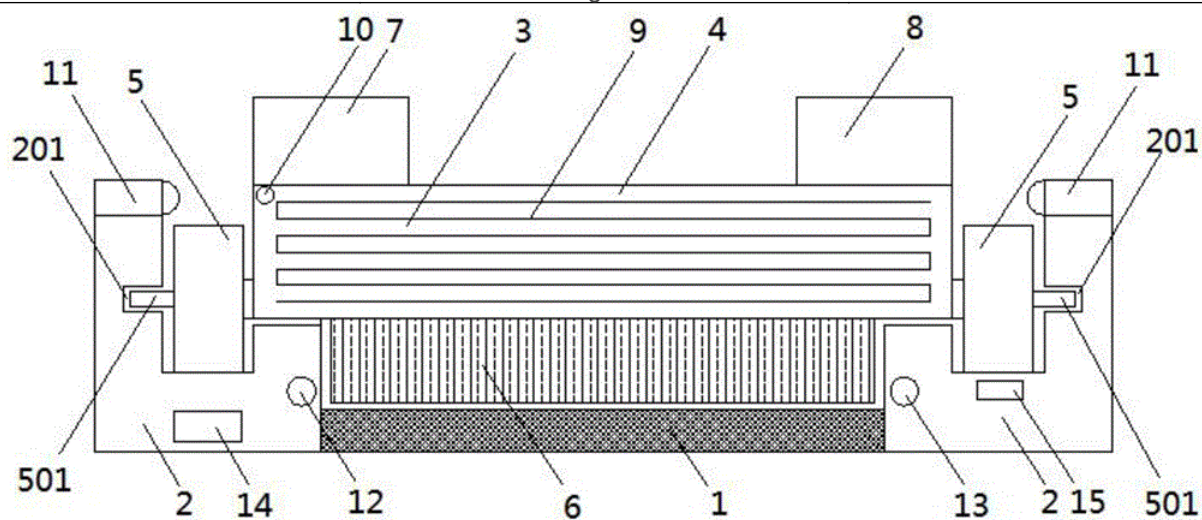
Family 12/77 - FAMPAT - ©Questel

Title

(CN205988911U)

Automatic cleaning device of solar cell panel

Images



Publication data including kind & date

CN205988911

U 2017-03-01 CN205988911U



Abstract

(CN205988911U)

The utility model relates to a solar cell panel cleans the field, concretely relates to automatic cleaning device of solar cell panel, comprises a solar cell pane, the track, clean dolly, clean dolly includes automobile body and gyro wheel, the automobile body is arranged in on the solar cell panel, the gyro wheel groove on the track is arranged in to the gyro wheel, the fixed cleaning bristle in below of automobile body, the bottom of automobile body is provided with the air outlet, be provided with hot wire in the automobile body, the hot wire electric connection temperature controller, article two, have manly to infrared intrusion detector on orbital top relative position, be provided with temperature and humidity sensor and well accuse ware on the track, both ends kou chu is provided with position sensor around orbital, well accuse ware is electrical connection the motor respectively, the fan, the resistance wire, infrared intrusion detector, a weighing sensor and a temperature sensor, humidity transducer and position sensor, this device keeps solar cell panel's cleanness to guarantee that work efficiency is not influenced, realize automatic cleaning simultaneously, saved manpower and time to can in time clean the foreign matter.

Inventors

SHAO QI

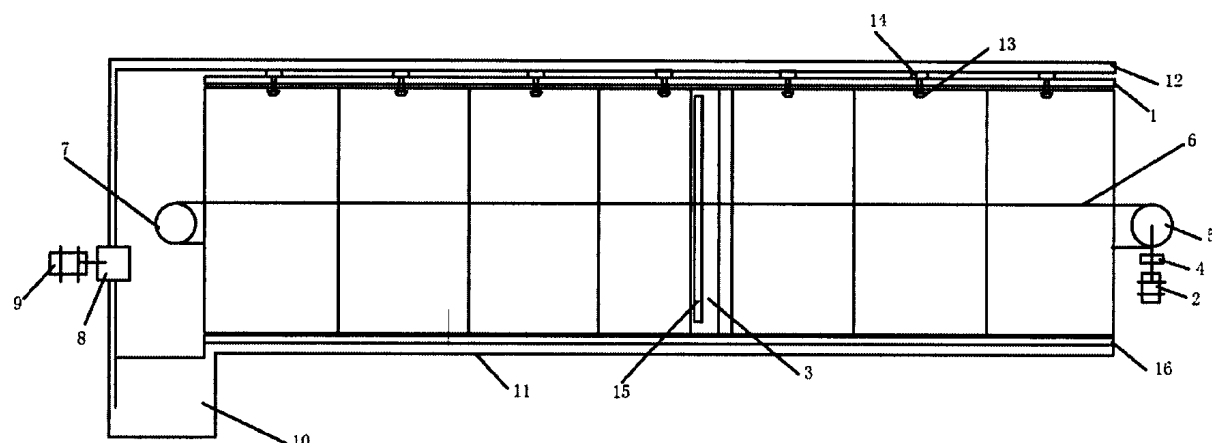
Family 13/77 - FAMPAT - ©Questel

Title

(CN202555569U)

Automatic cleaning system of solar cell panel

Images



Publication data including kind & date

CN202555569

U 2012-11-28 CN202555569U



Abstract

(CN202555569U)

The utility model relates to an automatic cleaning system, in particular to an automatic cleaning system of a solar cell panel. The automatic cleaning system of the solar cell panel comprises a mechanical mechanism and a control system; the mechanical mechanism comprises tracks, a wiping plate, a driving motor, a gear box, a driving winding drum, a drag rope, a pulley, a water pump, a water pump motor, a water tank, a water channel, a water pipe, sprinkler heads, electromagnetic valves and a heat blower; the control system comprises a control panel, PLCs (programmable logic controllers), relays, an encoder, a low-voltage switch power supply and a motor power supply; the driving motor is driven to rotate clockwise and anticlockwise by the control system, so that the wiping plate is driven by the drag rope to move left and right; the driving motor runs in the rotational direction at the rotational speed according to setting of the control panel; the second relay controls start and stop of the water pump motor, and the water pump motor drives the water pump to deliver water into the water pipe; the PLCs control opening and closing of the electromagnetic valves, and the sprinkler heads spray the water to the solar cell panel when the electromagnetic valves are opened, so that the solar cell panel is washed; and the sprinkler heads stop spraying the water when the electromagnetic valves are closed.

Inventors

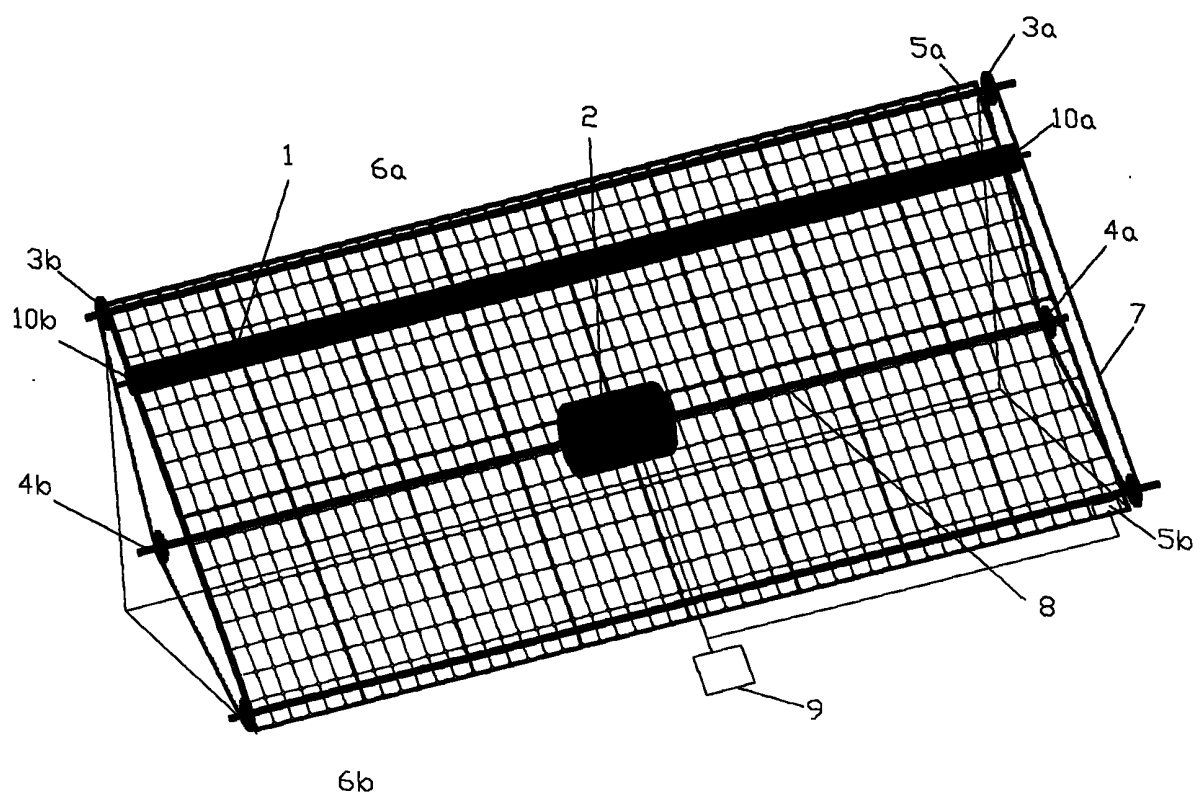
YAN KAIFENG

Family 14/77 - FAMPAT - ©Questel

Title

(CN201815506U)

Large-range cleaning device of solar cell panel

Images**Publication data including kind & date**[CN201815506](#)

U

2011-05-04

CN201815506U

**Abstract**

(CN201815506U)

The utility model relates to a large-range cleaning device of a solar cell panel, and can effectively solve the problem that the dirt on the surface of the solar cell panel is periodically cleaned to ensure the use effect of the solar cell panel. The technical scheme is as follows: the large-range cleaning device of the solar cell panel comprises a motor, a controller, two fixed driving rods and gears; rotary gears are arranged at the two ends of each of the two fixed driving rods that are

arranged in parallel; tension rotary gears are arranged at the two ends of the shaft of the motor; rotating belts are arranged on the rotary gears and the tension rotary gears; two rotary cleaning gears are arranged on the rotating belts that are positioned on the rotary gears at the two ends of the fixed driving rods; the rotary cleaning gears are mounted on rotary cleaning rods; travel control switches are arranged on the inner side of the two fixed driving rods respectively; and the travel control switches are connected with the motor and the controller. The large-range cleaning device has a simple structure, is convenient for installation and use, has low cost and long service life, is effectively used to clean the solar cell panel, and ensures the use effect of the solar cell panel.

Inventors

ZHENG XIANGSHUN

FENG ZHENXIN

WANG TAO

Latest standardized assignees - inventors removed

JING CHENG TECHNOLOGY

Family 15/77 - FAMPAT - ©Questel

Title

(CN101859152)

Solar-cell panel sun tracking system and control method thereof

Publication data including kind & date[CN101859152](#) A 2010-10-13 CN101859152**Abstract**

(CN101859152)

The invention discloses a solar-cell panel sun tracking system automatically updating sunlight light direction and a control method thereof. The sun tracking system comprises a solar-cell panel, a master control circuit board, a transmission mechanism and a U-shaped support, wherein, an illumination intensity collection cube is arranged on the solar-cell panel; and the circuit board is provided with a singlechip module circuit, an optocoupler isolation circuit and a motor drive circuit, and the transmission mechanism and the U-shaped support are respectively provided with a horizontal motor and an elevation motor. The control method of the solar-cell panel sun tracking system comprises the following steps: initializing process, collecting voltage process of each face of the cube, and calculating to acquire angle-adjusted parameter process according to the acquired data; and adjusting a two-dimensional stepping motor until the orientation angle achieves the best position process. The system can accurately locate the angle of the sun, is not completely limited by terrain, has strong self-adaptability, has more obvious effects proved by tests, and provides a new application platform for popularizing solar clean energy.

Inventors

LIU SHENG

NING AIHUA

YANG XIANZE

Zhongxing Can

Latest standardized assignees - inventors removed

SOUTHWEST UNIVERSITY FOR NATIONALITIES

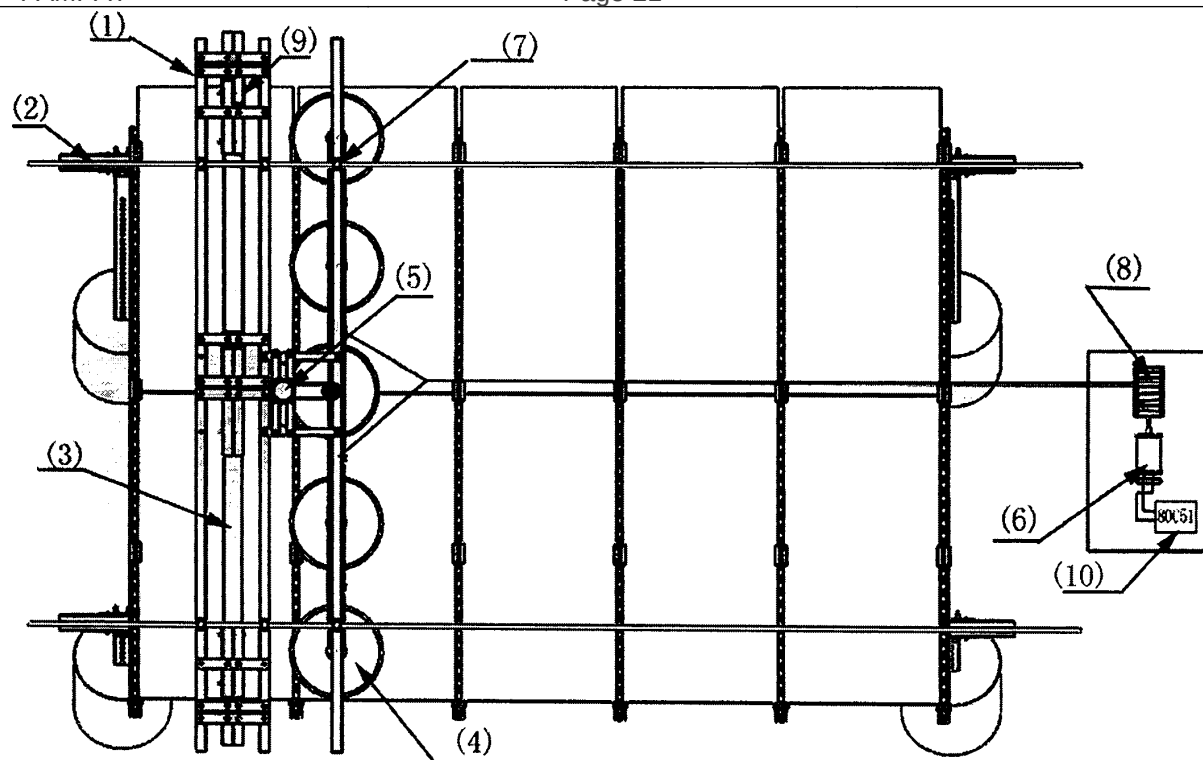
Family 16/77 - FAMPAT - ©Questel

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

QINGHUA UNIVERSITY

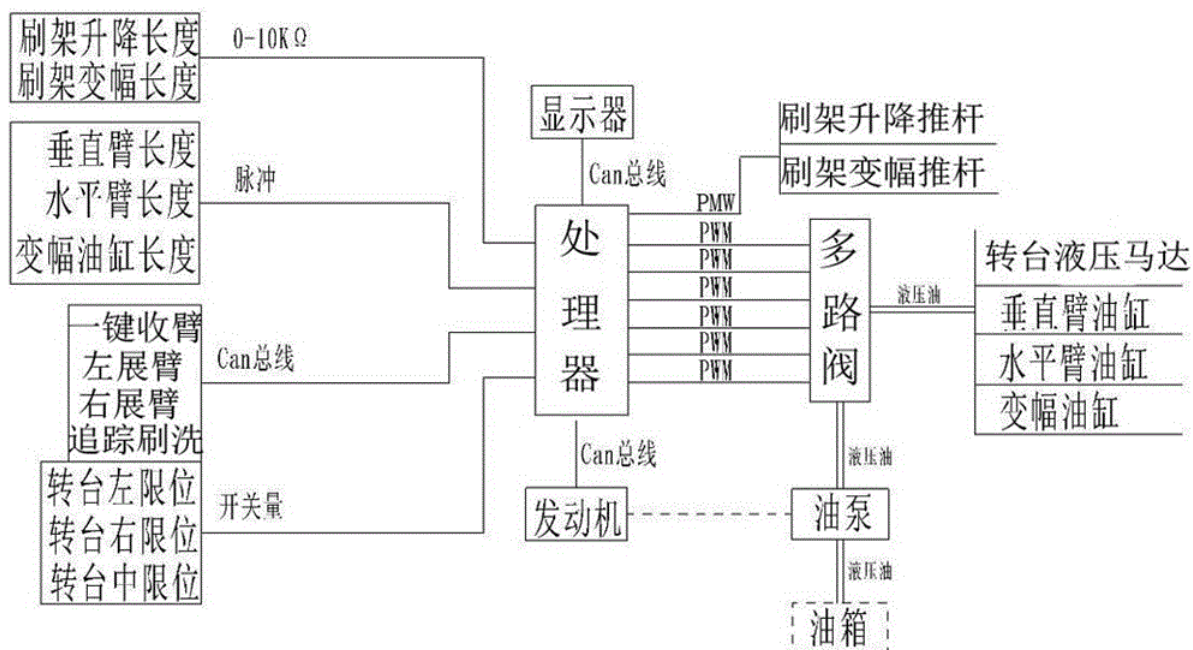
Family 17/77 - FAMPAT - ©Questel

Title

(CN106502279)

Brush carrier adaptive tracking system and method of solar panel cleaning device

Images



Publication data including kind & date

CN106502279

A

2017-03-15

CN106502279



Abstract

(CN106502279)

The present invention provides a brush carrier adaptive tracking system and method of a solar panel cleaning device. The system comprises a control device, a processor, an execution device and a data collection device installed on a mechanical arm. The control device and the data collection device are electrically connected with the signal input end of the processor, the signal output end of the processor is electrically connected with the execution device, and the mechanical arm includes a vertical arm, a horizontal arm, a brush carrier lifting mechanism and a brush carrier. The brush carrier adaptive tracking system and method of the solar panel cleaning device improves the traditional solar panel cleaning device to allow the solar energy cleaning device to be accurately located so as to rapidly automatically track and clean the solar panel, improve the optical energy conversion efficiency of the solar panel, reduce the work time, improve the cleaning quality and avoid the damaging of the solar panel.

Inventors

SHEN LIUXUN

SHENG MINGZHEN

YIN TENGFEI

XU HONGFEI

ZHENG CHAO

HU MINGZHI

WANG QIAN

DONG SHUJIE

YANG HAOYU

SHEN ZILONG

Latest standardized assignees - inventors removed

HENAN SENYUAN HEAVY INDUSTRY

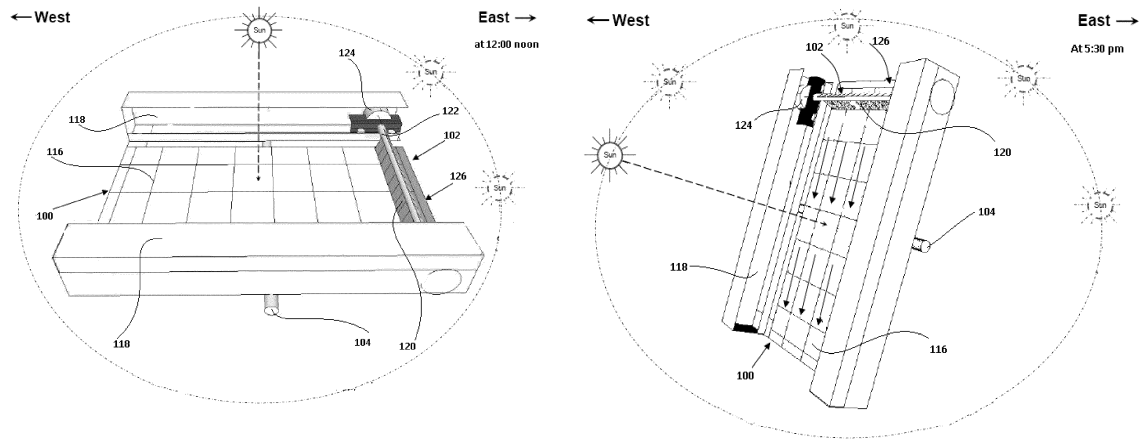
Family 18/77 - FAMPAT - ©Questel

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

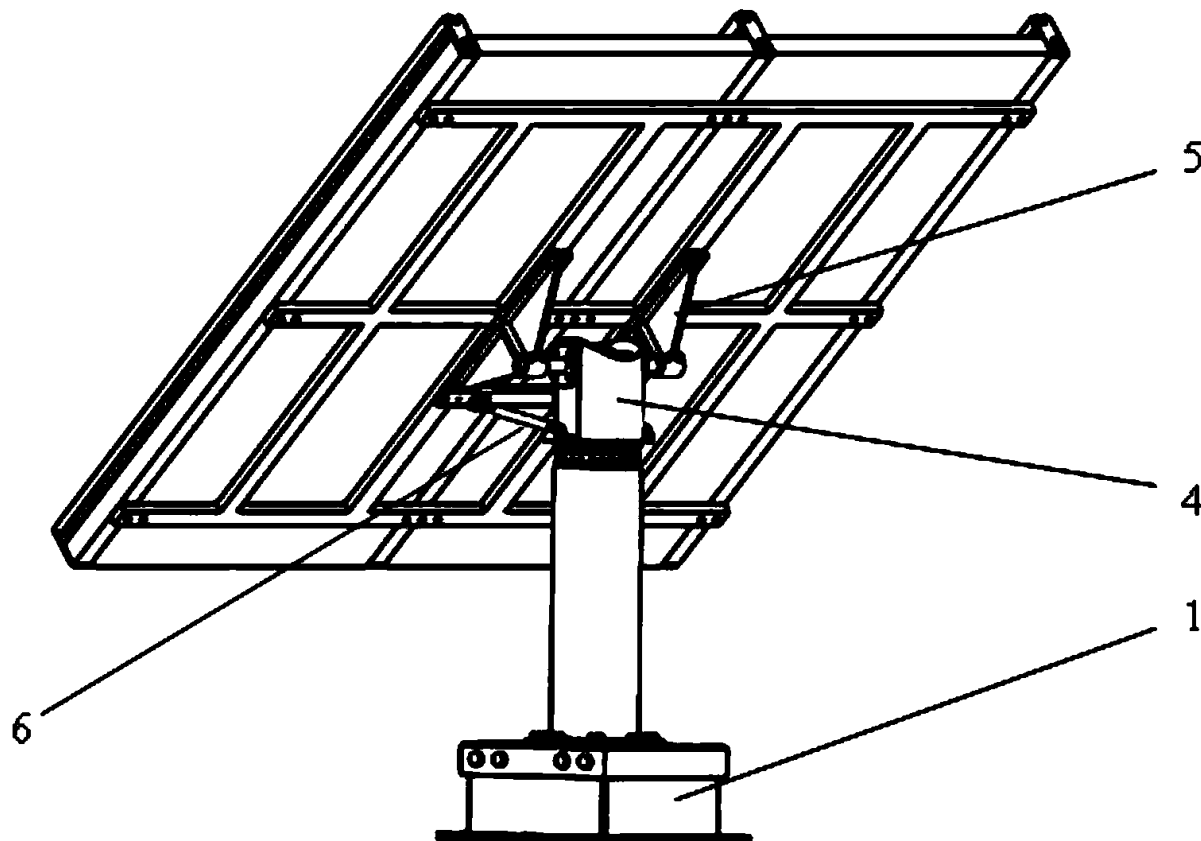
Family 19/77 - FAMPAT - ©Questel

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

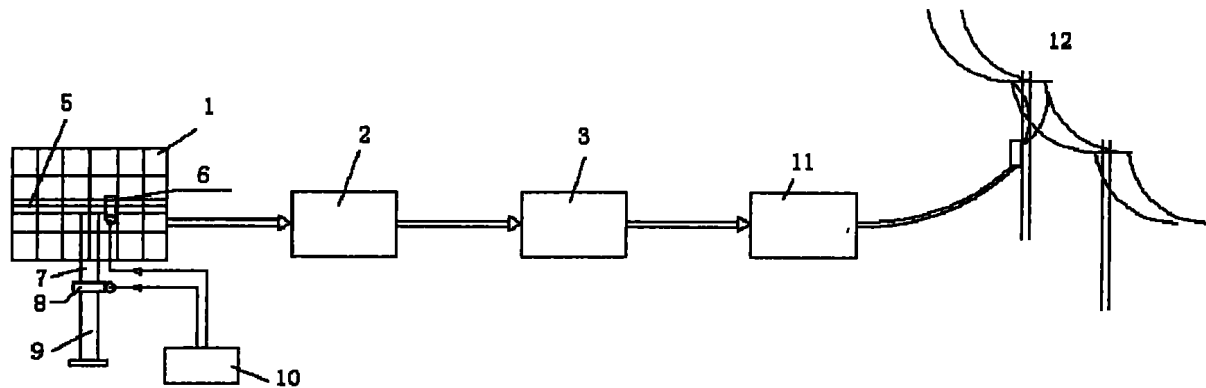
GUILIN UNIVERSITY OF ELECTRONIC TECHNOLOGY

Family 20/77 - FAMPAT - ©Questel

Title

(CN102244481)

Solar orientation biaxial fully-automatic tracking control power generation equipment

Images**Publication data including kind & date**

CN102244481

A

2011-11-16

CN102244481

**Abstract**

(CN102244481)

The invention discloses solar orientation biaxial fully-automatic tracking control power generation equipment, which comprises a solar cell array. The output end of the solar cell array is connected with the input end of an inversion control unit of which the output end is connected with the input end of an inverter. The output end of the inverter is connected with a load. The equipment is characterized in that: the solar cell array is arranged on a horizontal axis by a pitching rotating device. The horizontal axis is connected with a vertical axis which is connected with a rack by a horizontal rotating device. The pitching rotating device and a horizontal rotating device are both connected with a control unit. The equipment has the advantages of fully utilizing purely natural solar resources, comprehensively adopting green technologies and adaptively rotating the solar cell array according to a global positioning system (GPS) and light intensity to improve power generation efficiency, along with a simple structure, small volume, light weight, running and maintenance simplicity, cleanness, safety, noiselessness, high reliability, long service life and power supply reliability.

Inventors

NI KAILU

YUAN DING

TU XIAOMIN

DING JINLONG

Latest standardized assignees - inventors removed

SHANGHAI SOLAR ENERGY TECHNOLOGY

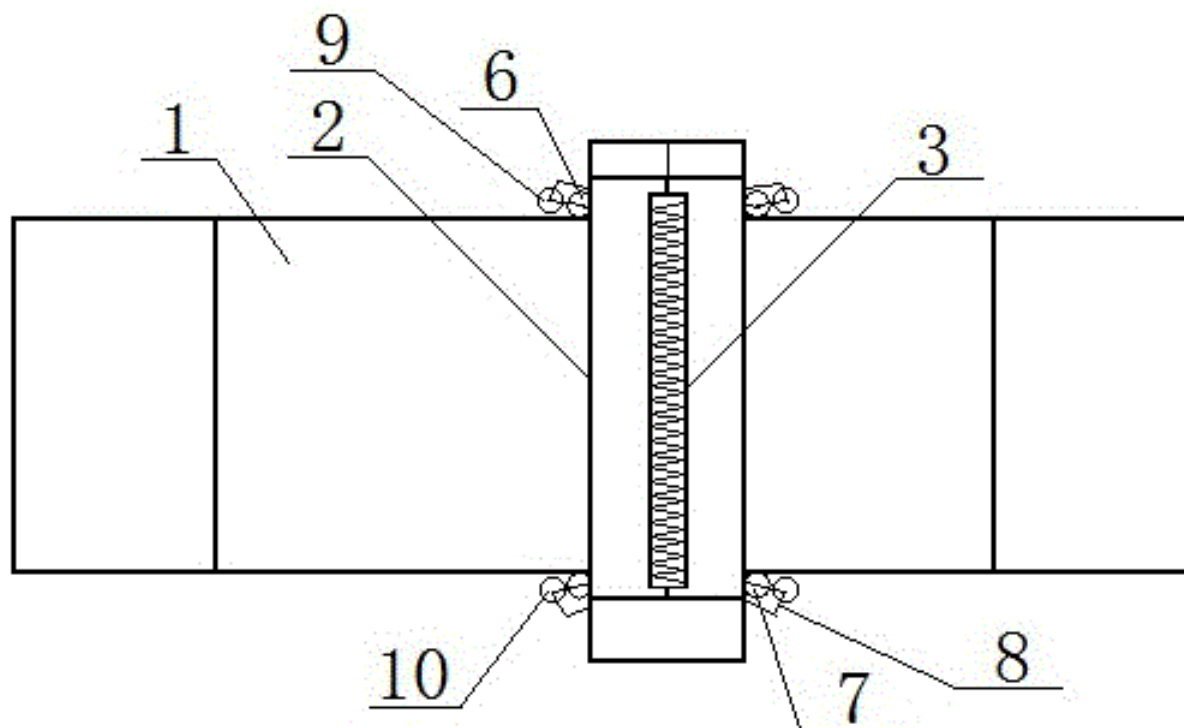
Family 21/77 - FAMPAT - ©Questel

Title

(CN205647402U)

Automatic cleaning system of solar cell panel

Images

**Publication data including kind & date**

CN205647402

U

2016-10-12

CN205647402U

**Abstract**

(CN205647402U)

The utility model relates to an automatic cleaning system of solar cell panel, including solar cell panel, the dolly is cleaned to last being equipped with of solar cell panel, installs sweeping brush on cleaning the dolly, and as an organic wholeization of sweeping brush is made, cleans the dolly bottom and installs the heavy burden wheelset, cleans dolly bottom top and is equipped with the power transmission case, and power transmission bottom of the case portion installs initiative drive wheel set, cleans dolly bottom below and installs driven drive wheel set, and initiative drive wheel set, driven drive wheel set and heavy burden wheelset exterior division do not are equipped with the track. The beneficial effects of the utility model are that: the brush of integration cleans totally, having the great clearance or the discrepancy in elevation or both between the solar cell panel all under the condition of having, can effectively clean equally, can also realize that the backstage shows, the control of centralized control room, realize that solar cell panel motor sweeper position shows functions such as malfunction alerting, remote start up, long -range parking and warning.

Inventors

DONG GUOWEI

ZHAO JIANING

LIU CHAO

ZHANG QINGGUO

Latest standardized assignees - inventors removed

SHANDONG HAOWO ELECTRIC

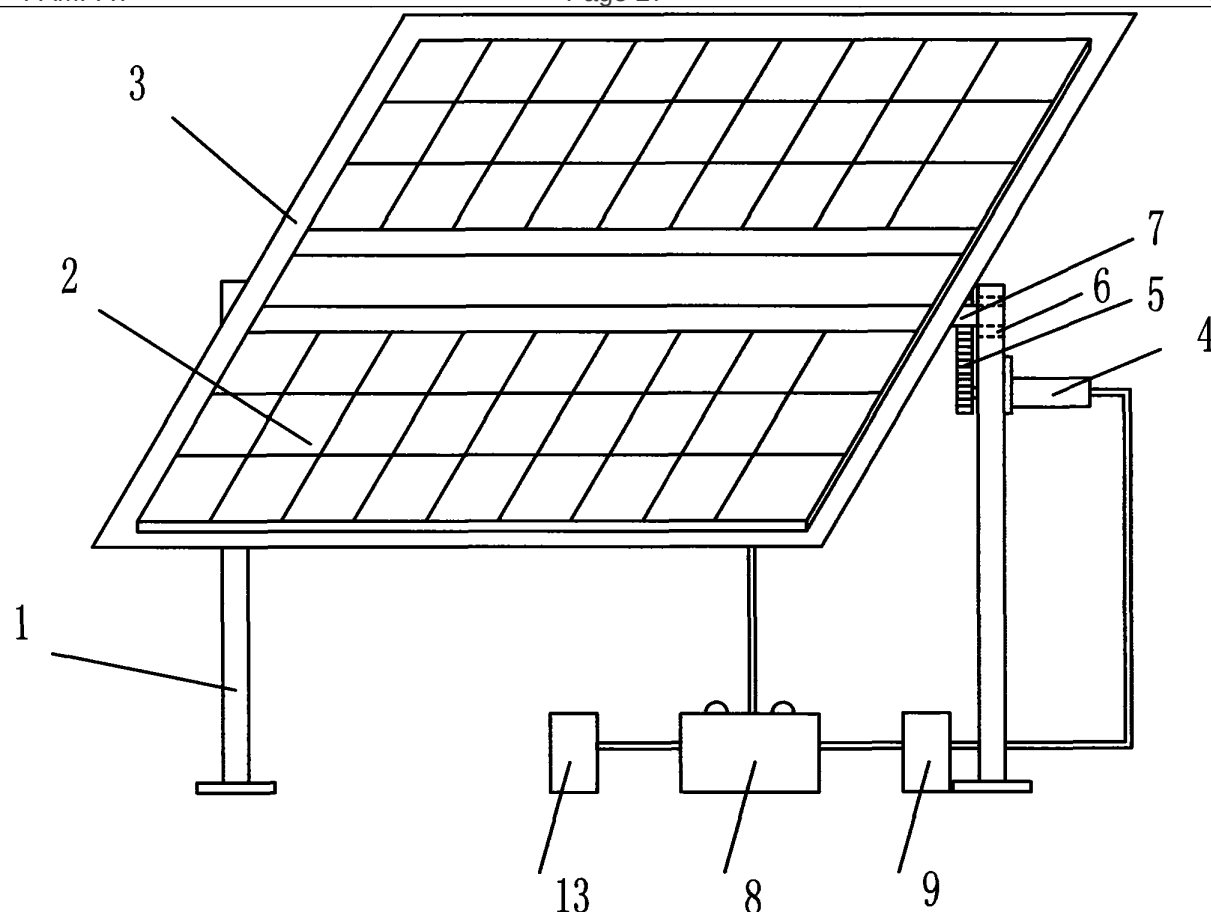
Family 22/77 - FAMPAT - ©Questel

Title

(CN201846283U)

Synchronous solar photovoltaic tracking generating device

Images

**Publication data including kind & date**

CN201846283

U

2011-05-25

CN201846283U

**Abstract**

(CN201846283U)

The utility model discloses a synchronous solar photovoltaic tracking generating device which mainly comprises a solar panel fixing frame, an upright post, and a rotating rod fixedly connected with the solar panel fixing frame, wherein the solar panel fixing frame is used for fixing a solar panel; a rotating ring sleeve is fixed at the top of the upright post; and the rotating rod is rotationally arranged inside the rotating ring sleeve in a jacketing manner. The device further comprises a group of solar panel time control rotating mechanisms, a time control switch of a gear change direct current motor, a storage battery connected with the solar panel and the time control switch, and a load; each group of solar panel time control rotating mechanism comprises a group of rotating gears driven by the gear change direct current motor; and one of the gears is fixedly connected with the rotating rod. The generating device further optimizes the mode of the solar panel tracking the direction of the sun, has the outstanding advantages of simpler structure, easiness for manufacture, convenience of use, reasonable price, economy, practicability, environment-friendliness, cleanness, and firmer performance, and can absorb light energy to benefit people.

Inventors

HUANG JINJING

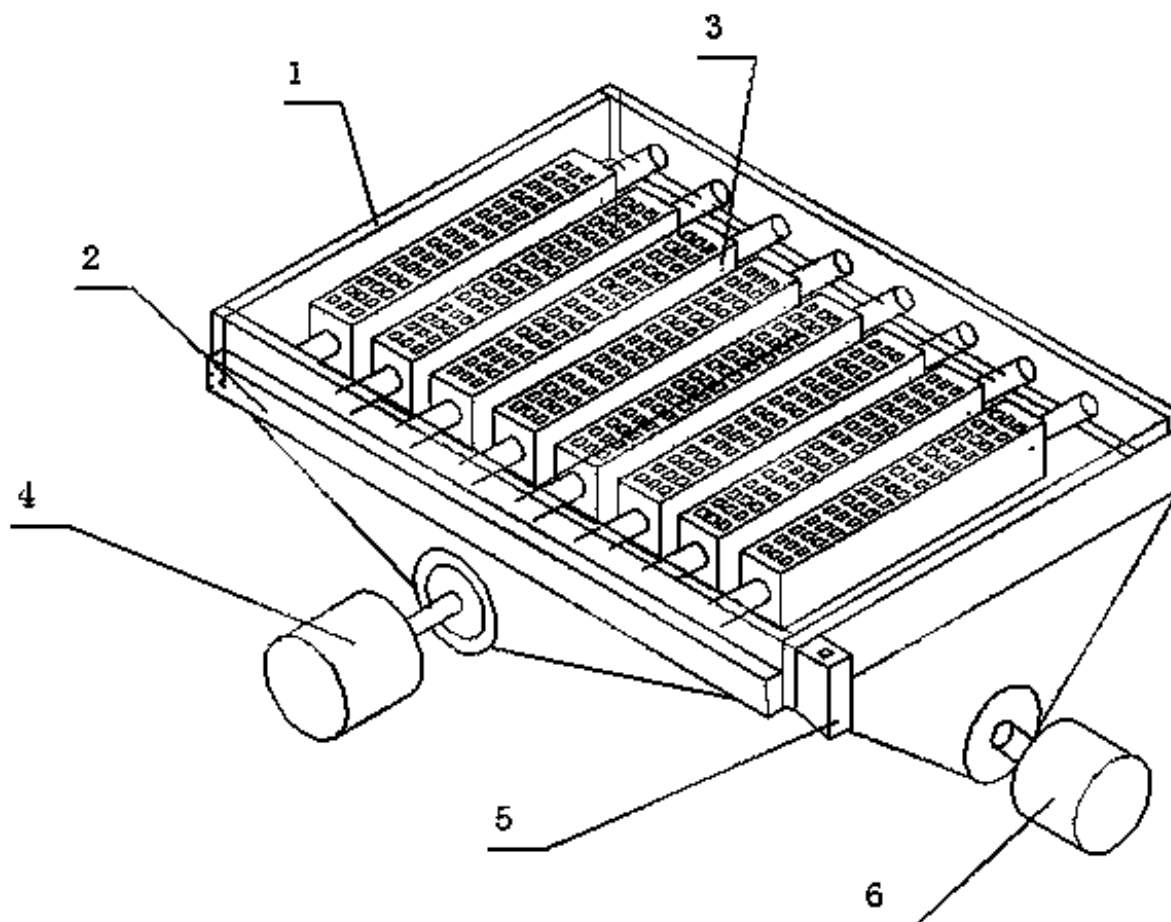
Family 23/77 - FAMPAT - ©Questel

Title

(CN205142102U)

Tracking formula solar panel

Images

**Publication data including kind & date**[CN205142102](#)

U

2016-04-06

CN205142102U

**Abstract**

(CN205142102U)

The utility model relates to a tracking formula solar panel, including mount, photovoltaic module, incident optical detector, slewing mechanism, controller, belt cleaning device, can be through rotating the mount, thereby adjust the angle that this solar panel received solar energy, thereby messenger solar panel can more effectual receipt solar energy, realize right high-efficient utilization of solar energy, furthermore, the solar wafer's through multiple difference different effects still, the realization is to effective utilization of different illumination intensity's solar energy, thereby it rates and the conversion rate to improve the use of solar energy, the facility has been brought for the life, the service life of solar wafer is prolonged to transversely rotate the motor and vertically rotate the motor and separately adjust and adjust stage by stage, reduce the malfunction, and then alleviate PLC's controlled pressure, can realize the accurate control, rotation that can sunshine and automatically regulated, and then realization accurate control, the stability of solar panel is improved.

Inventors

XIAO YONG

Latest standardized assignees - inventors removed

CHENGDU JIUSHIDU INDUSTRIAL PRODUCT DESIGN

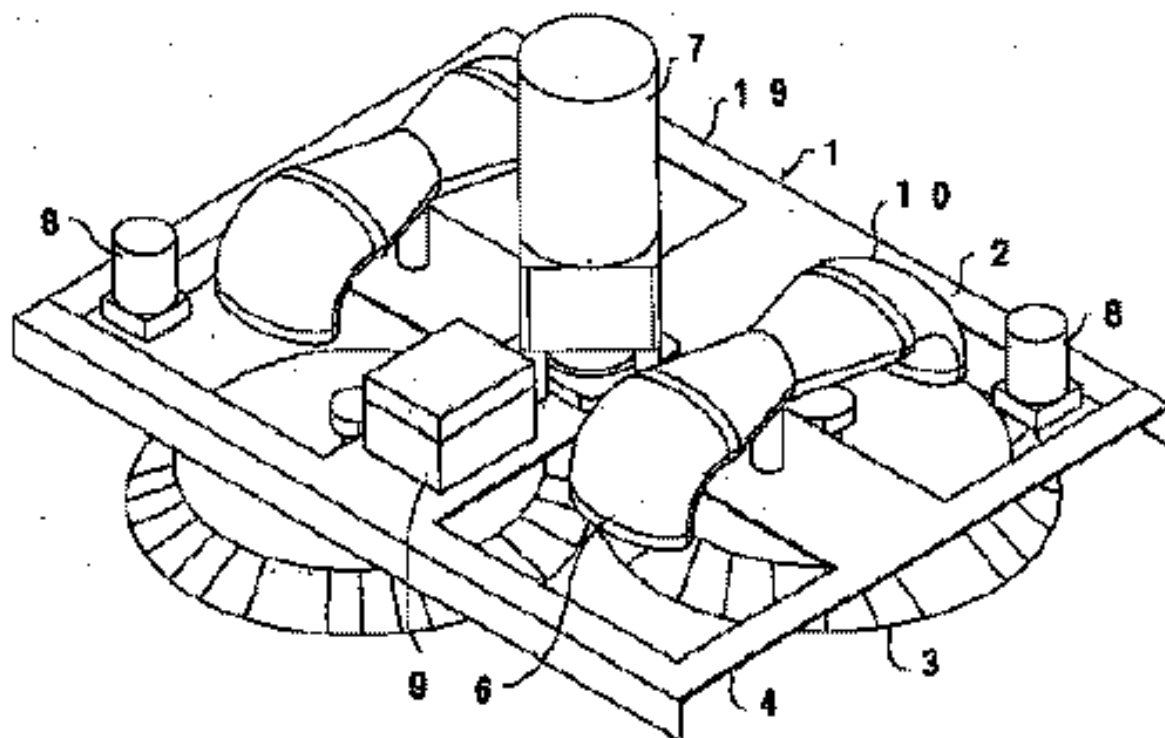
Family 24/77 - FAMPAT - ©Questel

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

Publication data including kind & date

[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-unit 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

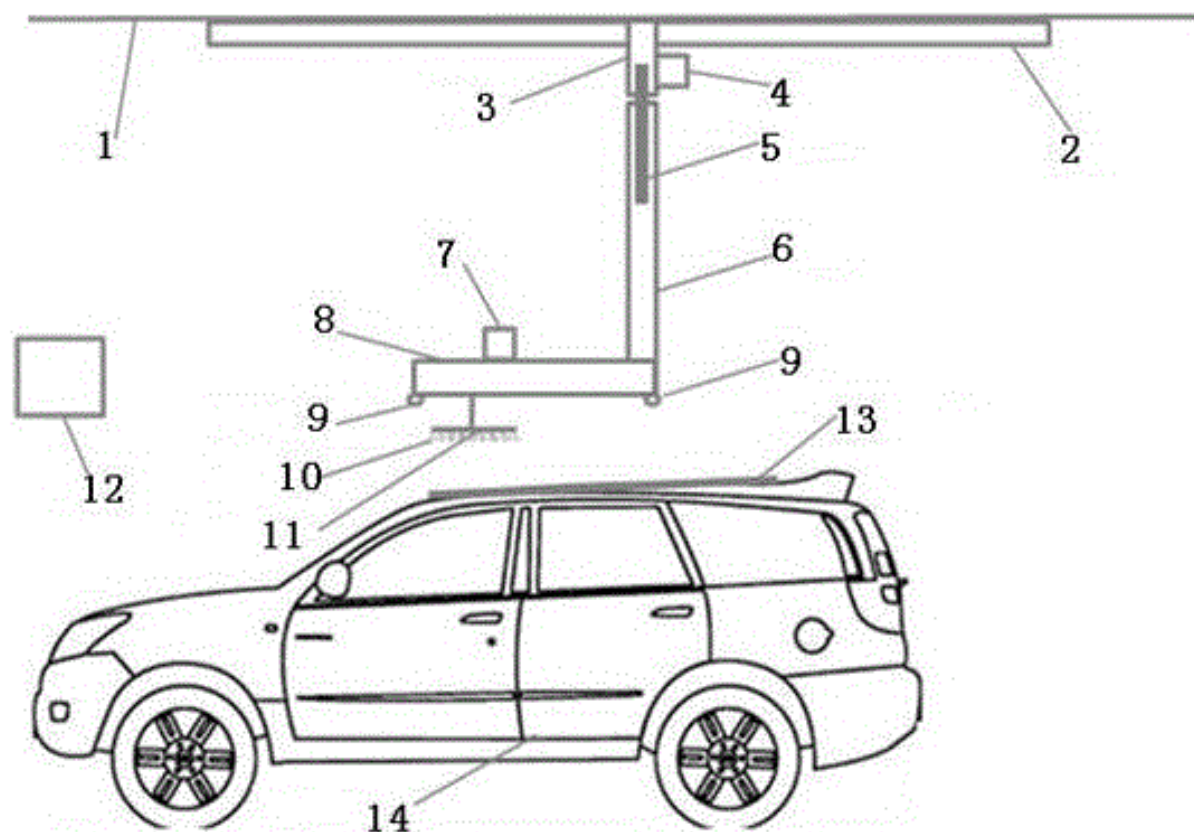
HINO JUSHI

Family 25/77 - FAMPAT - ©Questel

Title

(CN206186808U)

Solar energy new energy automobile's solar cell cleaning device

Images**Publication data including kind & date**[CN206186808](#)

U

2017-05-24

CN206186808U

**Abstract**

(CN206186808U)

The utility model provides a solar energy new energy automobile's solar cell cleaning device, is including fixing the track on the ceiling, be equipped with the slider on the track, be equipped with I motor on the slider, flexible I bracing piece of connected with rotary rod of slider lower extreme warp, I bracing piece lower extreme is equipped with II bracing pieces of I bracing piece of perpendicular to, is equipped with II motors on II bracing pieces, and II bracing piece downside both ends respectively are equipped with an inductor, and II bracing piece lower extremes still are equipped with the cleaning brush of taking the water utilities orifice, cleaning brush one side is equipped with the controller, and the cleaning brush setting is in top area solar cell's new energy automobile top. The utility model discloses can clean the solar module on the solar energy new energy automobile automatically according to the actual demand to guarantee solar module's cleanness, make it to be in the best operating condition always, have simple structure, convenient operation's characteristics.

Inventors

WANG HONGJIE

ZHOU ZHIHU

WEI XIAOTAO

Latest standardized assignees - inventors removed

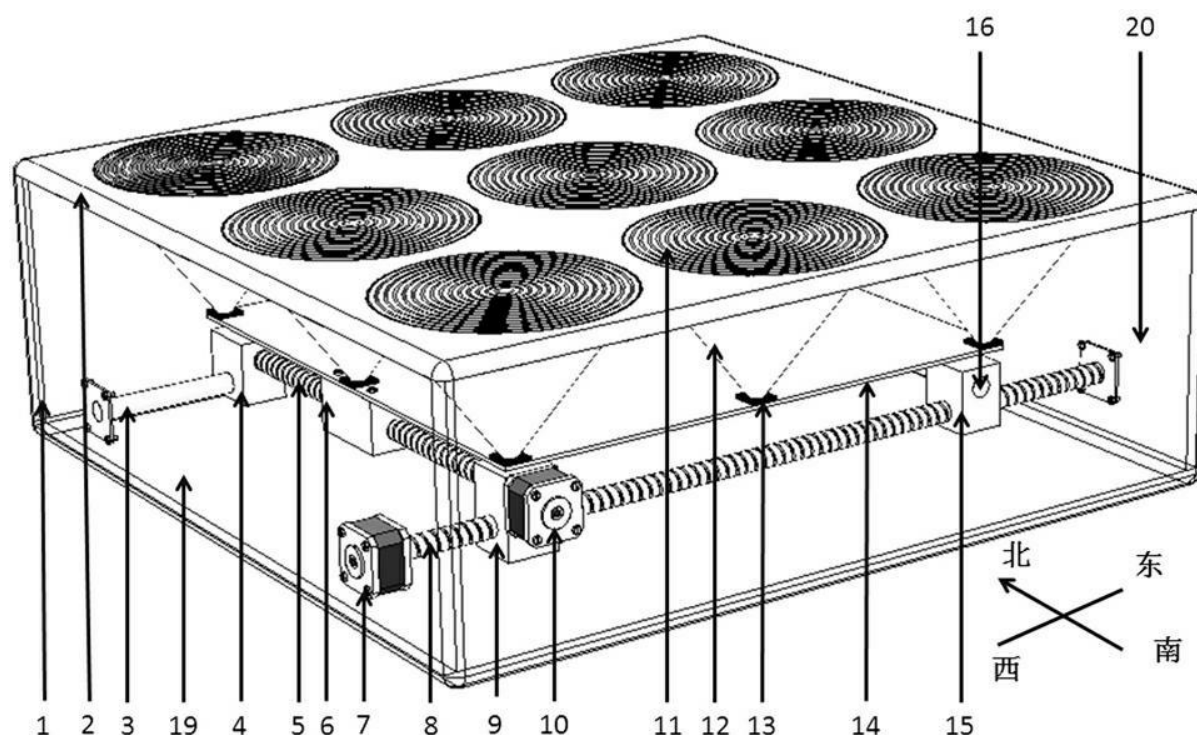
JIANGXI GONGQINGCHENG HANERGY FILM SOLAR ENERGY

Family 26/77 - FAMPAT - ©Questel

Title

(CN202160132U)

Automatic tracking focus type solar concentrated photovoltaic power generation system

Images**Publication data including kind & date**[CN202160132](#)

U

2012-03-07

CN202160132U

**Abstract**

(CN202160132U)

The utility model relates to an automatic tracking focus type solar concentrated photovoltaic power generation system which belongs to the concentrated photovoltaic (CPV) field, and mainly solves the bottlenecks of concentrated photovoltaic technology on precision, cooling and weather resistance in the prior art, to lower the power generation cost. The power generation system consists of five systems: first, for concentration and generation, a fixed condensing lens is used, and a stepper motor drives solar cells to track the concentration focus of sunlight; second, for tracking control, the computer time corrected by a time service system is used, the position of the concentration focus of sunlight at another time in the future is calculated according to the original positions, the module parameters, the directions and the positions of two sunlight concentration focuses which are measured manually at certain intervals, and a command is sent to the stepper motor before the time comes to drive the solar cells to move to the position; third, for cooling and heat generation, circulating liquid heat conducting medium is used for directly soaking the solar cells; fourth, a charging and discharging inverter stores operation power first and then transmits excess power to a power grid; and fifth, the automatic sprinkling and a wiper are adopted for the automatic cleaning.

Inventors

YOU ZHANGPENG

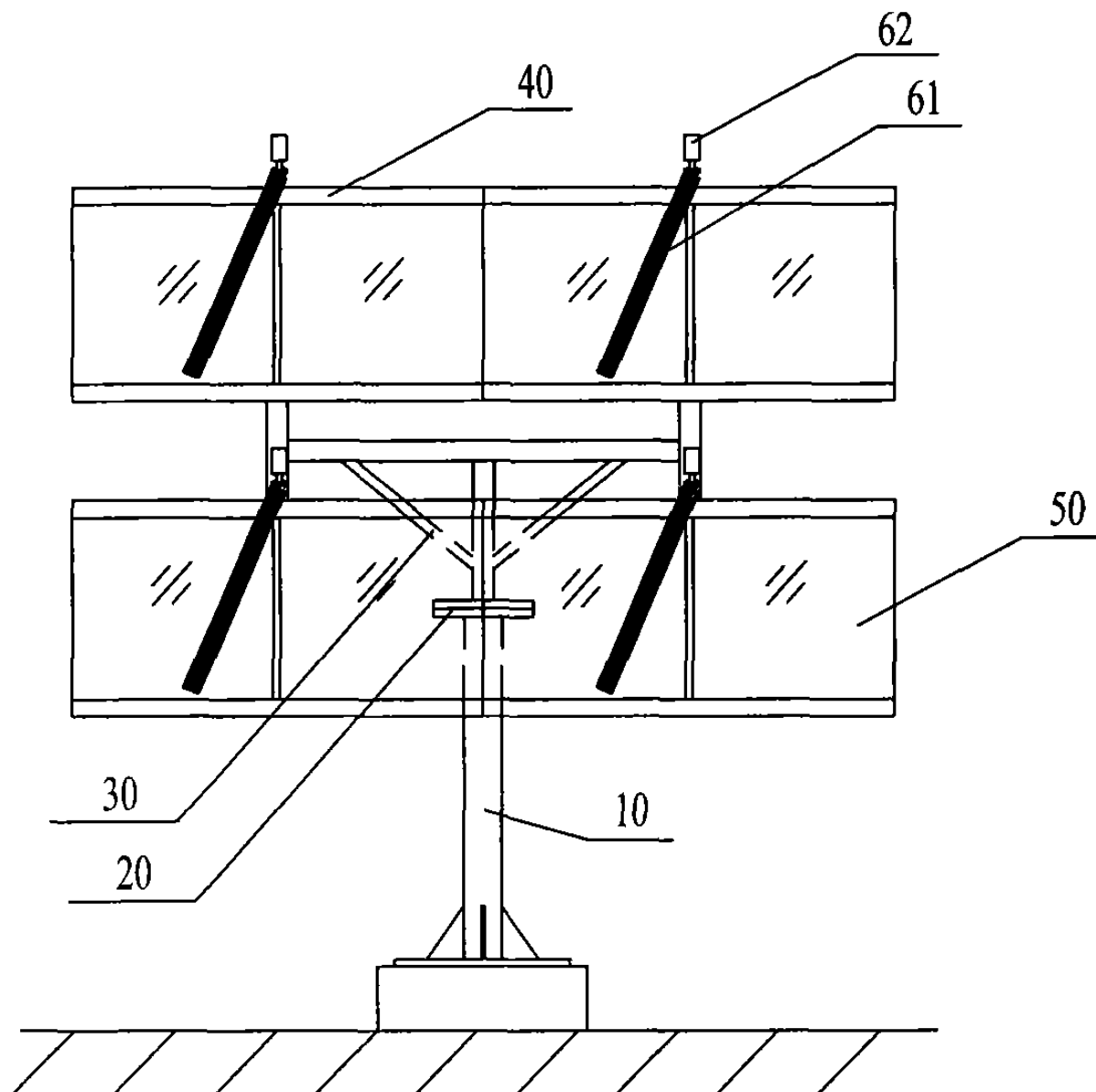
YOU LU

Family 27/77 - FAMPAT - ©Questel

Title

(CN201674423U)

Solar automatic tracking system

Images**Publication data including kind & date**

CN201674423

U

2010-12-15

CN201674423U

**Abstract**

(CN201674423U)

The utility model discloses a solar automatic tracking system, which comprises a support and a solar cell panel cleaning device. The support is mounted on a strut via a horizontal rotating device and connected with a solar cell panel bracket, the solar cell panel bracket is provided with a solar cell panel, the solar cell panel cleaning device consists of a scrapping brush, one end of the scrapping brush is connected with an output shaft of a scrapping brush driving motor, the scrapping surface of the scrapping brush contacts with the surface of the solar cell panel, the scrapping brush is used for being driven by the scrapping brush driving motor to clean the surface of the solar cell panel, and a signal input and output end of the scrapping brush driving motor is connected with a corresponding input and output end in a controlling system. The solar automatic tracking system can automatically track the sun and maximally absorb solar energy without being affected by diurnal change and overcast, rainy and cloudy weathers. The solar cell panel cleaning device can clean dirt on the solar cell panel and guarantee lighting efficiency of the same.

Inventors

MA RUIBIN
ZHAO MENG
LÜ JIAN
LI PEI

Latest standardized assignees - inventors removed

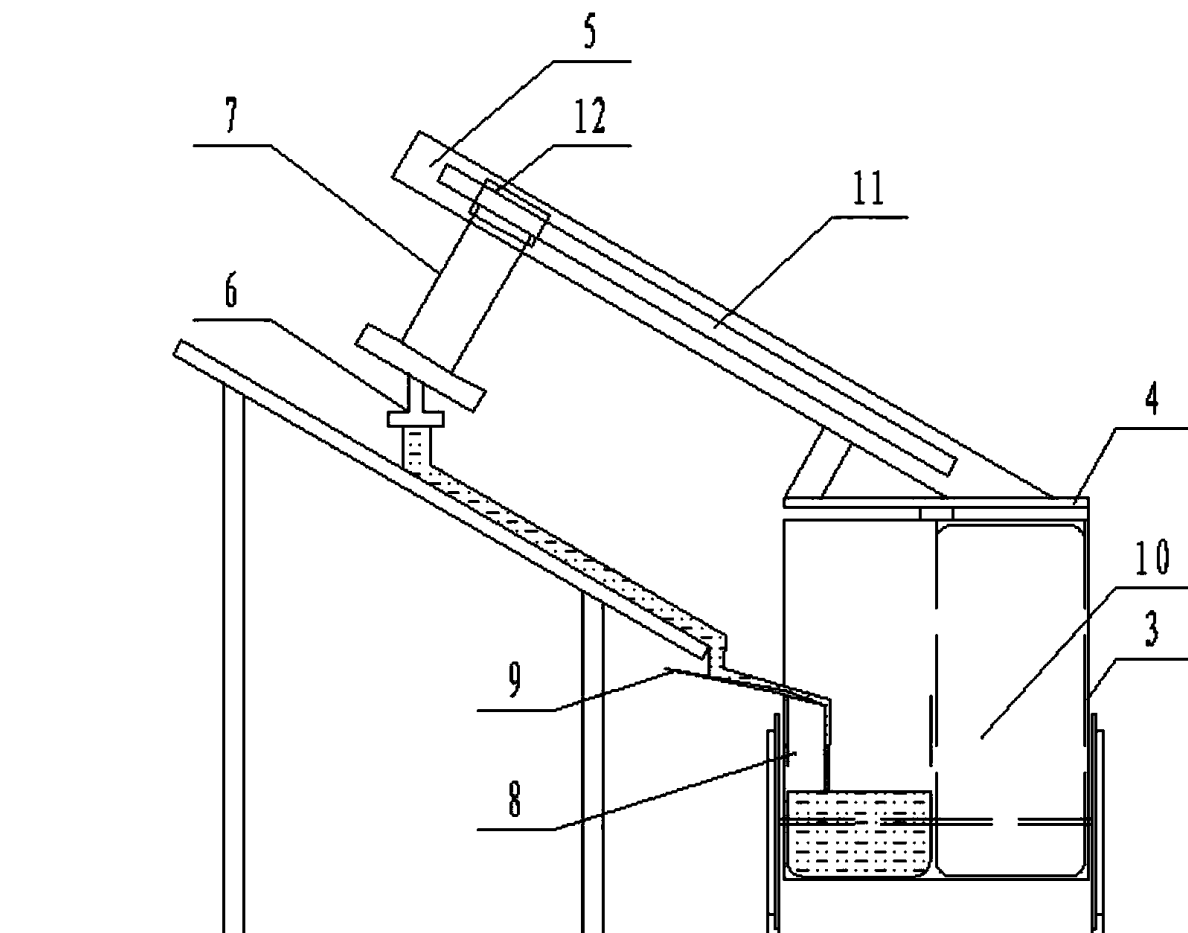
BEIJING XISHAN SHINKANSEN ENVIRONMENTAL PROTECTION EQUIPMENT

Family 28/77 - FAMPAT - ©Questel

Title

(CN204131458U)

Solar power generating panel cleaning vehicle with wastewater recycling device

Images**Publication data including kind & date**

[CN204131458](#)

U 2015-01-28 CN204131458U

**Abstract**

(CN204131458U)

The utility model relates to the field of energy, specifically relates to a solar power generating panel cleaning vehicle with a wastewater recycling device. The device comprises a track pre-paved by the side of solar power generating panels, a track cleaning vehicle and a rinsing unit, wherein the rinsing unit is mounted on the track cleaning vehicle, and the track cleaning vehicle is self-driven type and drives along the track. According to the solar power generating panel cleaning vehicle, the rinsing unit is mounted on the track cleaning vehicle, the track cleaning vehicle comprises camera shooting, foam spraying, water spraying, wiping and wind blowing stations, the rinsing conditions are monitored in real time through a camera, and the unqualified rinsed area can be rinsed repeatedly till being qualified; the solar power generating panels are rinsed by adopting the pre-paved track and the track cleaning vehicle, the entire process is automatic without any manual operation, and the expenditure on wages of workers is saved; and the waste water after rinsing flows into a waste water tank through

waste water guiding grooves, the waste water in the waste water tank flows back to a clean water tank after flowing through a filtering plate, the recycling and reusing of waste water are realized, and resources are saved.

Inventors

JIANG JIANDONG

ZHAO YINGDI

Latest standardized assignees - inventors removed

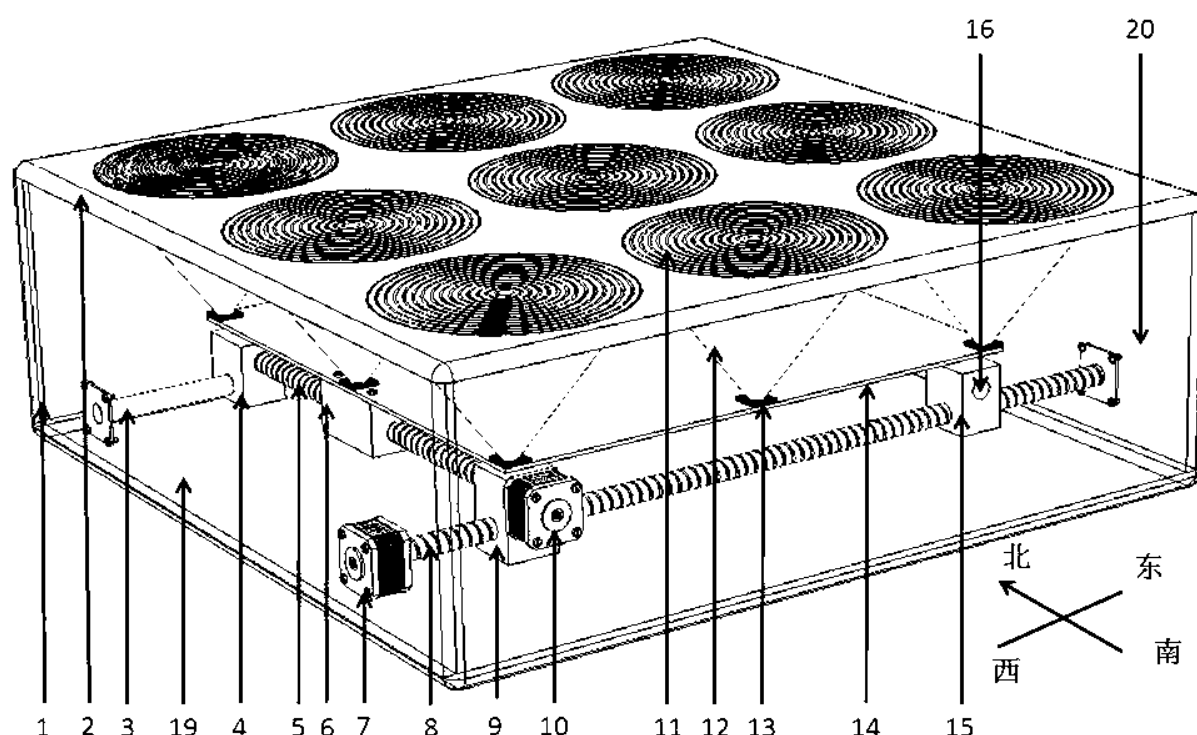
ZHEJIANG UNIVERSITY OF TECHNOLOGY

Family 29/77 - FAMPAT - ©Questel

Title

(CN102931880)

Automatic focus tracking type solar concentrating photovoltaic power generation system

Images**Publication data including kind & date**[CN102931880](#)

A 2013-02-13 CN102931880

**Abstract**

(CN102931880)

The invention discloses an automatic focus tracking type solar concentrating photovoltaic power generation system, and belongs to the field of concentrating photovoltaics (CPV). The problems of accuracy, cooling and weather resistance bottlenecks of the conventional CPV are mainly solved, and power generation cost is lowered. The system consists of five systems: (A), for concentrating power generation, condensing mirrors are fixed, and solar cells are driven by a stepper motor to track sunlight converging focuses; (B), for control tracking, computer time is corrected by a timing system, the position of a sunlight converging focus at another coming moment is calculated according to the original positions, module parameters, directions and positions of two sunlight converging focuses, which are manually measured at a certain time interval, and an instruction is transmitted to the stepper motor to drive the solar cells to move to the position at the moment; (C), for cooling and heat production, the solar cells are directly impregnated by a circulating liquid heat conducting medium; (D), for charging and discharging inversion, running power is stored at first, and redundant power is transmitted to a power grid; and (E), for automatic cleaning, an automatic spraying and rain wiping mode is adopted.

Inventors

YOU ZHANGPENG

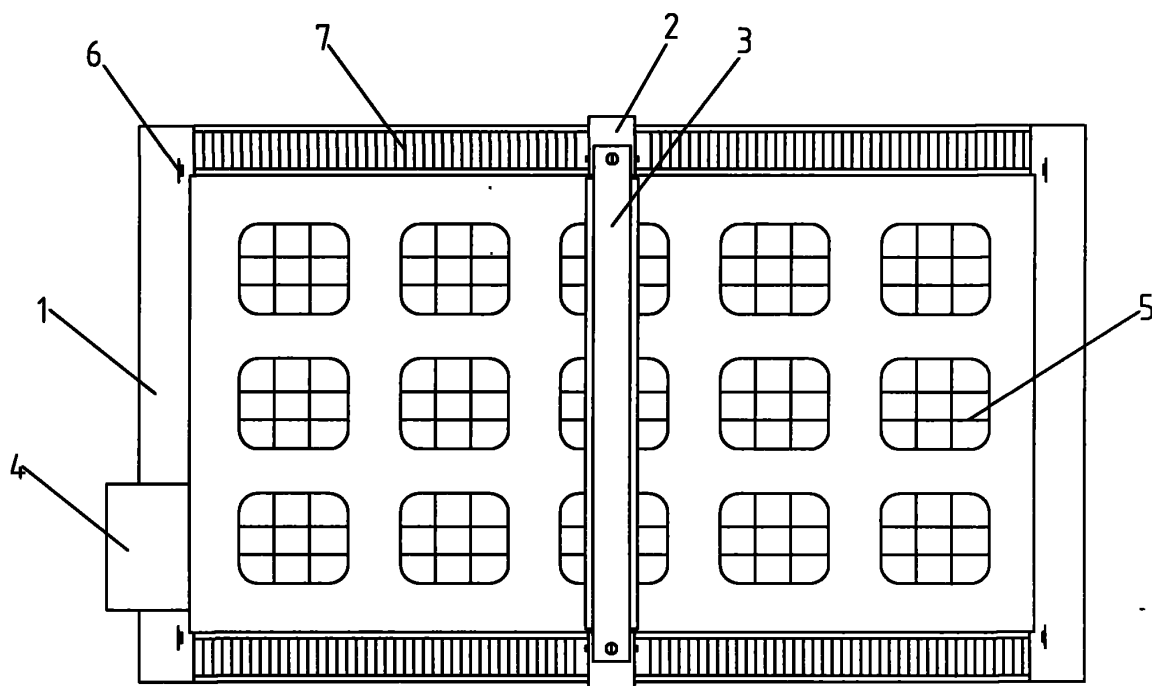
YOU LU

Family 30/77 - FAMPAT - ©Questel

Title

(CN201728195U)

Automatic dust removing device of solar panel

Images**Publication data including kind & date**

[CN201728195](#)

U 2011-02-02 CN201728195U

**Abstract**

(CN201728195U)

The utility model relates to an automatic dust removing device of a solar panel, which can effectively solve the problems of regularly cleaning dirt on the surface of the solar panel and ensuring the use effect of the solar panel; the technical scheme is as follows: the device comprises a fixing support, linear motors and a dust scraping device; the solar panel is arranged in the fixing support; the dust scraping device is arranged on the upper surface of the solar panel; both ends of the dust scraping device are arranged on the symmetric linear motors; the linear motors are arranged on parallel magnetic tracks on both sides of the fixing support; both ends of the parallel magnetic tracks are provided with limit sensors on the fixing support; the limit sensors and the linear motors are connected with a controller on one end of the fixing support; and the automatic dust removing device of the solar panel has simple structure, is convenient to install and use, can automatically operate through the control of the controller, remove the dust, frost or snow accumulated on the surface of the solar panel, keep the absorption surface of the solar panel clean, save manpower and improve the working environment of the solar panel.

Inventors

CHEN ZEYA

ZHENG XIANGSHUN

YAN HONGTAO

Latest standardized assignees - inventors removed

JING CHENG TECHNOLOGY

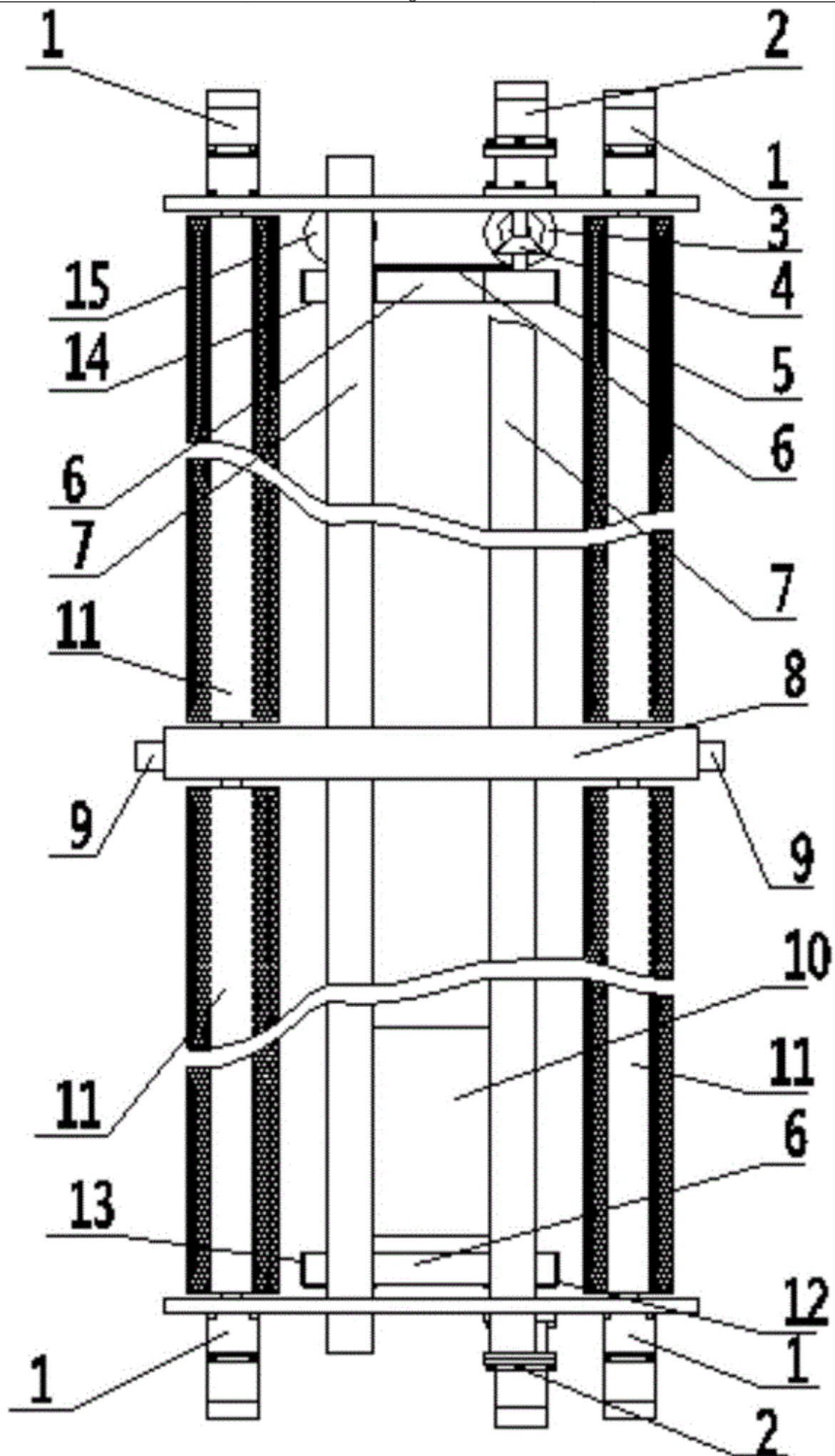
Family 31/77 - FAMPAT - ©Questel

Title

(CN205797845U)

Mechanical people of anhydrous cleanness of photovoltaic cell board

Images



Publication data including kind & date[CN205797845](#)

U 2016-12-14

CN205797845U

**Abstract**

(CN205797845U)

The utility model provides a mechanical people of anhydrous cleanness of photovoltaic cell board, it includes the support body, running gear, clean mechanism and control box, on the running gear branch, lower two parts, follow the walking on two sets of synchronous pulley edge photovoltaic cell board of last running gear by speed governing motor drive mutually perpendicular, running gear is by a set of synchronous pulley who is on a parallel with the battery face of speed governing motor drive along the panel down along walking down, it is rotated by four round brushes of sweeping motor drive to clean the mechanism, the realization is cleaned the reciprocal of photovoltaic cell board. The utility model has the advantages of light in weight, simple structure, reliable operation, convenient operation, can extensively be used for the automation of photovoltaic cell board to clean.

Inventors

JIA FENG

ZHENG GUOFU

WANG XIAOPENG

CHEN ZHIGANG

PAN DELONG

WANG MENGDI

CAI LIQI

LI PENG

LIU HANGXU

DAI CHUNFENG

Latest standardized assignees - inventors removed

JILIN JIANGJI SPECIAL INDUSTRIAL

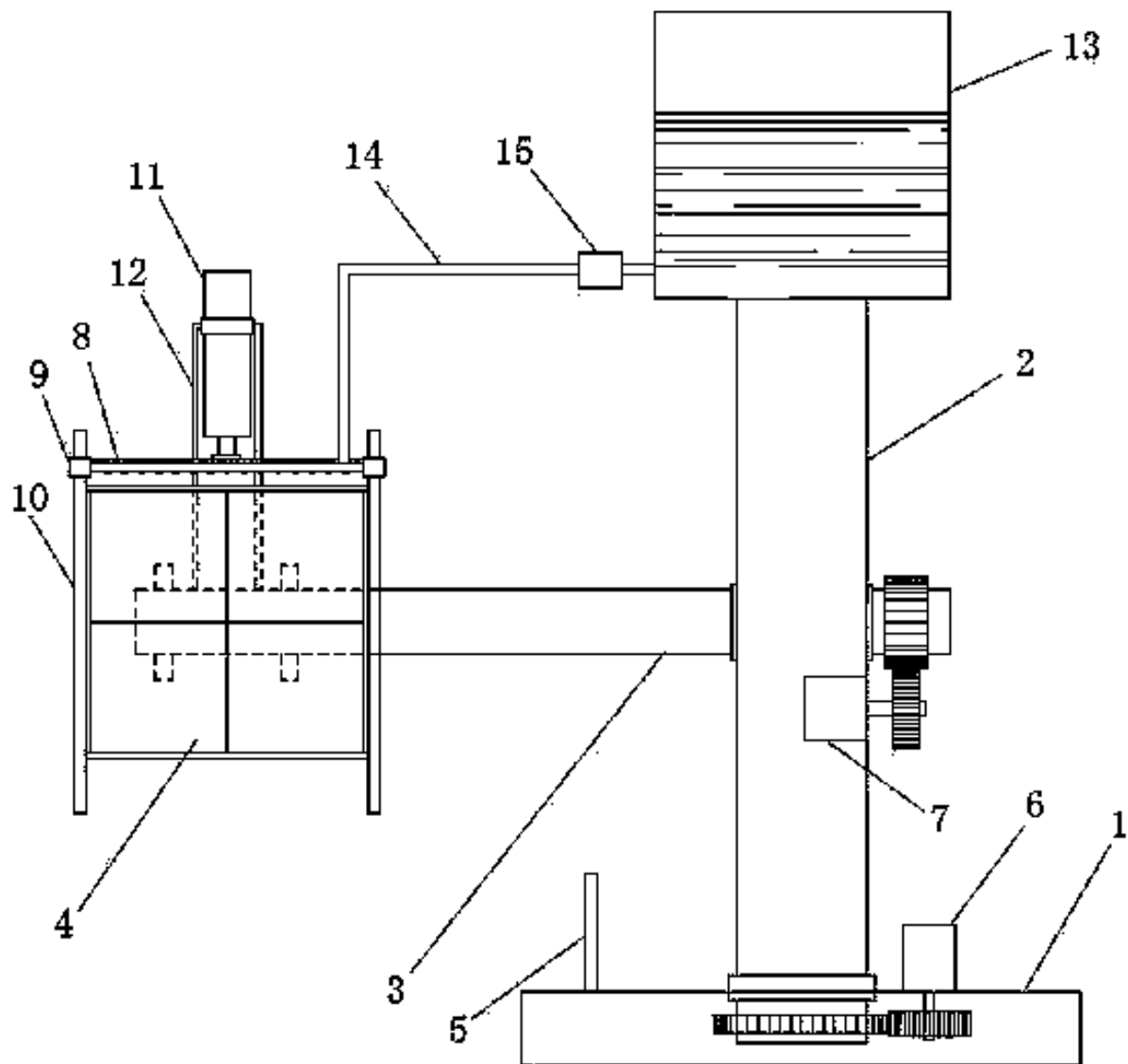
Family 32/77 - FAMPAT - ©Questel

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

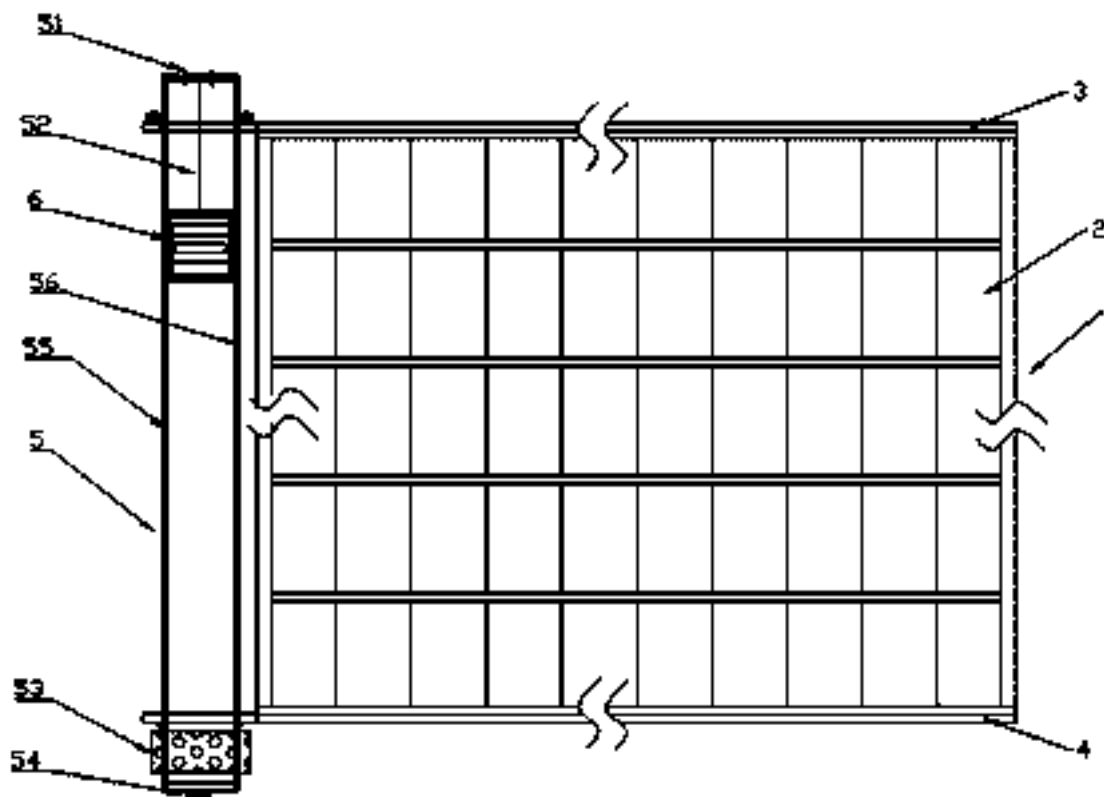
Latest standardized assignees - inventors removed

Family 33/77 - FAMPAT - ©Questel

Title

(CN204349898U)

Automatic cleaning and dedusting system for photovoltaic array assembly

Images**Publication data including kind & date**[CN204349898](#)

U

2015-05-20

CN204349898U

**Abstract**

(CN204349898U)

The utility model discloses an automatic cleaning and dedusting system for a photovoltaic array assembly and belongs to the technical field of photovoltaic generation. The system is arranged on a photovoltaic array and comprises an upper track and a lower track. The upper track and the lower track are arranged on the top of the photovoltaic array. A movable frame is supported by the upper track and the lower track and is provided with a power supply cable or a photovoltaic cell panel, a storage battery and a controller. The movable frame is provided with a driving motor which moves left and right. An upper end of the movable frame is provided with a winding wheel which is controlled by a retractable motor. A tensile cable is coiled on the winding wheel, and an end part of the tensile cable is connected with a cleaning walking dolly. The cleaning walking dolly is provided with a cleaning and dedusting device and sensors. The movable frame is provided with sensors. The abovementioned sensors are in signal connection with the controller. The system can conveniently achieve automatic cleaning and dedusting of the photovoltaic array.

Inventors

WANG LIWU

XU MINGXIAN

LI YULAN

ZHANG GUOLIANG

ZHAI ZHIXUN

QIN XIAOLI

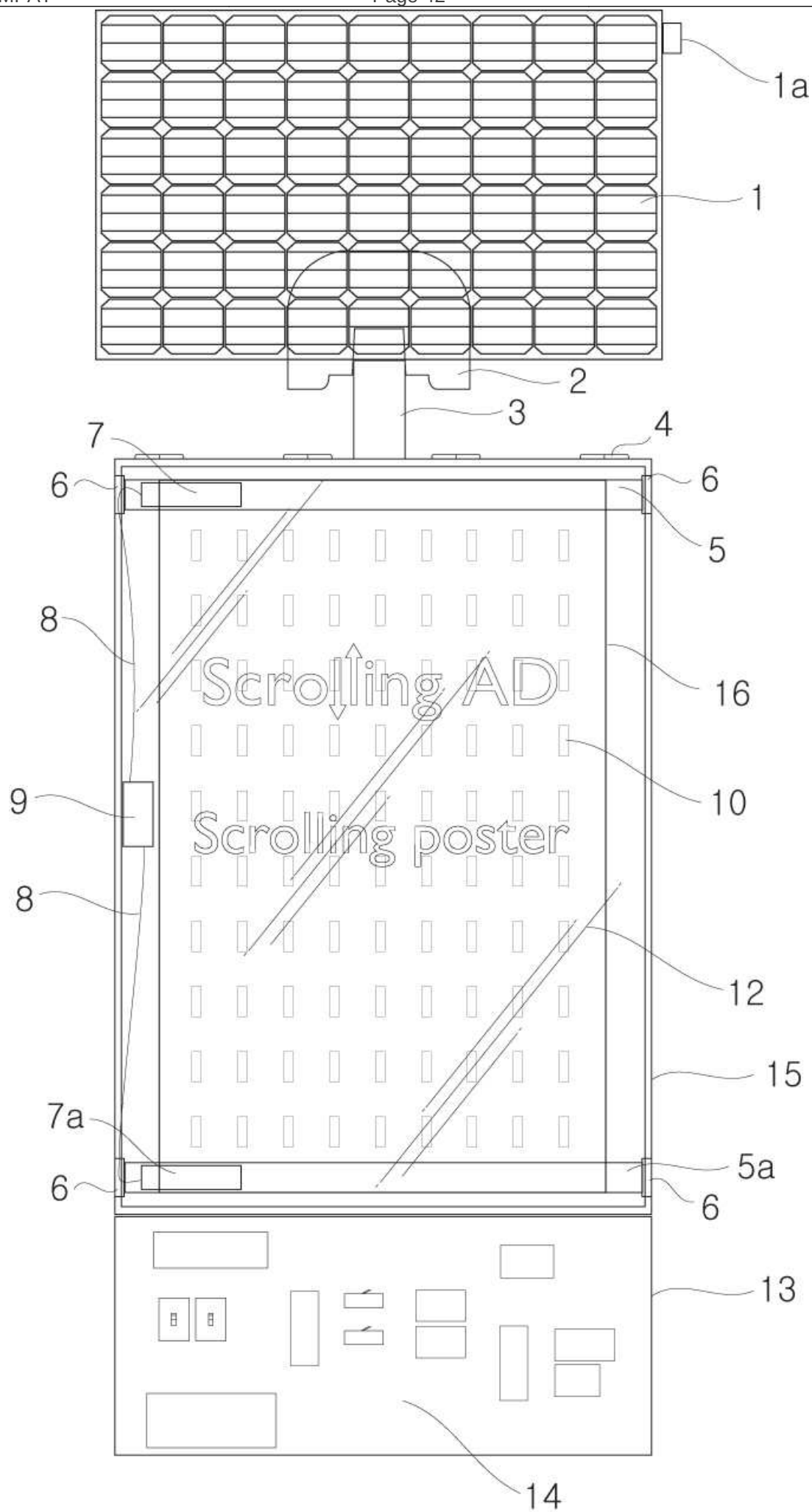
Latest standardized assignees - inventors removed

ANYANG YUTONG TECHNOLOGY

Family 34/77 - FAMPAT - ©Questel

Title
(KR20120070549)
Scrolling poster advertisement device that equip solar tracker and lbs(location based service) module

Images



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

GUO YIZHU

Latest standardized assignees - inventors removed

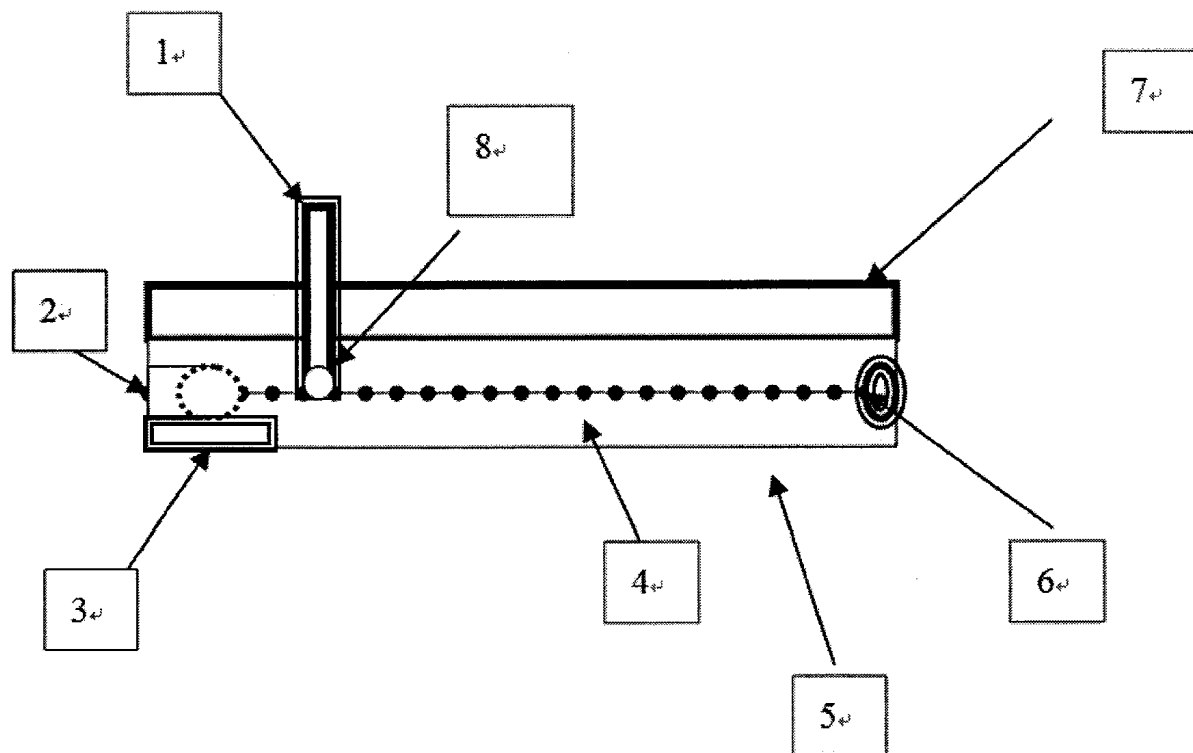
BEIJING JIAOTONG UNIVERSITY

Family 36/77 - FAMPAT - ©Questel

Title

(CN202150473U)

Solar panel dust eraser

Images**Publication data including kind & date**[CN202150473](#)

U 2012-02-22 CN202150473U

**Abstract**

(CN202150473U)

The utility model relates to a solar panel dust eraser which includes a cleaning brush, a sealed box, a deceleration motor, a leading screw, a bearing, and a controller. The dust eraser is in a frame structure. The dust eraser includes a hairbrush, a support frame, and a nut. The hairbrush is embedded in the support frame, and the depth can be adjusted. The nut is fixed in the frame. The support frame of the dust eraser is fixed in a track of the sealed box, and can slide up and down around the track. The sealed box is water-proof, and is excellent in corrosion performance. The sealed box is fixed on the back of a solar panel. The deceleration motor is connected with the leading screw. One end of the deceleration motor is fixed in the sealed box. One end of the leading screw is connected with the bearing and can rotate freely. The nut on the frame of the dust eraser is sleeved on the leading screw. The bearing is fixed in the sealed box. The deceleration motor utilizes the

electricity generated by the solar panel to work. A control box is a control module of the entire system, and the inside of the control box is provided with a temperature and humidity sensor, and the control box is also designed with a wireless remote control module and a forced switch.

Inventors

WANG ZHIKUN

Latest standardized assignees - inventors removed

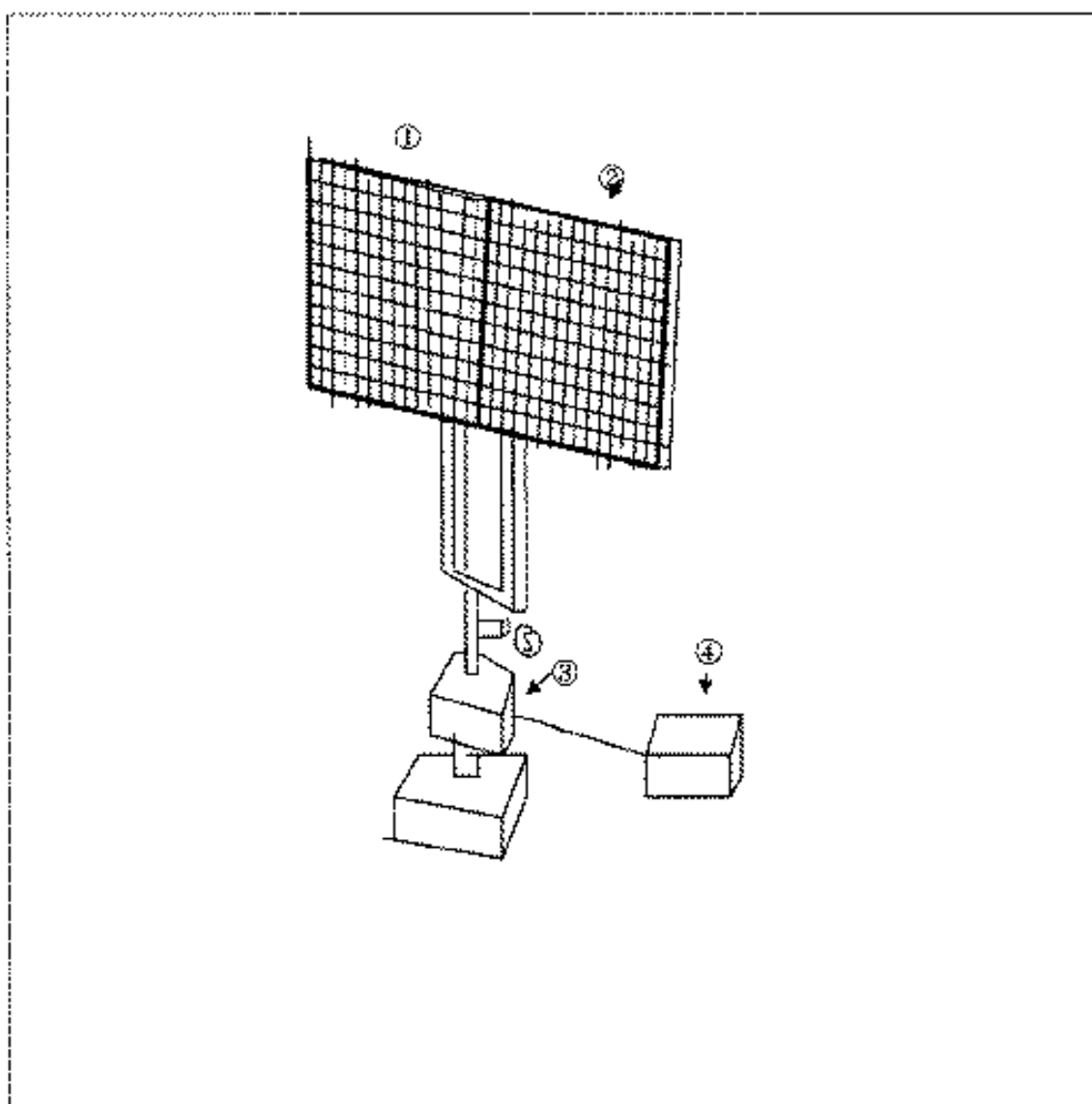
DEZHOU UNIVERSITY

Family 37/77 - 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

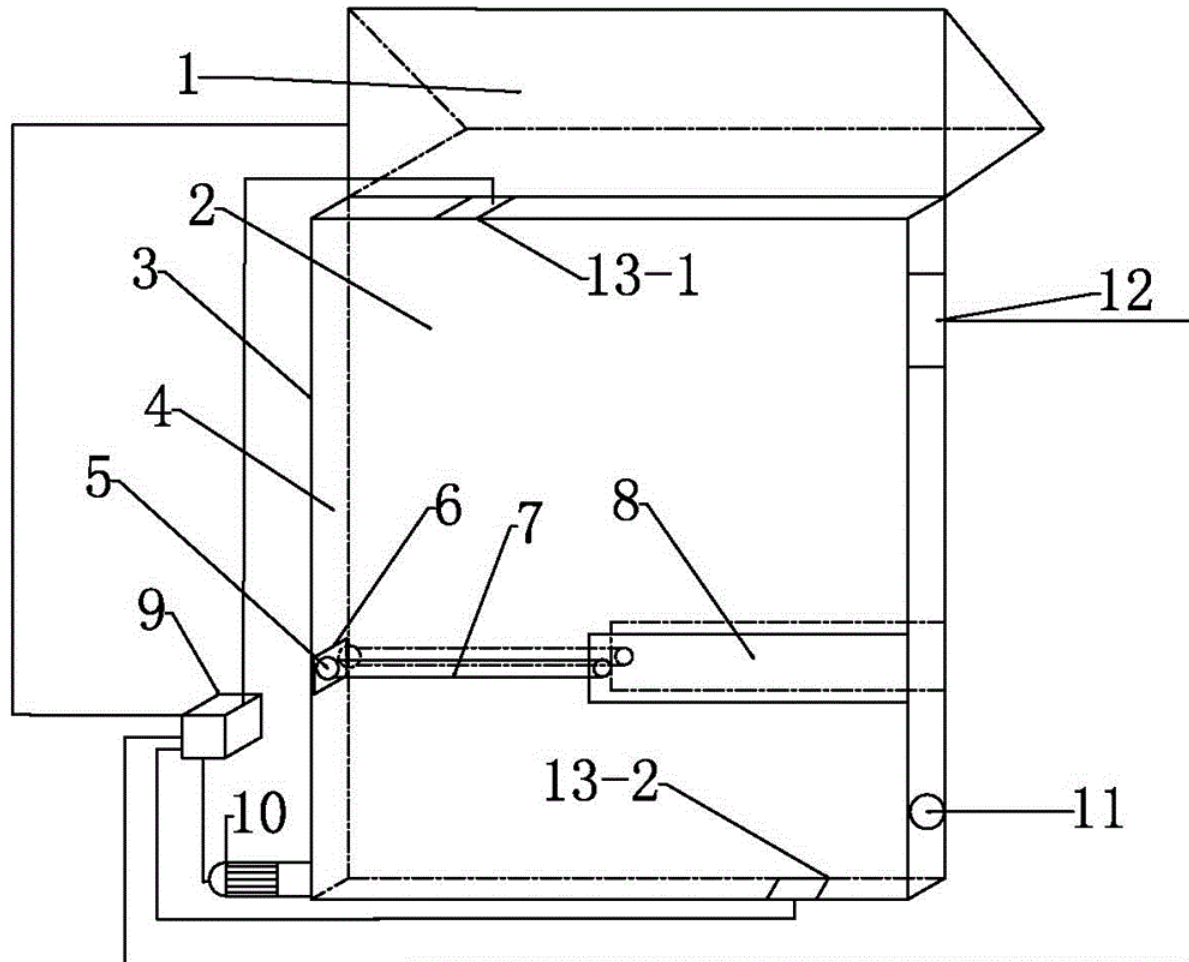
KAWAI TSUSHIN

Family 38/77 - FAMPAT - ©Questel

Title

(CN206228287U)

Automatic two -sided cleaned glass brush device of solar energy

Images**Publication data including kind & date**

CN206228287

U 2017-06-09 CN206228287U

**Abstract**

(CN206228287U)

The utility model relates to an automatic two -sided cleaned glass brush device of solar energy, it is clean effectively to solve glass window single face, it is artifical clean, high -rise clean difficulty, the problem that wastes time and energy, there is glass on the window frame, there is solar cell panel the top, there are switch and air purifier in one side, there are first and second inductors on the glass upper left side with right side below, there are a left side and right conveyor belt in the perpendicular groove on one side of in the window frame, a left side and right conveyor belt one end and follow driving wheel are even, the other end links with the motor, a motor, it is first, second inductor and programmable controller are even, solar cell panel links with the accumulate device through photovoltaic controller, the accumulate device is through dc -to -ac converter and programmable controller, air purifier even, the fixed plate is fixed on a left side and right conveyor belt, on have a pipe box, there is the telescopic link in the pipe box, the telescopic link is fixed in glass brush one end,

connect by programmable logic controller control, the utility model discloses simple structure, convenient to use, it is effectual, labour saving and time saving, it is multiple functional, energy -conserving and environment -protective.

Inventors

LIU WENFU

MENG JUAN

WANG YINLING

HU JINGYU

YE MIAO

Latest standardized assignees - inventors removed

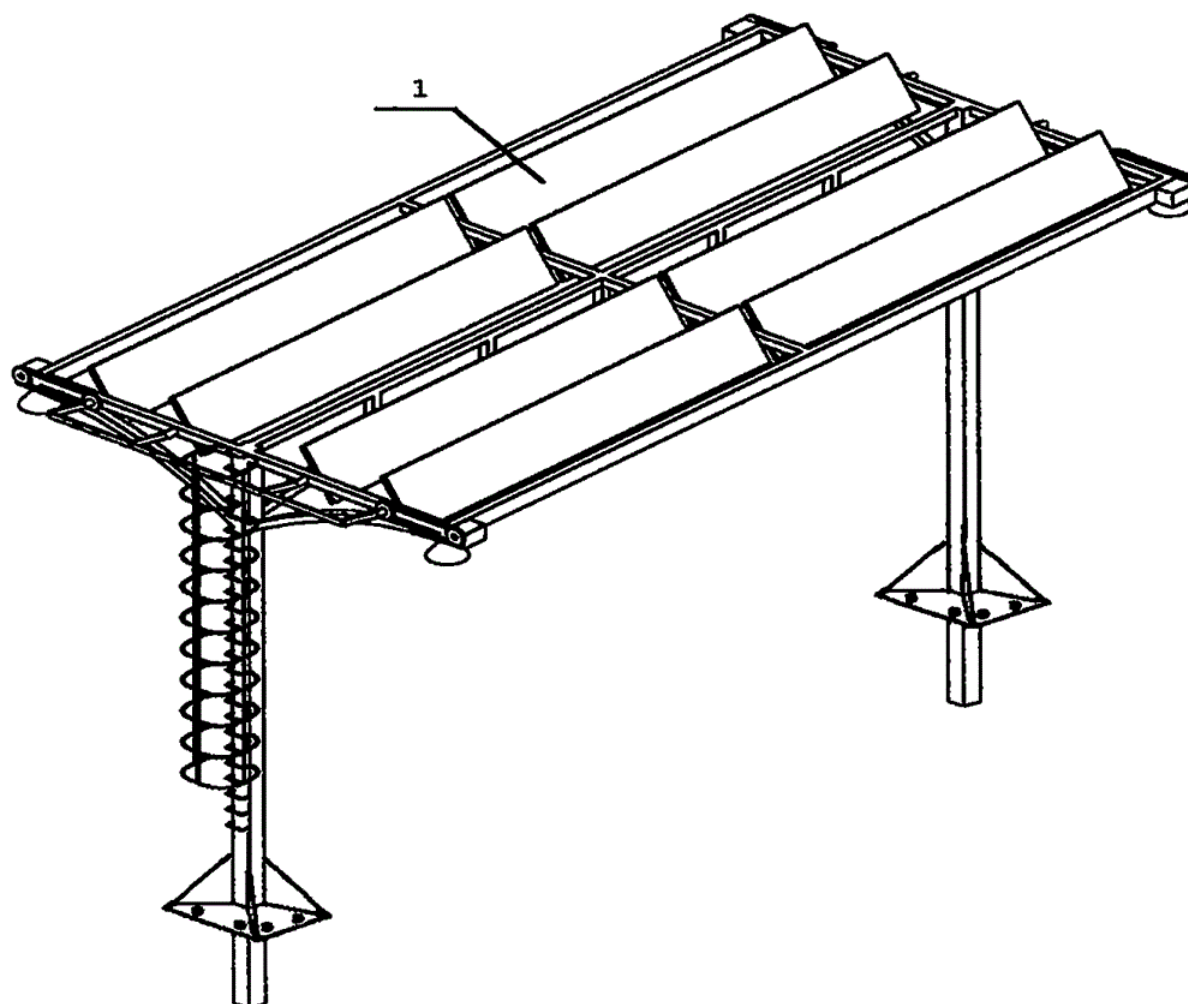
HUANGHUI UNIVERSITY

Family 39/77 - 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 amounted 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

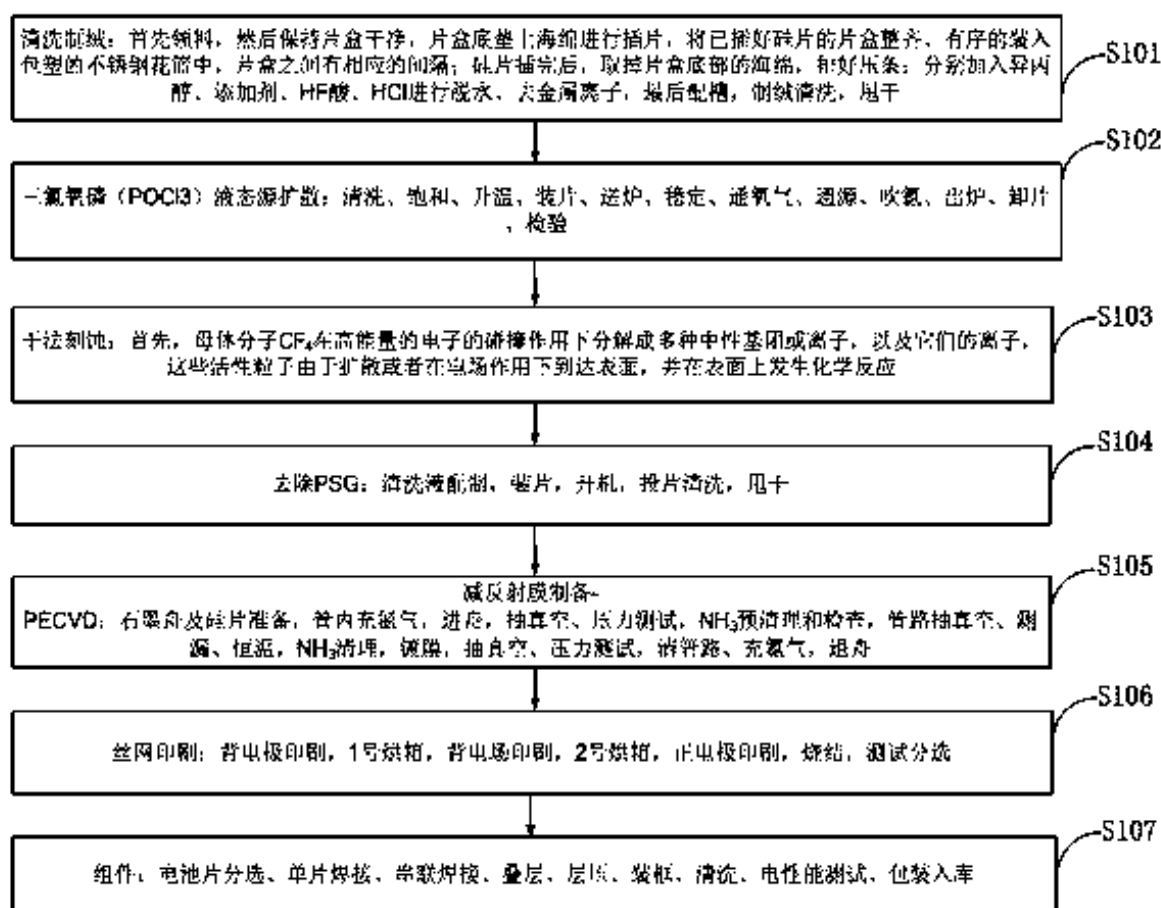
Family 40/77 - FAMPAT - ©Questel

Title

(CN103594558)

Preparation method of efficient solar cell

Images



Publication data including kind & date

CN103594558	A	2014-02-19	CN103594558
CN103594558	B	2015-10-07	CN103594558B



Abstract

(CN103594558B)

The invention discloses a preparation method of an efficient solar cell. The preparation method of the efficient solar cell comprises the following steps of carrying out cleaning and texturing; carrying out phosphorus oxychloride liquid source diffusion; carrying out dry etching; removing PSG, and preparing cleaning fluid; carrying out antireflection film preparation and PECVD; carrying out silk-screen printing, wherein the working procedures of back electrode printing, processing

through a first drying oven, back electric field printing, processing through a second drying oven, positive electrode printing, sintering and test sorting are carried out; carrying out assembly, wherein the working procedures of cell sorting, single-cell welding, series welding, stacking, lamination, framing, cleaning, electrical performance testing, packaging and storage are carried out. Due to the fact that a POCl₃ liquid source diffusion method is adopted, the preparation method of the efficient solar cell has the advantages that production efficiency is high, and obtained PN junctions are even and flat and have good diffusion layer surfaces. The preparation method of the efficient solar cell is high in technological yield, small in number of generated defects, low in frequency of dislocation and low in contact resistance of formed ohmic contact, has excellent electrical conductivity, and is appropriate in purity and good in chemical stability.

Inventors

WANG HUIQING

Latest standardized assignees - inventors removed

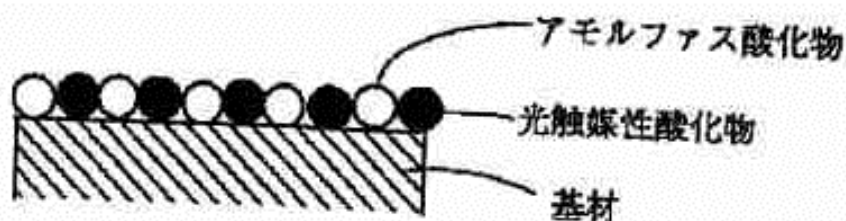
JINLING INSTITUTE OF TECHNOLOGY

Family 41/77 - FAMPAT - ©Questel

Title

(JP2002302646)

Sound insulating wall and method for washing sound insulating wall

Images**Publication data including kind & date**

JPH09228022	A	1997-09-02	JP09228022
JPH09225387	A	1997-09-02	JP09225387
JPH09227832	A	1997-09-02	JP09227832
JPH09227831	A	1997-09-02	JP09227831
JPH09226060	A	1997-09-02	JP09226060
JPH09224800	A	1997-09-02	JP09224800
JPH09227162	A	1997-09-02	JP09227162
JPH09226531	A	1997-09-02	JP09226531
JPH09227169	A	1997-09-02	JP09227169
JPH09225054	A	1997-09-02	JP09225054
JPH09228320	A	1997-09-02	JP09228320
JPH09228332	A	1997-09-02	JP09228332
JPH09228331	A	1997-09-02	JP09228331
JPH09227805	A	1997-09-02	JP09227805
JPH09227161	A	1997-09-02	JP09227161
JPH09226042	A	1997-09-02	JP09226042
JPH09228765	A	1997-09-02	JP09228765
JPH09228545	A	1997-09-02	JP09228545
JPH09228057	A	1997-09-02	JP09228057
JPH09224874	A	1997-09-02	JP09224874
JPH09228602	A	1997-09-02	JP09228602
JPH09224793	A	1997-09-02	JP09224793
JPH09228134	A	1997-09-02	JP09228134



JPH09224960	A	1997-09-02	JP09224960
JPH09227160	A	1997-09-02	JP09227160
JPH09227159	A	1997-09-02	JP09227159
JPH09228326	A	1997-09-02	JP09228326
JPH09226041	A	1997-09-02	JP09226041
JPH09224957	A	1997-09-02	JP09224957
JPH09227156	A	1997-09-02	JP09227156
JPH09225021	A	1997-09-02	JP09225021
JPH09225389	A	1997-09-02	JP09225389
JPH09225276	A	1997-09-02	JP09225276
JPH09225388	A	1997-09-02	JP09225388
JPH09227178	A	1997-09-02	JP09227178
JPH09225396	A	1997-09-02	JP09225396
JPH09225263	A	1997-09-02	JP09225263
JPH09224490	A	1997-09-02	JP09224490
JPH09226040	A	1997-09-02	JP09226040
JPH09230119	A	1997-09-05	JP09230119
JPH09229546	A	1997-09-05	JP09229546
JPH09230031	A	1997-09-05	JP09230031
JPH09229767	A	1997-09-05	JP09229767
JPH09230796	A	1997-09-05	JP09230796
JPH09231499	A	1997-09-05	JP09231499
JPH09230493	A	1997-09-05	JP09230493
JPH09230108	A	1997-09-05	JP09230108
JPH09230107	A	1997-09-05	JP09230107
JPH09230106	A	1997-09-05	JP09230106
JPH09230118	A	1997-09-05	JP09230118
JPH09231807	A	1997-09-05	JP09231807
JPH09230810	A	1997-09-05	JP09230810
JPH09229724	A	1997-09-05	JP09229724
JPH09232096	A	1997-09-05	JP09232096
JPH09231849	A	1997-09-05	JP09231849
JPH09229585	A	1997-09-05	JP09229585
JPH09231821	A	1997-09-05	JP09231821
JPH09241038	A	1997-09-16	JP09241038
JP3003593	B2	2000-01-31	JP3003593
JP3003581	B2	2000-01-31	JP3003581
JP2000127289	A	2000-05-09	JP2000127289
JP2000136370	A	2000-05-16	JP2000136370
JP2000141537	A	2000-05-23	JP2000141537
JP3063968	B2	2000-07-12	JP3063968
JP3075195	B2	2000-08-07	JP3075195
JP2001048679	A	2001-02-20	JP2001048679
JP2001049829	A	2001-02-20	JP2001049829
JP2001049828	A	2001-02-20	JP2001049828
JP3141802	B2	2001-03-07	JP3141802
JP2001081948	A	2001-03-27	JP2001081948
JP2001089752	A	2001-04-03	JP2001089752



JP2001122679	A	2001-05-08	JP2001122679				
JP2001129916	A	2001-05-15	JP2001129916				
JP3173391	B2	2001-06-04	JP3173391				
JP3189682	B2	2001-07-16	JP3189682				
JP2002030258	A	2002-01-31	JP2002030258				
JP3277983	B2	2002-04-22	JP3277983				
JP3303696	B2	2002-07-22	JP3303696				
JP2002302646	A	2002-10-18	JP2002302646				
JP3339304	B2	2002-10-28	JP3339304				
JP3348613	B2	2002-11-20	JP3348613				
JP3385850	B2	2003-03-10	JP3385850				
JP2003113345	A	2003-04-18	JP2003113345				
JP3414367	B2	2003-06-09	JP3414367				
JP3414365	B2	2003-06-09	JP3414365				
JP3465664	B2	2003-11-10	JP3465664				
JP2004306036	A	2004-11-04	JP2004306036				
JP3588206	B2	2004-11-10	JP3588206				
JP3588205	B2	2004-11-10	JP3588205				
JP3588202	B2	2004-11-10	JP3588202				
JP3612896	B2	2005-01-19	JP3612896				
JP3613084	B2	2005-01-26	JP3613084				
JP3613085	B2	2005-01-26	JP3613085				
JP3697795	B2	2005-09-21	JP3697795				
JP3740736	B2	2006-02-01	JP3740736				
JP3743075	B2	2006-02-08	JP3743075				
JP3760509	B2	2006-03-29	JP3760509				
JP3774955	B2	2006-05-17	JP3774955				
JP3844182	B2	2006-11-08	JP3844182				
JP3882625	B2	2007-02-21	JP3882625				
IN0215/DEL/2007	A	2007-08-31	IN2007DE00215				
IN0622/DEL/2005	A	2009-06-19	IN2005DE00622				
IN2897/DEL/1996	A	2009-10-30	IN1996DE02897				
IN238504	B	2010-02-19	IN-238504				

Abstract

(JP3882625)

PROBLEM TO BE SOLVED: To provide a hydrophilic coating composition which has excellent long-term storage stability and can render the surface of a member highly hydrophilic, and simultaneously, retains the hydrophilicity. **SOLUTION:** The photocatalytic hydrophilic coating composition comprises titanium oxide particles whose surfaces have been coated with (a) a film-forming element composed of a siloxane to be represented by the average composition formula: $R_pSiX_qO(4-p-q)/2$ (wherein R is a functional group composed of one or more monovalent organic groups or a functional group composed of two or more kinds selected from between a monovalent organic group and hydrogen; X is an alkoxy group or a halogen atom; 0

Inventors

HAYAKAWA MAKOTO

SHIMOBUKIKOSHI MITSUhide

Latest standardized assignees - inventors removed

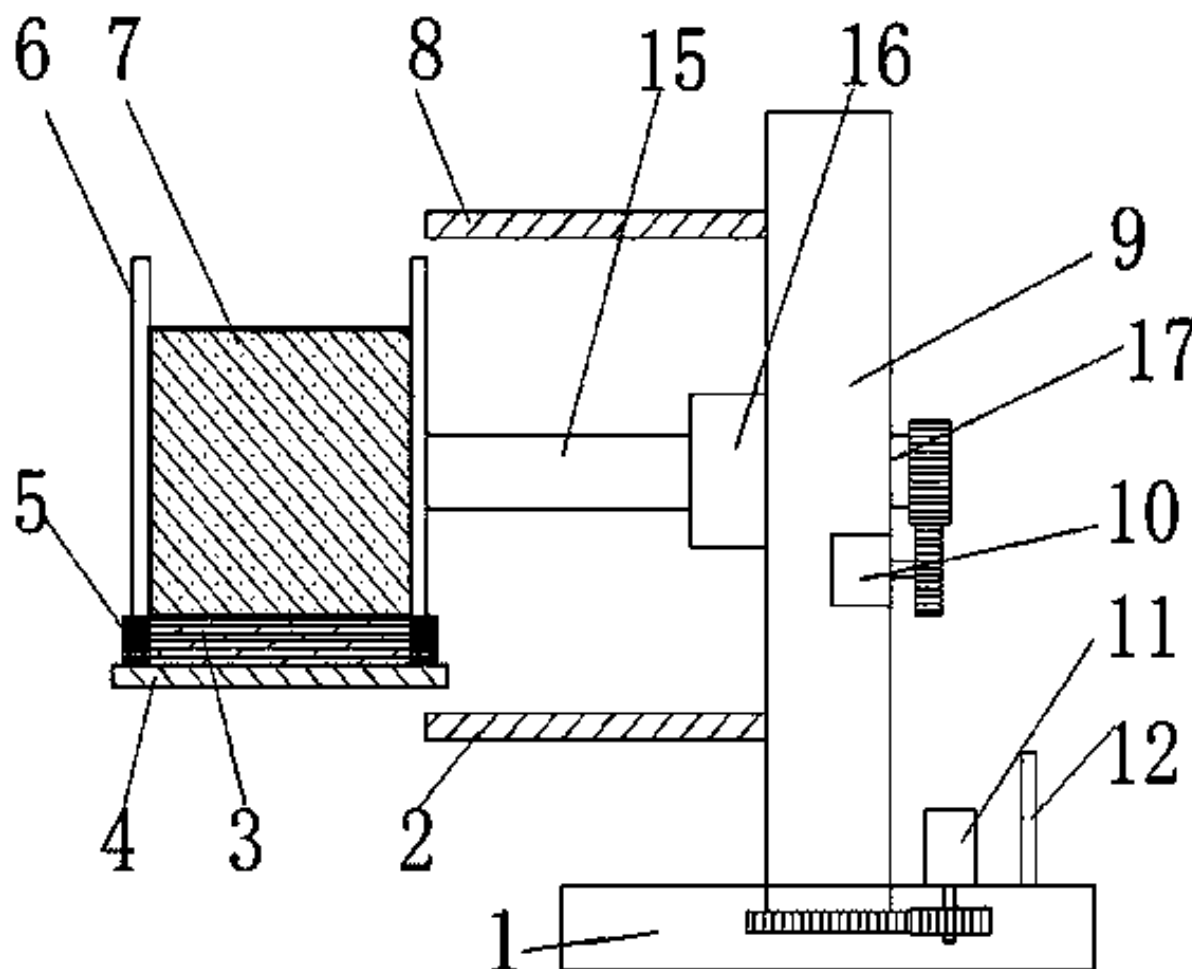
TOTO

Family 42/77 - FAMPAT - ©Questel

Title

(CN204442263U)

Automatic dust-removal tracking type photovoltaic power generation device

Images**Publication data including kind & date**

CN204442263

U 2015-07-01 CN204442263U

**Abstract**

(CN204442263U)

The utility model discloses an automatic dust-removal tracking type photovoltaic power generation device, which comprises a base, a lower baffle plate, a cleaning bar, a support plate, a cleaning trolley, a fixing frame, a photovoltaic power generation panel, an upper baffle plate, a vertical rotating shaft, a first motor, a second motor, scouring sponge, a telescopic column, a telescopic cylinder and a horizontal rotating shaft. The base is provided thereon with the vertical rotating shaft. The vertical rotating shaft is provided with the first motor. The horizontal rotating shaft is arranged above the first motor. The left side of the horizontal rotating shaft is provided with the telescopic cylinder. The left side of the telescopic cylinder is provided with the telescopic column. The upper and lower sides of the telescopic column are respectively provided with the upper baffle plate and the lower baffle plate. The left side of the telescopic column is provided with the fixing frame. The photovoltaic power generation panel is arranged on the fixing frame. The lower end of the fixing frame is provided with the support plate. The support plate is provided with the cleaning bar. The cleaning bar is provided with the scouring sponge. The two ends of the cleaning bar are provided with the cleaning trolley. The right side of the vertical rotating shaft is provided with the second motor. According to the technical scheme of the utility model, not only the power generation efficiency of the photovoltaic power generation panel is ensured, but also the service life of the device is prolonged.

Inventors

KANG ZHE

LU NING

WANG XIN

Latest standardized assignees - inventors removed

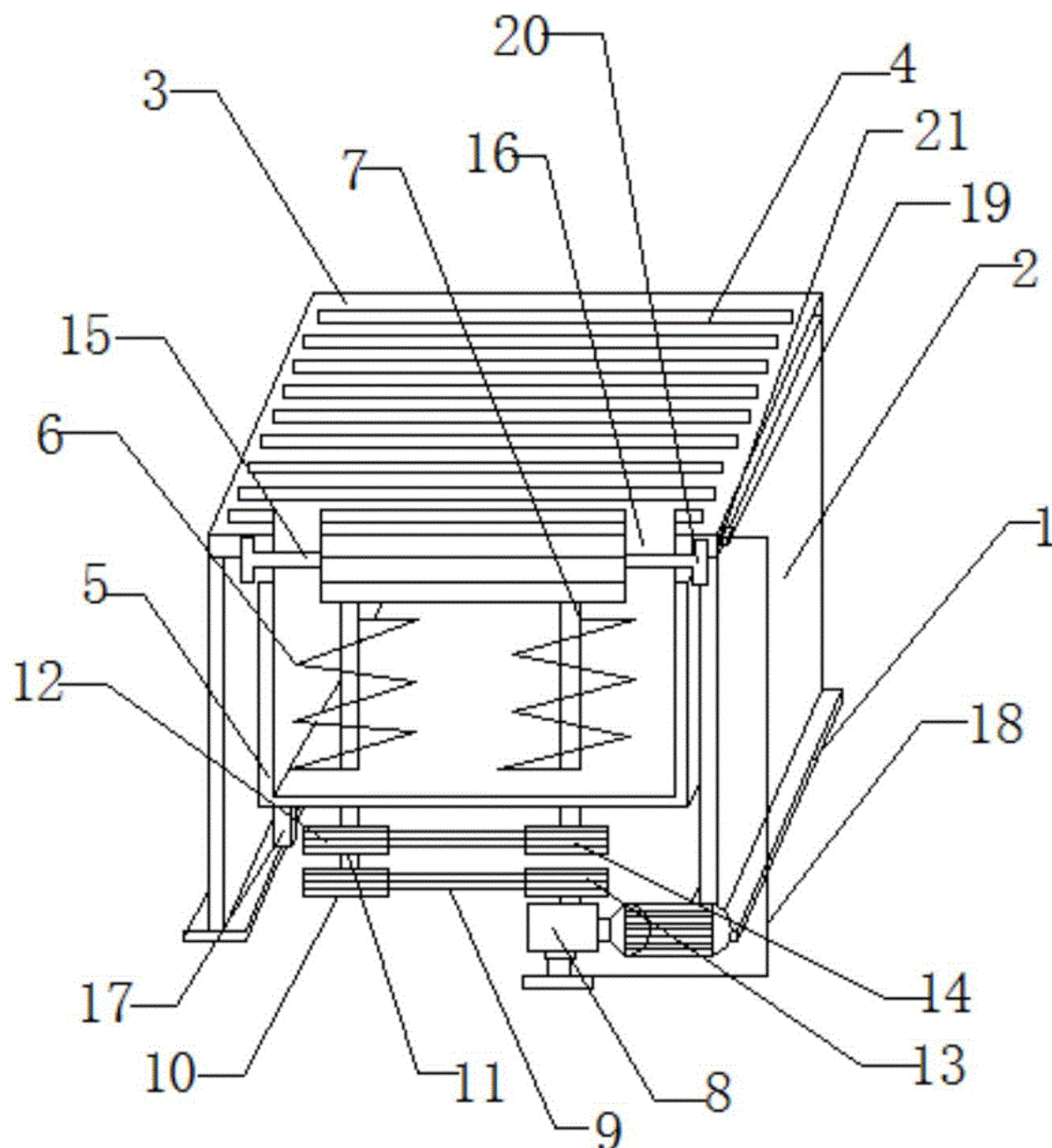
GANSU SHANGHANG ELECTRICAL MAINTENANCE

Family 43/77 - FAMPAT - ©Questel

Title

(CN205463405U)

Solar energy hawthorn stirring belt cleaning device

Images**Publication data including kind & date**[CN205463405](#)

U

2016-08-17

CN205463405U

**Abstract**

(CN205463405U)

The utility model provides a solar energy hawthorn stirring belt cleaning device, including base, acoustical panel, solar cell panel, churn, motor, left feed inlet, water inlet, discharge gate and control flap, install the acoustical panel on the base, solar cell panel is installed to the top of acoustical panel, and the solar cell panel below is provided with the churn, and an

agitating unit is installed in the left side in the churn, and an agitating unit right side is provided with the 2nd agitating unit, compares with prior art, the utility model discloses has following useful part: the utility model discloses fine saving the energy, fine improvement workman's operational environment, how much abluent control hawthorn that can also be fine is, and carry out more abundant stirring when enabling the washing of hawthorn, makes the abluent more thoroughly of hawthorn clean, the utility model discloses simple structure, convenient to use, and have the function of environmental protection.

Inventors

BAO LILI

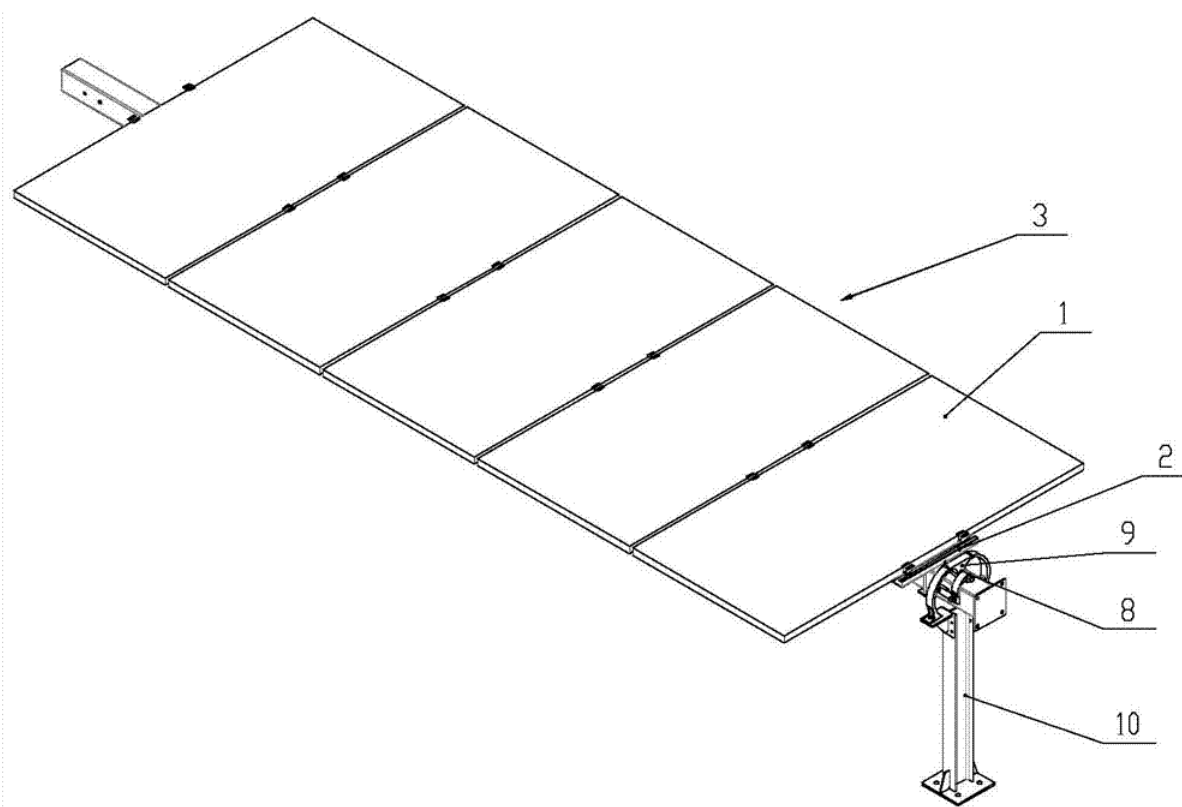
Family 44/77 - FAMPAT - ©Questel

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

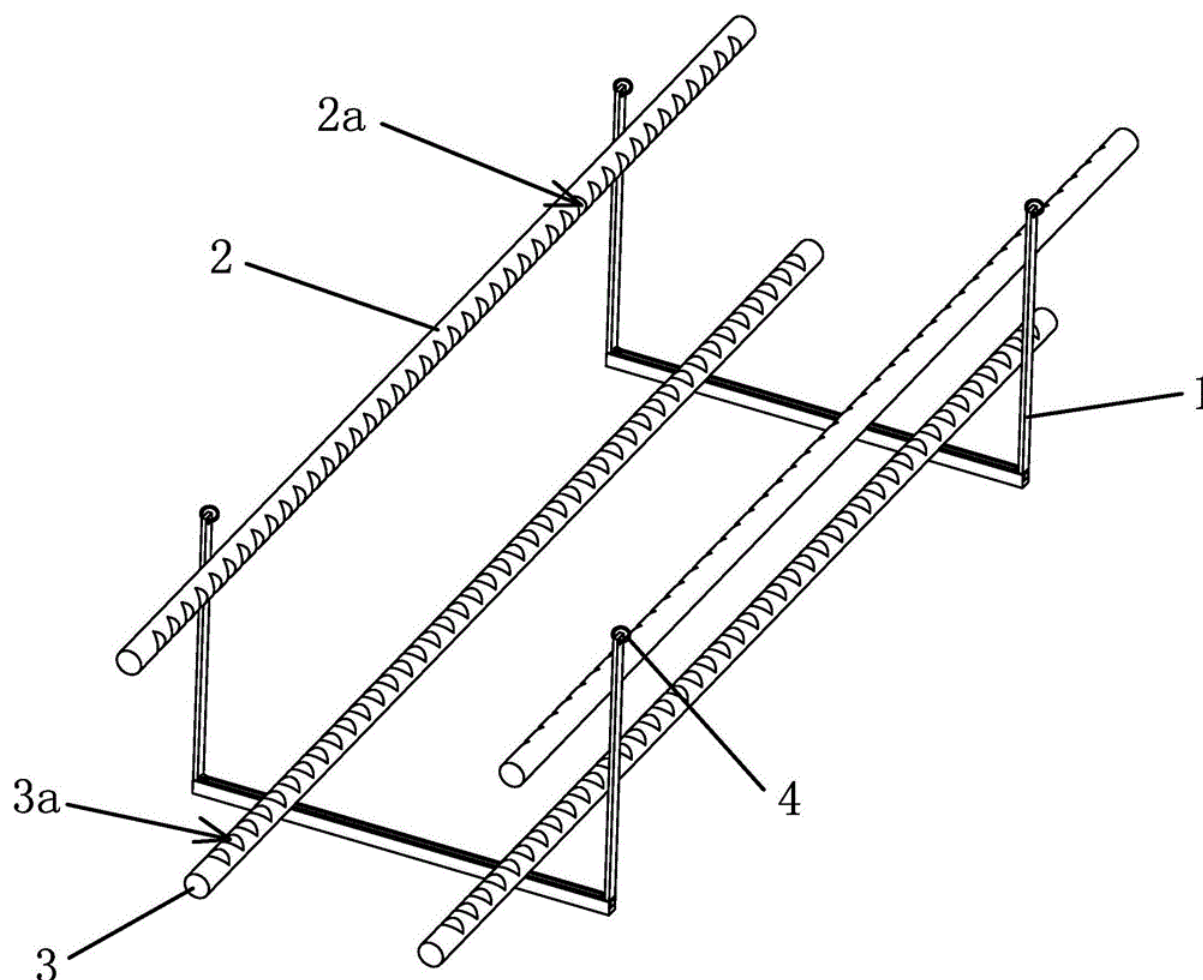
SUN MIN

Family 45/77 - FAMPAT - ©Questel

Title

(CN105789376)

Preparation method of solar cell

Images**Publication data including kind & date**

CN105789376	A	2016-07-20	CN105789376
CN105789376	B	2017-03-22	CN105789376B

**Abstract**

(CN105789376B)

The invention provides a preparation method of a solar cell. By the preparation method, the technical problems of manual operation required, slow production speed and the like in the existing preparation method are solved. The preparation method of the solar cell comprises the following steps of (a) inspecting outsourced silicon wafers; (b) placing the inspected silicon wafers in an alkali solution for texturing; (c) placing the textured silicon wafers in a quartz boat, and placing the quartz boat in an ordinary diffusion device for diffusion; (d) placing the diffused silicon wafers in an ordinary etching machine for etching, and providing ozone for the etching machine by an ozone generation device; (e) carrying out dephosphorization cleaning on the surfaces of the etched silicon wafers; (f) printing positive electrodes and negative electrodes on the upper surfaces and the lower surfaces of the silicon wafers by an inclined scraper in a mode of silk-screen printing on the washed silicon wafers; and (g) transmitting the printed silicon wafers to an ordinary sintering device

for sintering by a sintering belt to obtain the solar cell. The preparation method has the advantages of high production efficiency.

Inventors

FAN QICHAO

XU ZHAOYUAN

Latest standardized assignees - inventors removed

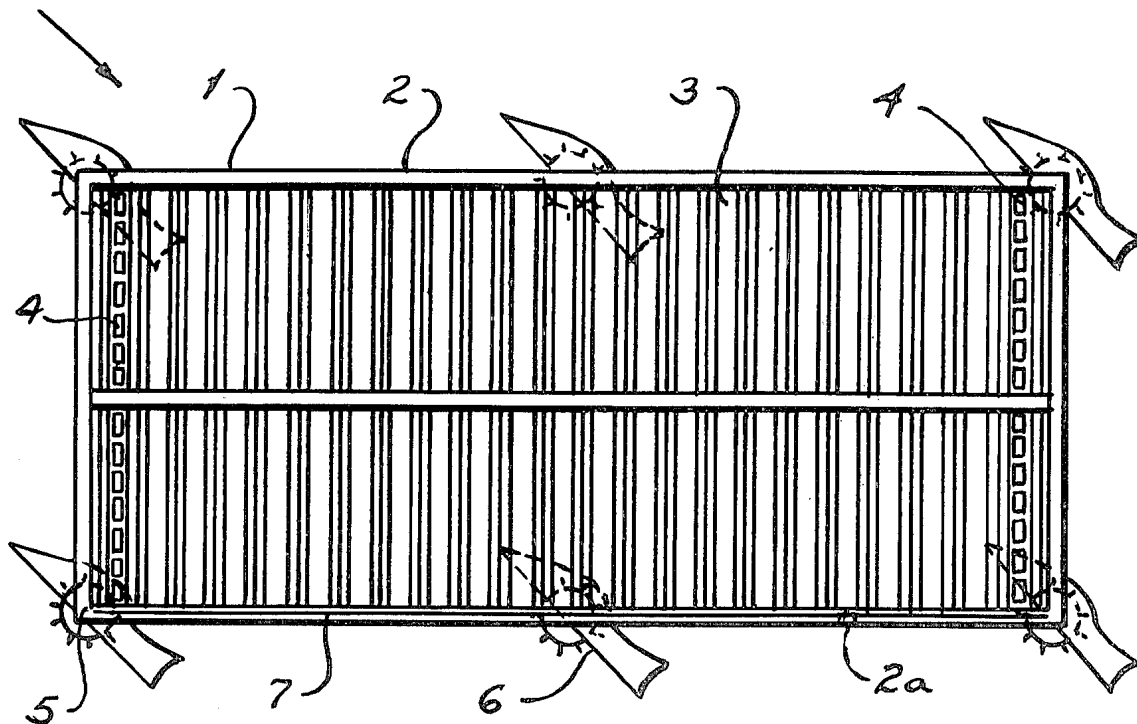
ZHEJIANG JINGNENG PHOTOELECTRIC

Family 46/77 - 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

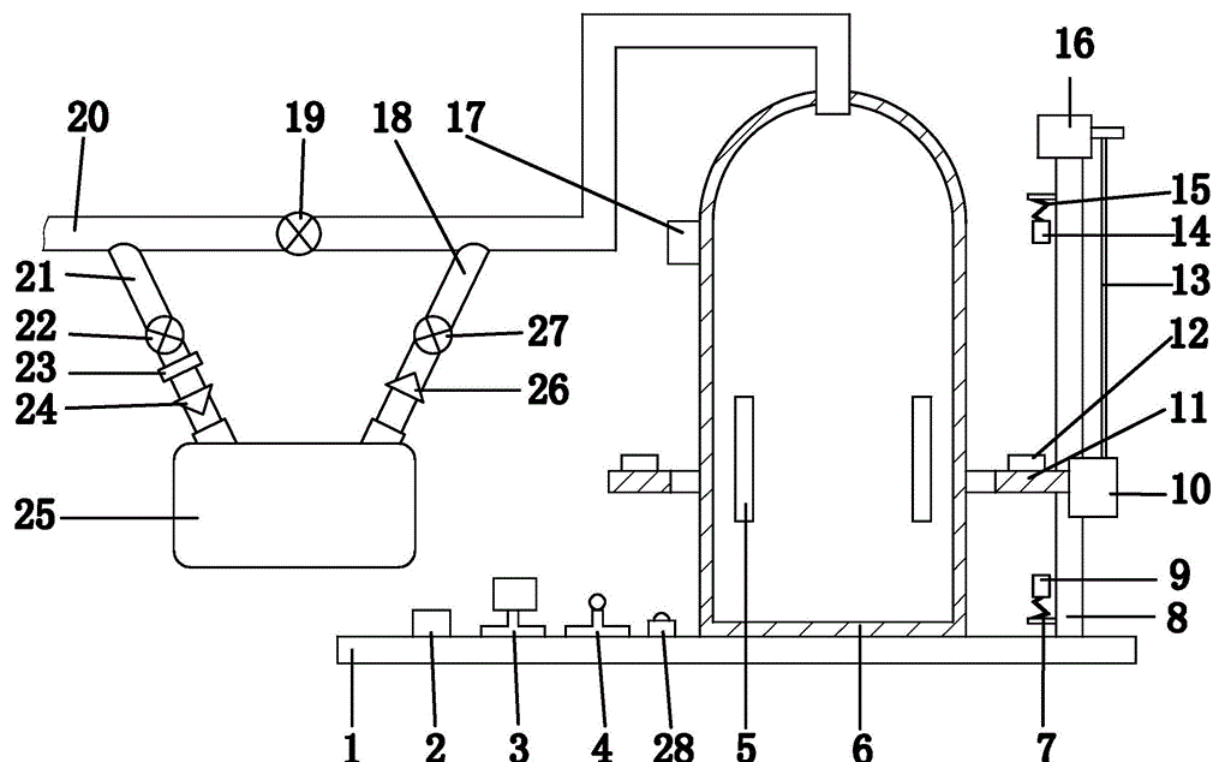
KELLY DONALD A

Family 47/77 - FAMPAT - ©Questel

Title

(CN105845748)

Polycrystalline solar cell surface silicon nitride antireflection film preparation method

Images**Publication data including kind & date**

CN105845748	A	2016-08-10	CN105845748
CN105845748	B	2017-04-19	CN105845748B

**Abstract**

(CN105845748B)

The invention provides a polycrystalline solar cell surface silicon nitride antireflection film preparation method, which solves the technical problems that an existing solar cell is simple in structure, is easy to have continuous attenuation and is poor in product stability. The polycrystalline solar cell surface silicon nitride antireflection film preparation method comprises the following steps: a) carrying out cleaning, texturing, diffusion and etching on a crystalline silicon wafer; b) enabling the crystalline silicon wafer obtained after the step a) to pass through an ozone generation device to generate a 1-2 mm SiO₂ oxidation film on the surface of the silicon wafer; c) cleaning a graphite boat through a cleaning device, placing the crystalline silicon wafer obtained after the step b) on the graphite boat, and placing the graphite boat loaded with the wafer to a tubular PECVD for pre-deposition and cleaning; d) carrying out tubular PECVD deposition on the crystalline silicon wafer obtained in the step c); and e) carrying out tubular PECVD deposition again on the crystalline silicon wafer obtained in the step d). The method has the advantages of stable and reliable product.

Inventors

ZHU JINHAO
 JIANG JIANBO
 ZHU SHIJIE
 XU BU
 WAN GUANGYAO
 CHEN JUERONG
 WU ZHENHONG
 WEN ZHANGHONG

Latest standardized assignees - inventors removed

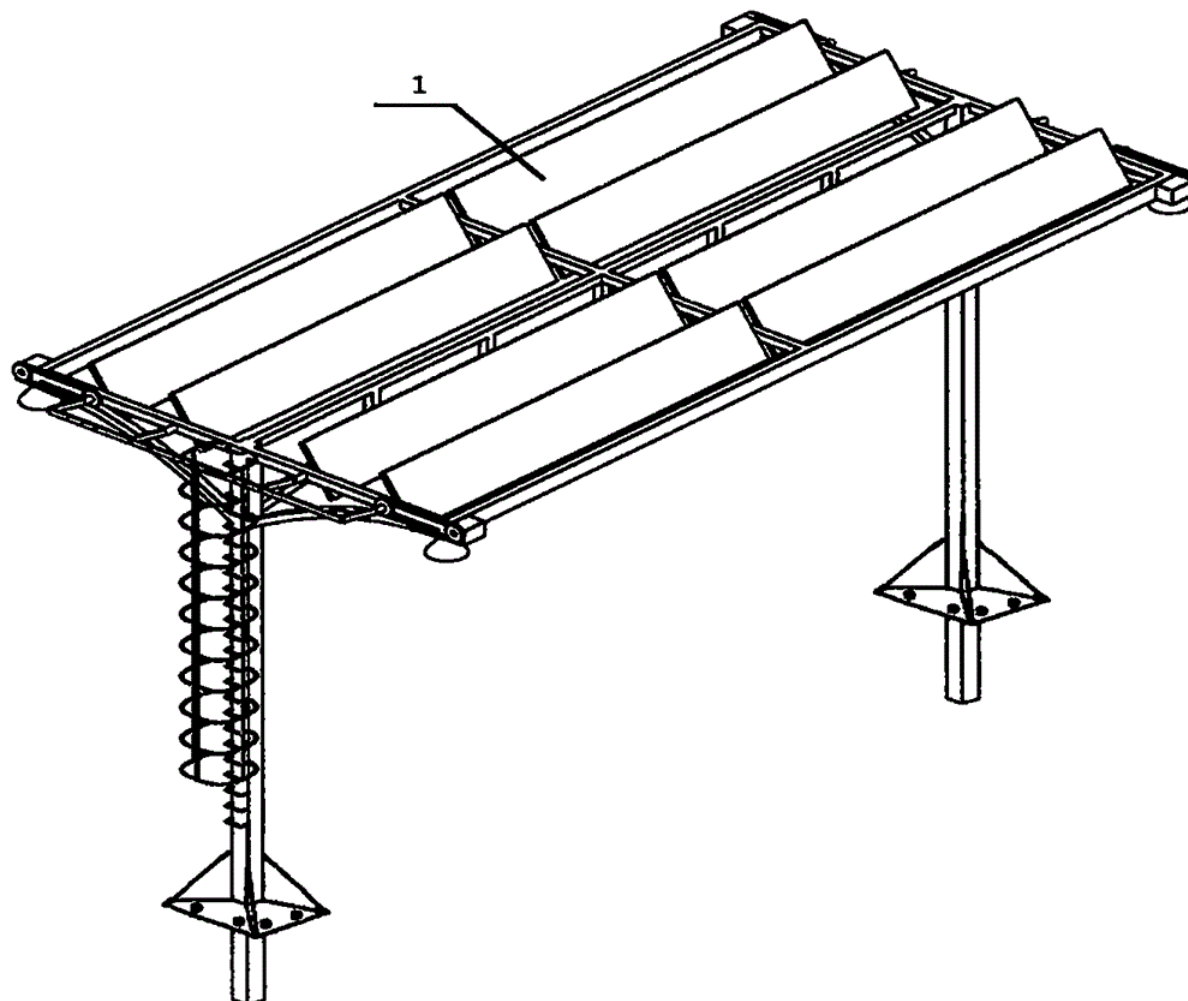
ZHEJIANG GUANGLONG ENERGY TECHNOLOGY

Family 48/77 - 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

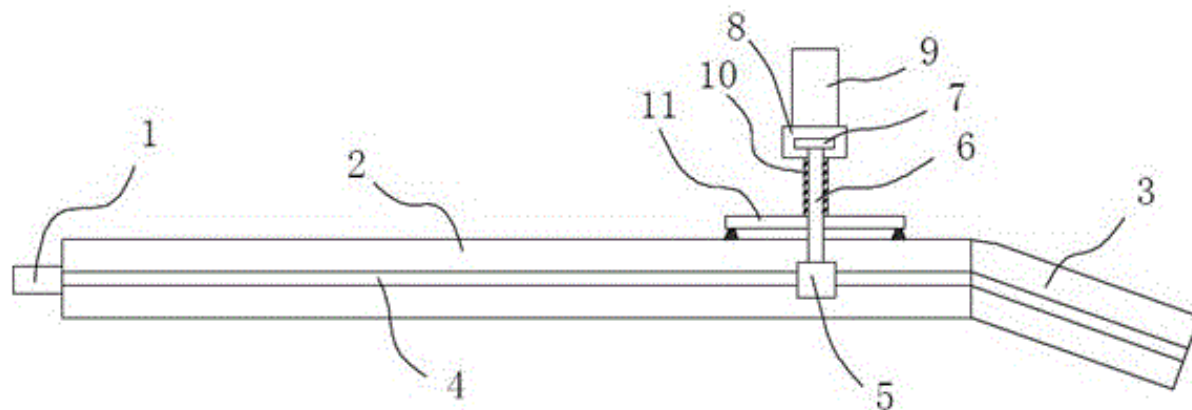
TIANJIN JIENENG HENG TONG TECHNOLOGY

Family 49/77 - FAMPAT - ©Questel

Title

(CN205847190U)

Solar panel sweeping apparatus

Images**Publication data including kind & date**[CN205847190](#)

U

2016-12-28

CN205847190U

**Abstract**

(CN205847190U)

The utility model discloses a solar panel sweeping apparatus, including solar panel, solar panel both sides symmetry is equipped with first track, is equipped with the spout on the first track, the first slider of spout in -connection, and linking bridge on the first slider connects the second track between two supports, be equipped with the second slider on the second track, and the brush is connected to second slider bottom, and the groove is accomodate to first track end -to -end connection. The brush is controlled along first track and second track and is removed with the fore -and -after, and the in -process brush that is removing like this carries out comprehensive cleaning to the solar panel surface, accomodates the groove with the impurity rubbish scan -in that cleans at last, and convenient and fast need not the manpower and cleans.

Inventors

WANG FENG

WANG WEI

CHEN WENBIN

Latest standardized assignees - inventors removed

JIANGSU HUAXI NEW ENERGY ENGINEERING TECHNOLOGY

Family 50/77 - FAMPAT - ©Questel

Title

(CN203933500U)

Automatic rotation solar energy storage device

Publication data including kind & date[CN203933500](#)

U

2014-11-05

CN203933500U

**Abstract**

(CN203933500U)

The utility model relates to an automatic rotation solar energy storage device. The device comprises a pillar. An upper portion of the pillar is provided with a sleeve rod. An upper portion of the sleeve rod is provided with a large taper gear which is placed horizontally. An upper side of the large taper gear is engaged with a small taper gear. The small taper gear is connected with the motor. The motor is placed on a support frame which is connected with the sleeve rod. A central section of the sleeve rod is provided with a triangle support. The triangle support is provided with a solar cell panel. An upper end of the solar cell panel is provided with an optical inductor. An output terminal of the solar cell panel is connected with a

controller through a storage battery. The controller is connected with the optical inductor and the motor. The solar cell panel is used to store electric energy. The solar cell panel is installed on the triangle support in a 45 degree mode so that sunlight can be fully used. Besides, the solar cell panel is provided with the optical inductor which can rotate along with rotation of the sunlight so that sunshine can be fully absorbed and used. The device possesses the following advantages that the device can move fast and is convenient, clean, healthy, beautiful and elegant; resources are saved; the device is safe and does not pollute environment.

Inventors

ZHANG LI

KONG YANYANG

Latest standardized assignees - inventors removed

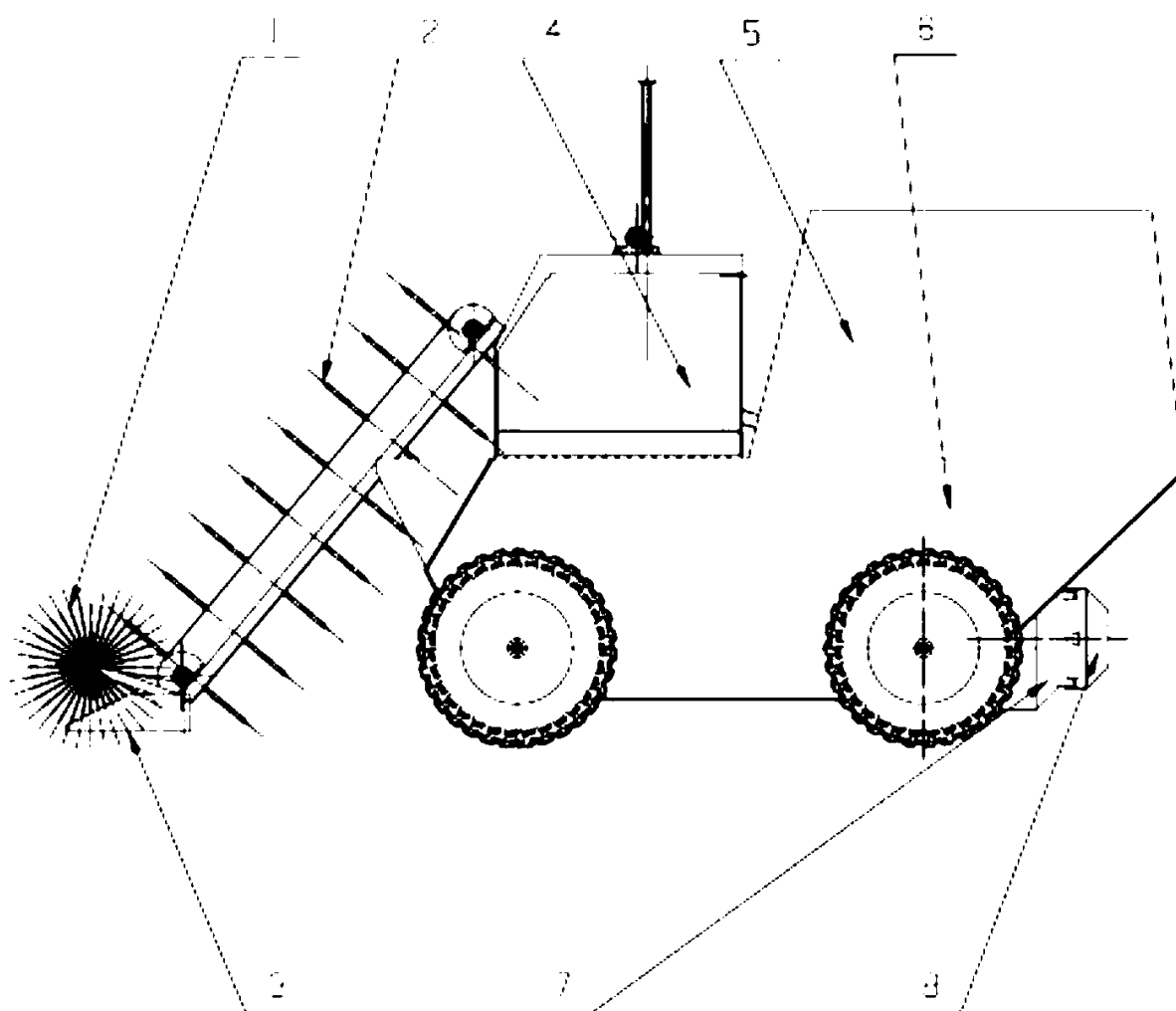
HENAN LONGJING TECHNOLOGY

Family 51/77 - FAMPAT - ©Questel

Title

(CN203222752U)

Amphibious cleaning device

Images**Publication data including kind & date**[CN203222752](#)

U

2013-10-02

CN203222752U

**Abstract**

(CN203222752U)

The utility model discloses an amphibious cleaning device, which has the characteristics of high efficiency, energy saving, safety, high automation, multiple functions and low cost, garbage on the land and water surface can be thoroughly cleaned, remote control can be realized, the size is smaller, the structure is simple, and the working is flexible. The amphibious

cleaning device comprises a cart body, a driving system, a transmission system, a cleaning system, a garbage collecting system, a circuit control system, a remote control module and a solar battery panel, wherein the driving system comprises a land driving system and an on-water driving system; the transmission system comprises a motor I, and the motor I is used for respectively transmitting power through multi-level transmission into the cleaning system and the land driving system or the on-water driving system; the cleaning system and the garbage collecting system are respectively arranged on the front side and the upper side of the cart body and are connected through a track transmission device; the motor I is connected with the motor control system, and the circuit control system is communicated with the remote control module; and the solar battery panel is used for supplying electricity for the transmission system and the circuit control system.

Inventors

HUANG RUYI

LIU TINGTING

LIAN SHENGXING

YU HONG

SHI ZHONGXIU

LI XINJIAN

GUO MEI

Latest standardized assignees - inventors removed

QINGDAO UNIVERSITY

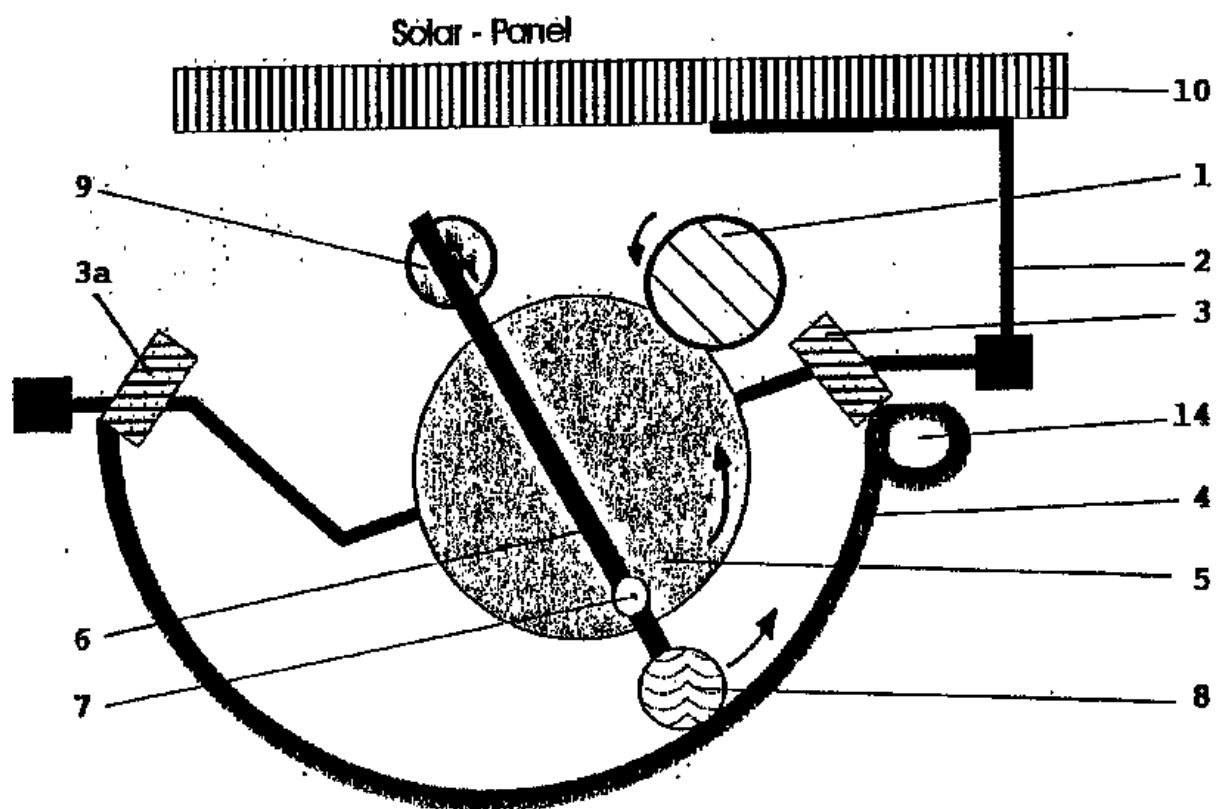
Family 52/77 - FAMPAT - ©Questel

Title

(DE19831474)

System for cleaning roof gutters especially for multi-storey building dirt collection clearing

Images



Publication data including kind & date

DE19831474

A1 1999-01-14 DE19831474



Abstract

(DE19831474)

The cleaning system for roof gutters, has an arrangement of at least one motor driven cleaning brush (8), which is fixed on

a movable frame using drive and supporting wheels (gears, 3 and 3a).A storage programmable control unit and a solar panel (10) arranged at the carrying frame (2) as a power source, also limit switches for activating the movement reversal of the system.The cleaning brush (8) works in conjunction with a crank sliding gear (5-7), so that the cleaning brush (8) is fixed on a thrust rod (6), which, on the other hand is guidable movable in a locally fixed bearing at the carrying frame (2) at the end opposite the cleaning brush.By the deflection with a crankpin (7), the track movement of a couple curve is carried out on a rotating crank disc (5).

Inventors

LAMSTER JOERG DR MED

Latest standardized assignees - inventors removed

LAMSTER JOERG DR MEDICAL

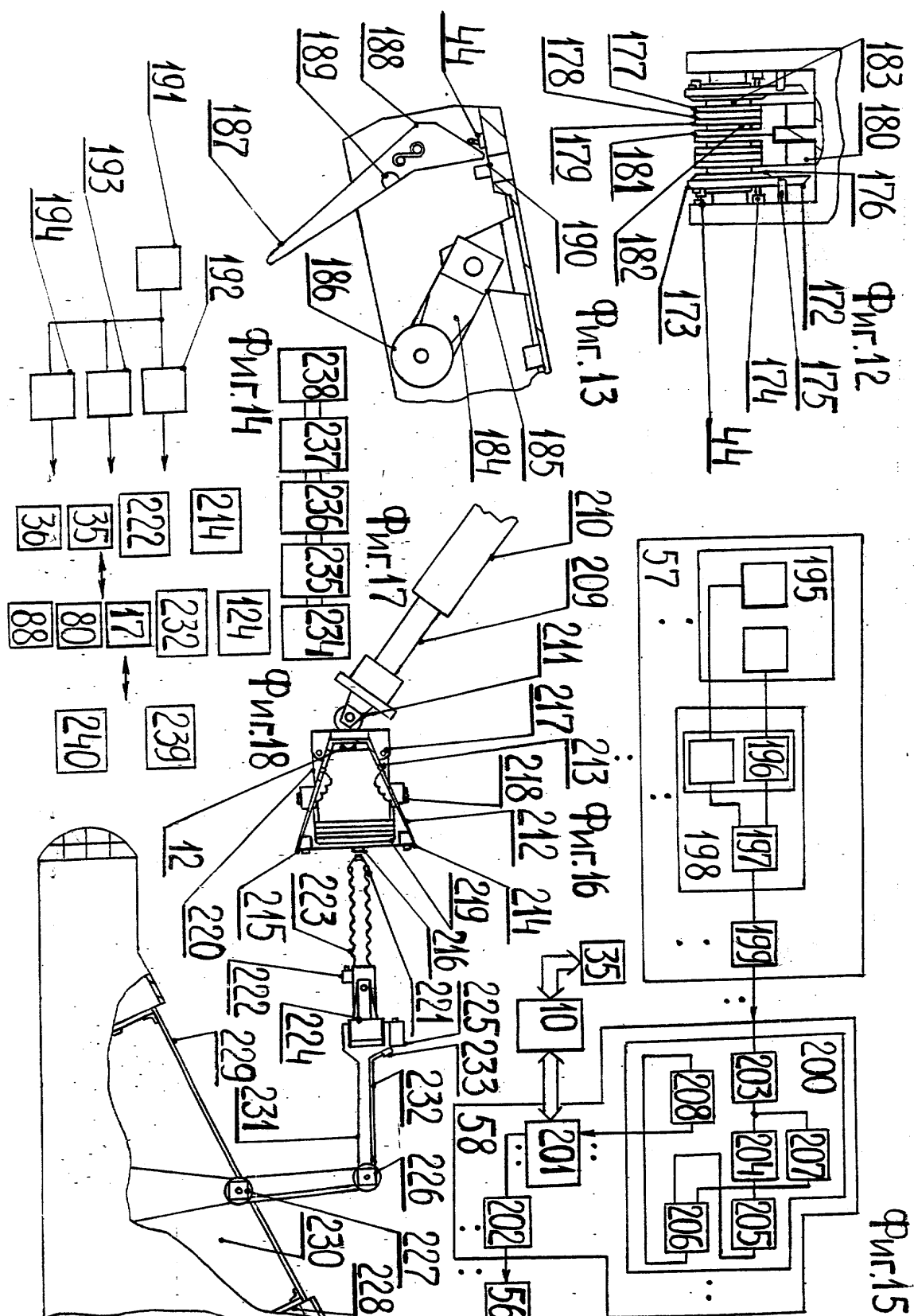
Family 53/77 - FAMPAT - ©Questel

Title

(RU---6183)

Micro-aviation robotic system

Images



Publication data including kind & date

RU6183

U1 1998-03-16 RU--6183

Abstract

(RU---6183)

1. is micro-aviation it is robotic system, [vklyuchayushcha] the flight vehicles, which have the sensor of electromagnetic [izlucheni], the block of [upravleni], actuators, control [yushchie] by flight- shunting elements it [poverkhnost] mi of flight vehicle, [otlichayushcha] are with the fact that used additional system mA [kovye], direction-finding means, remote-control unit and [puskoposadochnye] means, and flight vehicles are represented by the groups of separate and executed according to shuttle diagram with the carriers and the executive, that have the driving catches of [krepleni] with the

disengageable it elecate-connecteat mi, by fuel main-butt- locking units, installed to the outward- hull and arranged with the devices of external output units of suspension and SV as far as the [zannymi] between themselves devices of shuttle flight jointing - [l].[a]. modular, selected in accordance with [uslovi] mi of [primeneni] of design configuration and staffing, that have altimeter, velocity transducer, navigation system, regime setting device, block SV of [zi] with automatic responder "of friend-foe", t the [govodvigatelnye] and having separate engine drives the generator plants, which have starting drives cargo and landing parachute, equipped of [gazonapolnitel] mi of amortization- cushion -[aerosharovye] container device, hooked booster jets with the tempering fixer drives, separate and structurally combined, installed as far as group, [naruzhnokorpusnye], intra-container, placed on analogous for the sake of them installed are rigid, it is hinged, on the turntables, which have the drive assemblies of the conclusion of harvesting, fixer [krepleni] with the butt [elektromagistralnymi], [porogosilovymi] explosive tie-down fittings and [skanirovani], the devices of external conclusion and [manipul] of [tsii] and winch device- direction finders, range-finders, mA Ci, locating devices, teles-analyzer, means of the remote of tele-settinglaziness, air reconnaissance signal rocket-[dymofakelno]- cotton means, units of the suspension of flight vehicles, device of shuttle flight jointing, it is analogous for the sake of the latter arranged with the joint installation to the devices of external output and [manipul] of [tsii] and winch devices with the sensor of electromagnetic [izlucheni], sensors and elements of navigation system, regime setting device, unit SV of [zi], parachute, amortization- cushion - [aerosharovyykh] container devices, direction finders, range-finders, mA by [kami], locating devices, teles-analyzer, means: remote of tele-settinglaziness, air reconnaissance, combat [porazheni], by signal and other onboard means - means of [porazheni] of mains float [shchimi], cutting, saws by the [shchimi], rifle, having mufflers devices, with the sensors of [upirani] and [metallomass], with the winch tempering free- end and fixed vice versa- wound, supplied disengageable driving locks, by the [zakorachivayushchimi] conductors and [troskabel] mi with load, control besides the [emymi], magnetic and other mines with remote- control [emymi], temporary, contact- raised the blockade and other of [vzryvatel] mi, with the conductors, [troskabel] mi, fixed before the suspended, wound, folded view of [na], between and to the driving locks and by fastening element, with the application of elastic the time of ripening of [zhek] of the drive assemblies of fixer [krepleni], [porogosilovyykh] explosive tie-down fittings, the group adjusting platforms, on onboard means and hull elements of flight vehicles, [vypoln] [emykh] with the driving- extensible containers, hull- cavity of [ventil] by the [tsionnoy] system, with the modular- replaceable usual, armor, transparent, lens, colored, lusterless, specular, radar transmitter, scattering, [termomaskirovochnymi] skins, to [pokryti] mi, by screens, [polost] by mi, arranged with the means of [vlagopogloshcheni], cleaning and protection of onboard optical means, based on [izluchatel] mi of hull camouflage illumination and by the superficially- survey video sensors of the junction of housing- von, SV [zannymi] with the block of the adjustable sectional hull illumination, with which through the unit of [upravleni] of the flight vehicles SV of [zany] and the teles-analyzer, with the devices of [gasheni] of the echo radar pulses, with the devices of [skladyvani], separation, the fixations of flight- hull, propeller elements, t are [govye] and generator- are driving engine installations are supplied by starting, fuel regulating, arranged with the devices of shuttle flight jointing - by main- butt, locking, tank supercharger, compressor means, by sensors, [glushitel] mi, unit of [upravleni] of the flight vehicles SV of [zan] with the separate groups of the functionally united signal lines of the first - forty eighth with the sensor electromagnetic [izlucheni], by flight- shunting drives, by the catches of [krepleni] of flight vehicles, by altimeter, by high-speed sensor, by navigation system, by regime setting device, by the block SV of [zi], by electric system, by the starting drives of parachute, amortization- cushion -[aerosharovyykh] container devices, hooked booster jets, by the drives of their leave, by the drive assemblies of the conclusion of harvesting, fixer [krepleni], [skanirovani] and by the elements of the devices of external conclusion and [manipul] of [tsii], winch devices, direction finders, range-finders, mA of [kov], locating devices, teles-analyzer, the means of the remote of tele-settinglaziness, air reconnaissance, by starting drives and by the elements of combat, signal means, devices of shuttle flight jointing, float of the [shchikh], cutting, the saws [shchikh], rifle devices of [porazheni] of mains, by the sensors of [upirani], [metallomass], by winch disengageable drives by locks, [vzryvatel] mi of suspension mines, by driving locks and by the devices of fixer [krepleni] of the external suspension of conductors and [troskabeley], by the drives of the separation of the folds of containers, by the block of the adjustable sectional hull illumination, by the device of [gasheni] of the echo radar pulses, by devices and by the drives of [skladyvani], separation, fixation of flight- hull, propeller elements, by starting, fuel devices, by units, by drives, by sensors t of [govykh], the generator- drive [shchikh] engine installations, system mA the [kovye] and direction-finding means land, above and underwater- floating, aviation facilities - [puskoposadochnye] areas, [podt] the [givaemye] platforms, grid- is screen -[finishernye], [napravl] [yushchekatapulnye], [avtomaticheskoposadochnye], butt -

[vneshnevyyvodnye] container means, the means of [popoln] [emogo] of the energy-deliver with the fuel- tank, driving main- butt, fuel-synthesizing devices, the natural, autonomous energy-generators, and also transportation carrying means themselves, which carry system [letatanye] apparatuses are - gliders, by [aerovozdushnymi] spheres, [dirizhabl] mi, by aircraft, by cruise missiles, by helicopters, by convertiplanes, by ornithopters, by flight vehicles with the rotary nozzles, [kryl] mi, by screws, [dvigatel] mi, by the composite system of [upravleni], by slotted wing, by flight vehicles aircraft-dirigible- helicopter, by [diskoletami], by aerodynamic air-cushion vehicles, by autogyros, by [rotokrylami], by delta-plans, by flight vehicles based on [vikhredvizhitel] mi, longitudinal diagram, by screws before the hull and annular channels, treasors by the [emoy] geometry of wing, by air cushion, system Pegasus, with the combined lift and t by [govymi] propeller installations, with the electric drive on the solar to [batare] X, the generator nourishment, with the elastic and the [variatorno]-[makhovikovymi] [nakopitel] mi of energy, hydro-aviatioies facility, above and underwater amphibi mi, that fly of [avtomobil] mi and by other flight vehicles.

2. system on [p].1, [otlichayushcha] with the fact that the sensor of electromagnetic [izlucheni] consists of the radio receiving equipment, connected down the spectral voter of the frequencies of the greatest intensity of [izlucheni] before the radiophone of electric power lines with the group output, SV [zannym] with the summing threshold device of identification.

3. system on [p].1, [otlichayushcha] with the fact that the block of [upravleni] by the flight vehicles of [predstavl] of [et] by itself onboard digital computer with the information-signal- power buffer- interface block SV of [zi] and [upravleni] by onboard means.

4. system on [p].1, [otlichayushcha] is with the fact that navigation system it is executed by that including those in parallel functioning inertia, satellite and mA [kovuyu]- navigation systems, the sensor of [napravleni] down the magnetic pole and the television- locating coordinator with the block of [korrel] of [tsionnoy] information processing.

5. system on [p].1, [otlichayushcha] with the fact that regime setting device is executed with the panel with the devices - microprogrammed keyboard and on the devices [schityvani] of movable program carriers - input of flight program.

6. system on [p].1, [otlichayushcha] with the fact that the unit SV of [zi] of flight vehicles is executed with those code having the unit of the automatic responder "of friend-foe", by separate and combined with the locating- direction-finding means [radiopriemoperedatchikami], the photoreceivers control of [yushchego] laser and searchlight [oblucheni], by optical and laser transmitting [izluchatel] mi, which have the means of driving direction-finding- inertia orientation.

7. system on [p].1, [otlichayushcha] with the fact that landing parachute container devices have the pushed out hinged established with the driving catch spring-opposed cover of parachute section with the folded, having [ottsepnoy] driving it soaked [krepleni] shroud line and by the elastic pushing out device with the driving catch.

8. system on [p].1, [otlichayushcha] with the fact that cargo parachute container devices have the pushed out, hinged established with the driving catch spring-opposed cover of parachute section with that folded SV [zannym] by [storopami] with the ejected by load parachute and the elastic pushing out device with the driving catch.

9. system on [p].1, [otlichayushcha] is with the fact that amortization- cushion -[aerosharovye] container devices are executed with the having starting drives gas-producing, cylinder, driving compressor and is locking -[stykuyushchimi] with the [gazovotoplivno]- engine system means and [gazonapolnitel] mi and SV [zannymi] with them through the driving [puskovypusknoy] valve block, packed before the containers with the spring-opposed covers and driving catches, [gazozapoln] by the [emymi] pillows, by [sharoobolochkami] with the exhaust of [ventil] mi.

10. system on [p].1, [otlichayushcha] with the fact that hooked booster jets are executed in the form solid-propellant jet engines with the electric fuses.

11. System on [pp].1 and 10, [otlichayushcha] with the fact that the tempering fixer drives of hooked booster jets are executed in the form spring-opposed, hinged- established on the hull elements flight vehicles of the hoops, supplied for the sake of driving catches.

12. System on [p].1, [otlichayushcha] with the fact that the service drive assemblies of [skanirovani] of onboard means of flight vehicles are executed in the form the pair of those supplied for the sake of rotary drive assemblies with arrangement one on another of rotary, is mutual [perpendikul] [rno] of the hinged established platforms.

13. System on [p].1, [otlichayushcha] with the fact that of the device of external conclusion and [manipul] of [tsii] are executed in the form telescopic rods hinged, with the rotary drive assemblies, by the established on the driving turntable base with the internal [troskabelem], fixed on the boundary electro-connector of end, equipped for the sake of the guiding system [skanirovani] by established beyond it onboard means, telescopic component, and wound down the having sensor

of the wound length contact collector, driving brake- catch and block of [stsepleni] with the lifting mechanism with the reducer and the electric motor the drum of the winch hoist, where [imeyuts] also interacting with the end telescopic component placed before the base of telescopic rod, supplied for the sake of tempering drive, catch and the contact sensor of folded [polozheni] of rod.

14. system on [p].1, [otlichayushcha] with the fact that the drive assemblies of the turning of hinged bases, turntables, scanning devices include position detector, contact collector, driving the brake- catch of shaft and the block of [stsepleni] of shaft with the mechanism of turning, which has reducer and drive of [shchiy] of [elektroprivod].

15. System on [p].1, [otlichayushcha] with the fact that winch devices are equipped for the sake of winch drums, SV [zannymi] by the shaft through the motorized reducer and those having gross the sensor of the wound length, contact collector and driving brake- catch and the unit of [stsepleni] of barrel shaft and by reducer.

16. system on [p].1, [otlichayushcha] with the fact that onboard direction finders include the radio-, hydro-, acoustic and optical direction finders mA of [kov], purposes and emitters, emitters of millimeter waves, radar, laser [oblucheni], laser target-indicating p pentrite, rocket engines and tracers, thermal [izlucheni] of man and purposes.

17. System on [p].1, [otlichayushcha] are with the fact that as the range-finders used laser range-finders with the combined target-indicating of [funktsi] mi.

18. System on [p].1, [otlichayushcha] are with the fact that as the range-finders used television range-finders with the [telekamernymi] and [tsifrofotoapparatnymi] sensors.

19. system on [p].1, [otlichayushcha] are with the fact that as the range-finders used auto-focusing [odnofragmentnye] range-finders.

20. System on [p].1, [otlichayushcha] with the fact that onboard mA Ci - these are radio-, hydro-, acoustic and light, infrared, ultraviolet [rkostnye] and [kodovoizluchayushchie], supplied for the sake of blocks console, remote- command, synchronously timer- microprogrammed [vklyucheni] - [vyklyucheni] and the installation of [kodovomodul] of the [tsionnykh] signs, emitters.

21. System on [p].1, [otlichayushcha] are with the fact that as the locating devices used laser locating devices.

22. System on [p].1, [otlichayushcha] are with the fact that as the locating devices used radar devices.

23. System on [p].1, [otlichayushcha] are with the fact that as the locating devices used light locators with the searchlight frequency-modulated emitter and the frequency- selective photoreceiver searchlight of [izlucheni] reflected, SV [zannym] with the two-level comparator block control of the [emoy] sensitivity.

24. system on p. 1, [otlichayushcha] with the fact that teles-analyzer [sosto] t from SV [zannykh] with the direction finders, the range-finders, the locating devices, the blocks of [opoznani] of means with the [telekamernymi], [tsifrofotoapparatnymi] video sensors, functionally combined with the navigation television- locating coordinator with the block of [korrel] of the [tsionnoy] working.

25. system on [p].1, [otlichayushcha] with the fact that of the means of the remote of tele-settinglaziness includes [telekamernye], [tsifrofotoapparatnye] video sensors, code [signaloformiruyushchie], transmitting and command- receiving, decoding means.

26. System on [pp].1, 24 and 25, [otlichayushcha] is with the fact that used united video sensors - small frame television cameras and the digital cameras, equipped and functionally combined with the means of night [videni] of [dl] of range-finders, teles-analyzer, remote of tele-settinglaziness, means of air reconnaissance.

27. system on [p].1, [otlichayushcha] with the fact that float [shchie] the devices of [porazheni] of mains are executed by autogenous with gas balloon, gas-producing means, SV [zannymi] with the driving exhaust of [ventil] mi of the equipped for the sake of the drive assembly of ignition gas burner, placed on the having the drive assembly of turning platform with the possibility of fixation between the speakers forward of [zub] mi of the spring-opposed, hook fork, hinged established with a certain free motion between the support of gathered hook [polozheni] and the protrusion of the driving catch of working [polozheni], in the contact zone with which the fork signal contacts with the sensor of [upirani].

28. System on [p].27, [otlichayushcha] is with the fact that used electrolytic gas generator.

29. system on [p].1, [otlichayushcha] with the fact that cutters of [porazheni] of mains are executed in the form pruning shears with the coming out forward coupled knives -[zub] mi of the spring-opposed hook fork, made by that hinged established with a certain free motion between the protrusions of the driving catches of working [polozheni], in zone of which it signal contacts with the sensors of [upirani], and by the supports of gathered hook [polozheni] with the moving cutting

knives, which contact with the pointed edges of the coupled knife- teeth and having position detector, driving the brake-catch of [polozheni] and the block of [stsepleni] with power converter, SV by the [zannym] drive [shchim] electric motor.

30. System on [pp].1 and 29, [otlichayushcha] with the fact that power converter is executed in the form the reducer, which has the output shaft, combined by axis with the shafts of the cutting knives and [poluos] mi of hook fork.

31. System on [p].1, [otlichayushcha] with the fact that of saws [shchie] the devices of [porazheni] of mains are executed with the sawing machine, established on the having the drive assembly of turning platform based on the saws by [shchim] operating unit, passage [shchim] between the speakers forward of [zub] mi of the spring-opposed hook fork, hinged established with the possibility of a certain free motion between the support of gathered hook [polozheni] and the protrusion of the driving catch of working [polozheni] before the zone of contact, with which it signal contacts with the sensor of [upirani].

32. system on [pp].1, 27 - 31, [otlichayushcha] with the fact that float [shchie], cutting, saws [shchie], the rifle devices of [porazheni] of mains are executed modular- replaceable with the disengageable it elecate-connecteat mi, [sovmeshchenno] installed.

33. system on [pp].1, 27 - 32, [otlichayushcha] with the fact that the sensors of [upirani] are executed in the form the contact sensors, gathered by hook fork.

34. System on [p].1, [otlichayushcha] with the fact that the sensors of [metallomass] are executed in the form induction-resonance sensor and SV [zannykh] with its output of the analog-to-digital of [preobrazovatel] of output signal and blocks of assigned threshold and extreme [strabatyvani].

35. System on [p].1, [otlichayushcha] with the fact that the superficially- survey video sensors of the junction of housing- von are represented by groups of several with the spectral- distributed peak sensitivity pairs of photo cells, supplied for the sake of the optical systems, oriented down different [kra] of housing and background above them, in pairs connected down those having input amplifiers, SV [zannye] by outputs with the diagram of [vydeleni] of [vypr] of the [mlennogo] difference for example marry, that corresponds to a difference in the [proetsiruemy] spectral illumination of paired photo cells, to the blocks of [vychitani], SV [zannym] by outputs with the entrances of output analog-to-digital converters.

36. System on [p].1, [otlichayushcha] with the fact that before it as the surface video sensor of the junction of housing- von [ispolzuyuts] having the drive of external conclusion and the orientations, arranged with the periscope [proetsiruyushchimi] means the [telekamernye] [tsifrofotoapparatnye] video sensors of tele-analyzer and his blocks of [videoanaliza] of color-contrasting passages.

37. System on [p].1, [otlichayushcha] with the fact that the block of the adjustable sectional hull illumination is executed containing the input channel- spectral analyzers of fine-adjustment extremum, SV [zannye] by entrances with the outputs of the video sensors of the junction of housing- von, and by outputs - with the block of microprogrammed [upravleni] by the hull camouflage illumination, which has the port SV of [zi] with the unit of [upravleni] of flight vehicles, and teles-analyzer and SV [zannym] by outputs with the entrances of [upravleni] of the schematics of the adjustable incandescence of the [raznospektralnykh] emitters of the hull camouflage illumination of sectional- those distributed on the housing.

38. System on [p].1, [otlichayushcha] with the fact that actuators, control [yushchie] by flight- shunting elements [poverkhnost] mi of flight vehicles, are by the driving, supplied catches and position detectors, devices driving control of [yushchego] [manevrirovani] of [dvizhitel] mi, [dvigatel] mi, by nozzles, by ailerons and RUL mi.

39. System on [p].1, [otlichayushcha] with the fact that devices and drives of [skladyvani], separation and fixation of flight-hull and propeller elements are the supplied sensors and the catches of [polozheni], by the drive assemblies of [skladyvani] - separation it is wing, screws, chassis, hook arresting hooks.

40. System on [p].1, [otlichayushcha] with the fact that of the device of shuttle flight jointing are on carrying half placed on end [zven] X of the telescopic rods of the devices of external conclusion and [manipul] of [tsii], the equipped drive assembly of [skanirovani], installed before the butt of [napravl] to [yushchey] funnel with the sensor of loading beside the zone of fixation, the additional video sensor of onboard video systems, as far as direction-finding- ranging, mA by [kovymi] means, by the driving catches of [krepleni] with the disengageable first half it elecate-connecteat - by the block of seizure from the pairs hinged established with the drive mechanisms of [sdvigani] - [razdvigani], clamps of square profile with the ribbed surface of clamp contact, with boundary light mA by [kami], by second-half it elecate-connecteat and by the additional video sensor of onboard video systems, stock of butting half, established on equipped for the sake of drive assembly [skanirovani] direction-finding- ranging mA by the [kovymi] means the end of the equipped for the sake of the knee drive

mechanisms of [rozdviga]-[skladyvani], removed before intra-hull, supplied for the sake of the having the drive assemblies of [rozdviga] covers, container, the well-made section of the elbow of butting half, which has the laid on it cable, which goes down the end electro-connector SV of [zi] with the placed on the end link means, where the drive mechanisms of [sdvigani] - [razdvigani] of clamps and the knee drive mechanisms of the separation -[skladyvani] of the section- elbow of [vypoln] of [yuts] containing consecutively on the power shaft position detector, driving brake- catch, the block of [stsepleni] and the mechanism of turning with the reducer and drive by [shchim] electric motor.

41. System on [pp].1, 24 - 26 and 40, [otlichayushcha] with the fact that the video sensors of the carrying butting flight vehicles of carrying transportation means SV of [zany] respectively through cables and blocks SV of [zi] with the onboard and the delivery of [shchimis] to the means of control of the operator of system remote-control unit by tele-monitors.

42. System on [p].1, [otlichayushcha] with the fact that sensors [sosto] not of engine installations include the velocity transducers of [vrashcheni] of engine shafts, engine heating, [urovn] of fuel before the tanks.

43. System on [p].1, [otlichayushcha] with the fact that of the means of air reconnaissance are the devices of direction-finding, photo-, tele-reconnaissance and by the means of the record, including of video recording.

44. System on [p].1, [otlichayushcha] with the fact that rifle equipped of [glushitel] mi of the means of [porazheni] of mains are represented [sovmeshchenno] of [vypoln] [yushchimi] of the function of the means of combat [porazheni], and also separate, having orientational servodrives, aiming- combined with the locating, direction-finding, ranging means, video sensors of teles-analyzer and means of remote control, rifle devices, placed on the hull elements of flight vehicles and to the devices of external output and [manipul] of [tsii], [sovmeshchenno]- installed and oriented, float by [shchimi], cutting, saws by the [shchimi] devices of [porazheni] of mains, and also with the laser and rocket weapons of combat [porazheni].

45. system on [p].1, [otlichayushcha] with the fact that the driving locks of suspension are executed in the form catches with the electromagnetic disengageable drive.

46. System on [p].1, [otlichayushcha] with the fact that the driving locks of suspension are executed in the form catches with those having boundary elastic-fasteningleavefolding [porogosilovye] units, single-time of [razrushayushchimis] the float of [shchimis], that burn, [diffuziruyushchimi], [raskalyvayushchimis] by the insertable bolts, arranged with the heating, igniting, detonator, electro-impact means and [vypoln] [emymi] with the sectional elastic time of ripening by [zhkami] and by figured- supporting surface under the consecutive- displaced turns of piling.

47. System on [p].1, [otlichayushcha] with the fact that the driving locks of suspension are executed with the bolts, passage [shchimi] through the group consecutively across the [zasovnoy] length of the placed slit nests under the fastening rings and the inflectional units of the hung up conductors, [troskabeley], their fastening elastic the time of ripening of [zhek] and SV [zannymi] with the step drive assembly.

48. System on p. 1, [otlichayushcha] with the fact that the fastening elements of suspension are executed in the form hooks with the lower edge, deflected down the side, reverse to the position of the locks of suspension.

49. System on [p].1, [otlichayushcha] with the fact that fastening elements are executed in the form reel bodies with the free external edge under the reel- wound conductors and [troskabeli] output by the [shchimi] down the locks fastening - [gruzouprugorast] [zhechnymi] of [okonchani] mi.

50. System on [p].1, [otlichayushcha] is with the fact that used [sovmeshchenna] it is intra-container, [naruzhnokorpusna], hull- is slit, cavity, grooving the installation of the locks of suspension, fastening elements and [magazinopodayushchesbrasyvayushchikh] means with the application of group adjusting platforms, hull drive assemblies of fixer [krepleni], [porogovosilovykh] explosive tie-down fittings, elastic the time of ripening of [zhek].

51.

52. System on [p].1, [otlichayushcha] with the fact that the means of [popoln] [emogo] of the energy-deliver of system [puskoposadochnykh] means are executed with the fuel- tank means, it is fuel -[elektrokommutiruyushchimi] by means - [stykuyushchimi] of the main of [dozapravl] of the [emykh] means with base of [magistral] mi, fuel-synthesizing means, arranged by the means of the condensation of moisture, outboard and rain water intake, reserve -[nakapitelnyymi] raw [emkost] mi, by the thermo- and electrolytic means of [razlozheni] of water, by the storage- pumping means, [vodorodozapoln] [emymi] [emkost] mi, by the means of [preobrazovani] beside the safe hydrogen by fuel- and capacitive-container [nakopitel] mi under it with the butt -[manipul] trodden- exchange devices, the drives and the units.

53. System on [p].1, [otlichayushcha] with the fact that natural and autonomous energy-generators are equipped [akkumul] for the sake of tori, driving separation- well-made, extra-leading-out of [robotoraznos] [shchimi], that fold, that clean, the

replacements as far as the [yushchimi] commutation means, [vypoln] [emymi] and which have camouflage elements under the [okruzhayushchiy] background - by solar wave, geothermal, flow, wind, natural- raw, reagent, autonomous of the micro by [dernymi], of thermal [dernymi] and other combined energy-generators.

54. System on [p].1, [otlichayushcha] with the fact that [avtomaticheskoposadochnye] means are included placed on lift-well-made, carrying transportation means, stationary [puskoposadochnykh] areas, [podt] the [givaemykh] platforms, are butt -[vneshnevyvodnykh] means, above and on [kra] m grid- screen -[finishernykh] of means, supplied for the sake of the orienting, scanning drives and screens, point light, laser, radio-, hydro-, acoustic mA Ci with the driving- combined direction finders external mA of [kov] and emitters.

55. System on [pp].1 and 27, [otlichayushcha] with the fact that float [shchie] the autogenous devices of [porazheni] of mains are performed with SV by the [zannoy] fuel- hydrogen engine power-supply system through the gas collector unit of the barrel shaft of winch hoist by the gas hose main, laid on [troskabelyu] of the device of external output and [manipul] of [tsii] and by that wound to the drum of winch hoist.

56. System on paragraphs 1 and 27, [otlichayushcha] with the fact that float [shchie] the autogenous devices of [porazheni] of mains are performed [s] together with them by the established driving means of the condensation of moisture, outboard and rain water intake, raw [emkost] mi, by the means of [razlozheni] of water, [nakopleni] and supply of hydrogen.

57. System on p. 1, [otlichayushcha] with the fact that arranged with the devices of external conclusion and [manipul] of [tsii], the working driving catches of [krepleni], the fuel- tank means and the means of [popoln] [emogo] of the energy-deliver (means of fuel-pumping they are executed those reporting through [toplivomagistrali] the fuel tanks of the butting means) by driving- butt units and by locking organs, where the fuel tanks are supplied for the sake of the pressurized system, which includes pneumatic tank cylinder or compressor, SV [zanny] with the tank through the pneumo-reducer, and also have driving- exhaust valves.

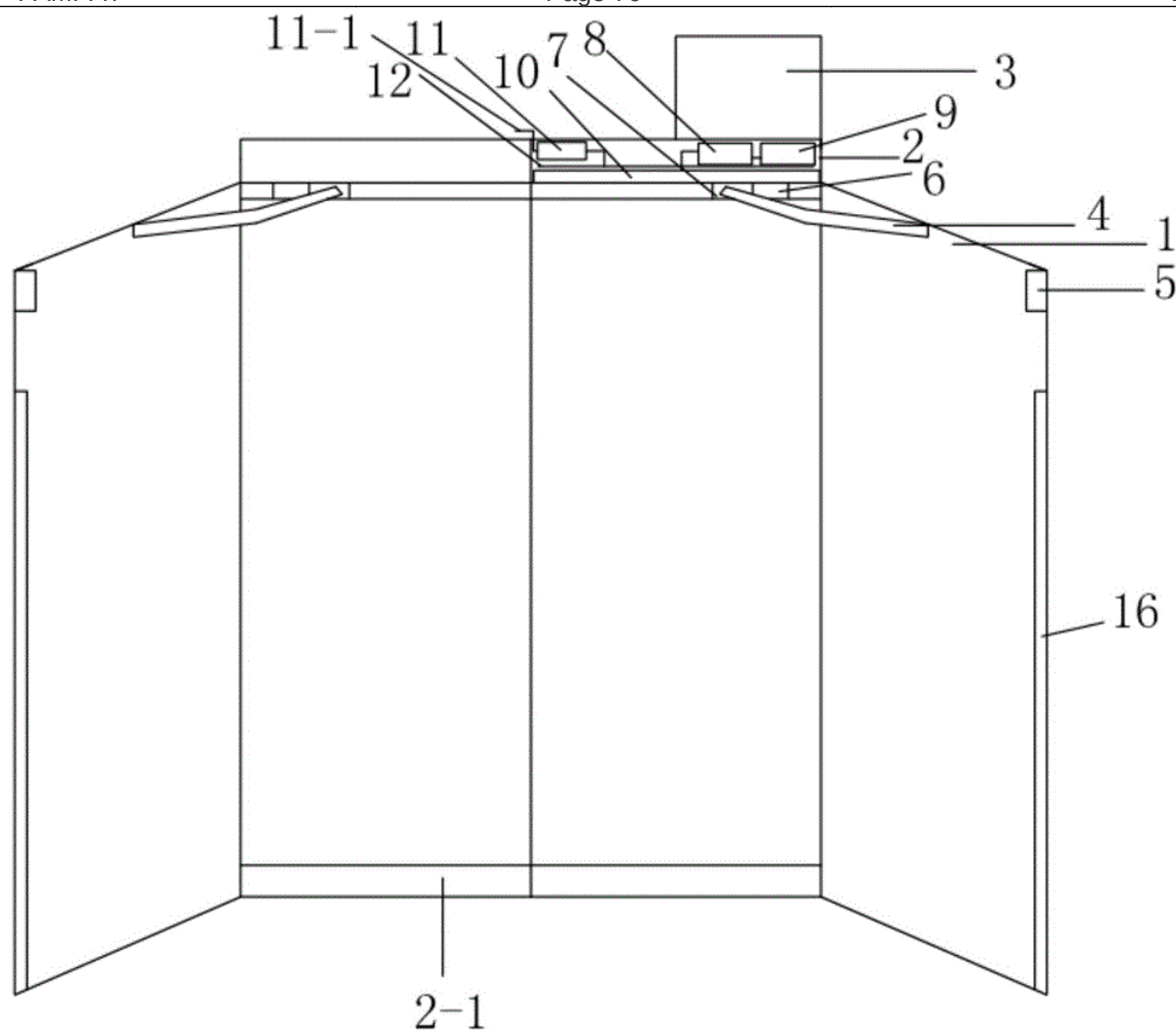
Family 54/77 - FAMPAT - ©Questel

Title

(CN205638040U)

Can multi -functional window of automatic closed induction type self -cleaning

Images

**Publication data including kind & date**

CN205638040

U

2016-10-12

CN205638040U

**Abstract**

(CN205638040U)

The utility model discloses a can multi -functional window of automatic closed induction type self -cleaning, it relates to the field. The upper portion of window form is provided with the window frame, and the lower part of window form is provided with down the window frame, last window frame top install solar panel, solar panel is connected with the battery, the battery respectively with the humidity inductor, a controller, a drive uni, the motor electricity is connected, the inboard upper portion of window form is connected with the trace, the controller is connected with humidity inductor and drive control, the lower extreme of motor is connected with the telescopic link, be connected with on the telescopic link and clean the device, and the water storage box sets up in last window frame, the one end of water storage box with spout water piping connection, the other end and the water storage pipe of water storage box are connected, and install the solenoid valve on the spray pipe. Can be automatic closed when people go out and rain suddenly or snow, prevent effectively that clothing or ground from getting wet, can rinse outside window form, the cleaning performance is good, adopts the solar cell power supply, and is comparatively energy -conserving and environment -protective.

Inventors

HU JIANWEI

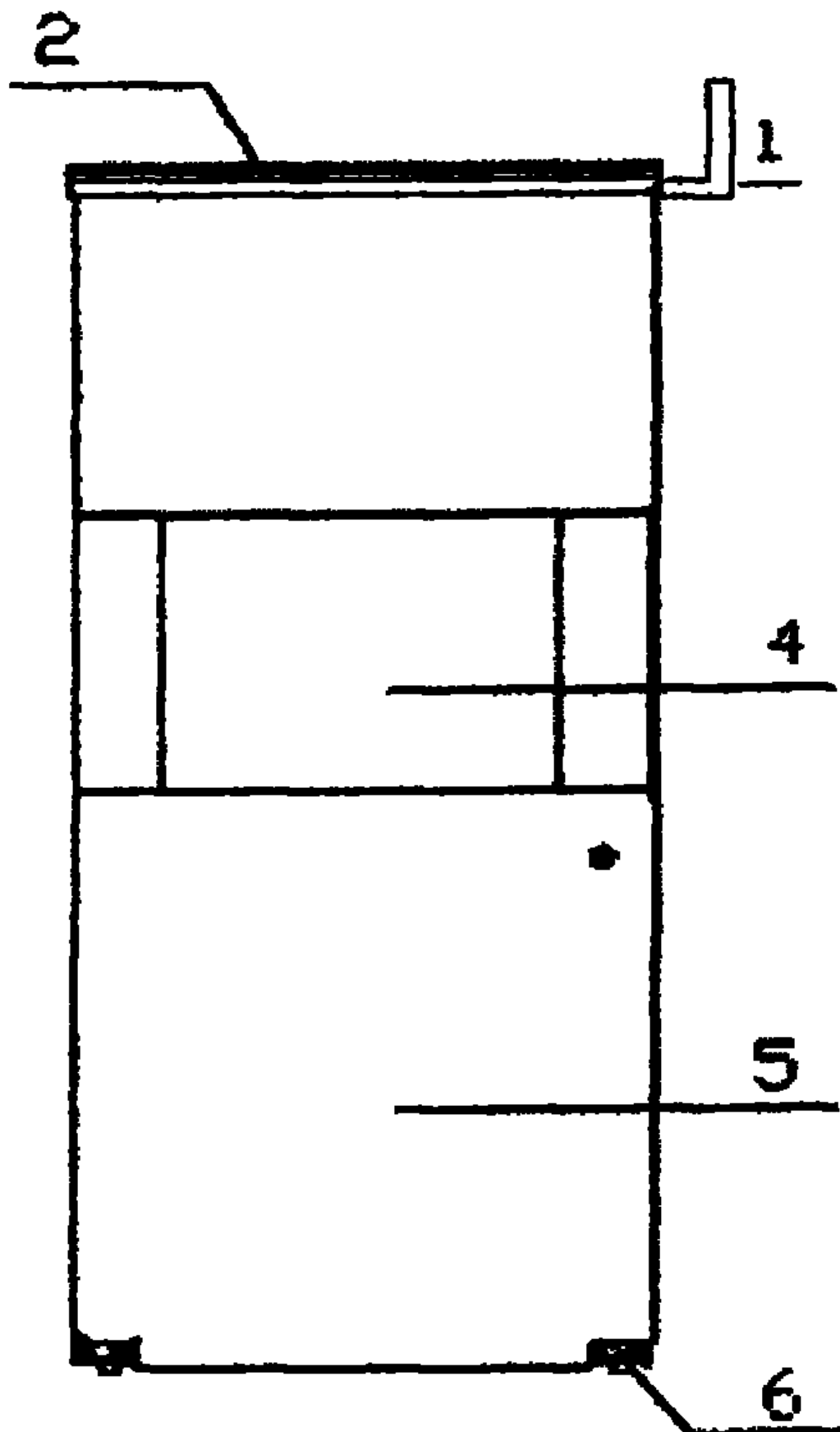
Family 55/77 - FAMPAT - ©Questel

Title

(CN102060157)

Intelligent solar trash compressor

Images



Publication data including kind & date

[CN102060157](#)

A 2011-05-18 CN102060157



Abstract

(CN102060157)

The invention relates to an intelligent solar trash compressor which adopts solar cell panels to supply power and effectively combines the functions of automatic trash compression, automatic sterilization, trash isolation, storage and transport and wireless communication information control. The working process of the trash compressor is as follows: a person opens a throwing door 4 to throw the trash; after the door is opened certain times, a locking control device receives an instruction to lock the throwing door 4 and a trash cleaning door 5, and a compressing plate 12 compresses the trash downwards; after a cross beam 10 touches a position sensing device of a movable compressing plate 13, the compressing plate 12 returns to the original position upwards and automatically inclines upwards, locking control on the throwing door is eliminated, and the machine is in a servo operation state; and when the trash is full, a signal is transmitted to a trash processing center via a wireless communication control device, thus being convenient for timely processing the trash. Besides, a built-in storage and transport device is convenient for carrying away the trash.

Inventors

WANG CHUNHAI

Latest standardized assignees - inventors removed

TIANJIN AMJOYI TECHNOLOGY

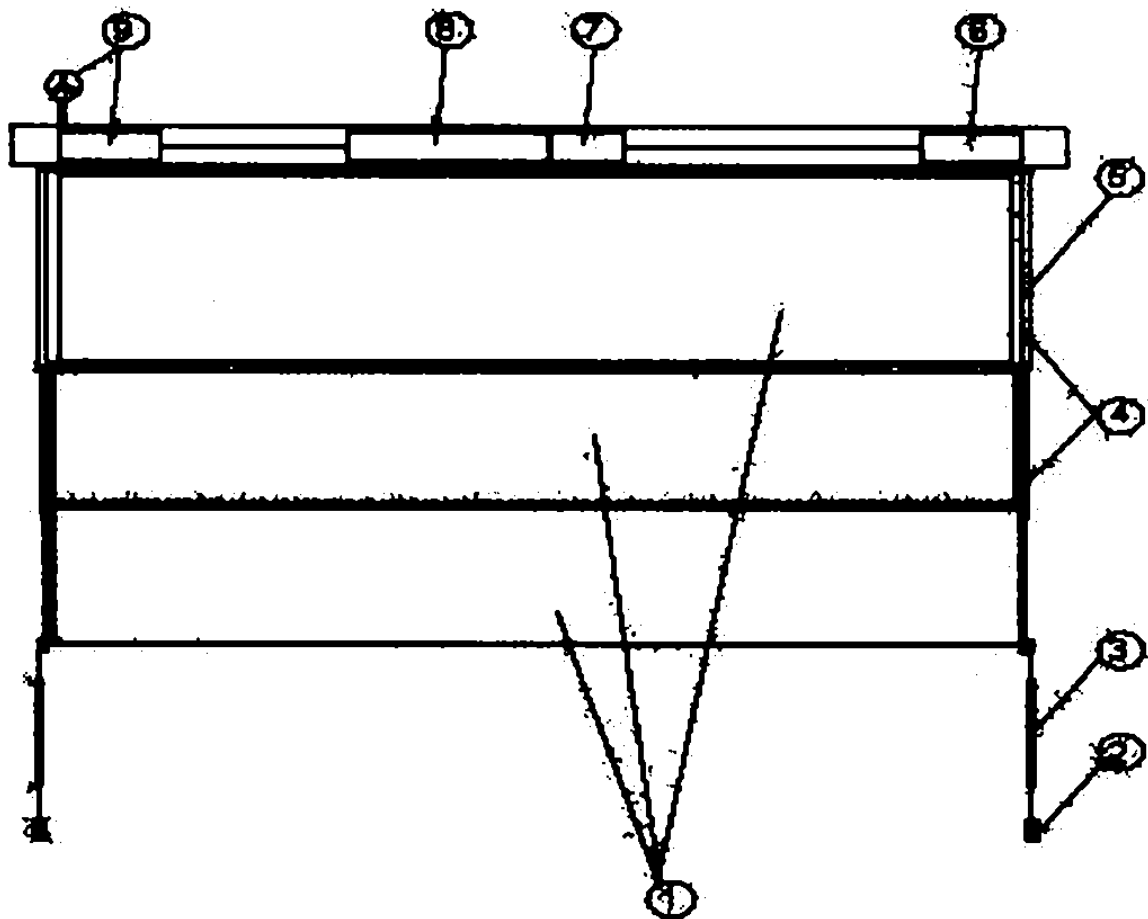
Family 56/77 - FAMPAT - ©Questel

Title

(CN202125028U)

Solar power generating telescopic awning

Images



Publication data including kind & date

CN202125028

U 2012-01-25 CN202125028U



Abstract

(CN202125028U)

A solar power generating telescopic awning comprises the following components: a solar cell panel, a fixing member, a telescopic arm, a solar cell panel bracket, a transmission hinge, a direct current motor, a controller, a storage battery and a

wind and light control part. The system can manually open or automatically open the solar cell panel for generating and simultaneously shade sun according to the strength of external light, thus achieving the effect of saving energy, resisting heat and adjusting strong light; when meeting strong wind, a wind control device can start the automatic protection to close the system, thus avoiding the damage; a light tracking system ensures that the retraction amplitude of the system can be adjusted according to the strength and the angle of the external light, thus achieving the effect of shading light, maximum utilization of light and power, and better preventing rain and hail; and the solar power generating telescopic awning has the advantages of smartness, attractiveness and convenience in installation and clean, and can be widely applied to doors, windows and balconies of various kinds of houses.

Inventors

WANG JIANPING

Latest standardized assignees - inventors removed

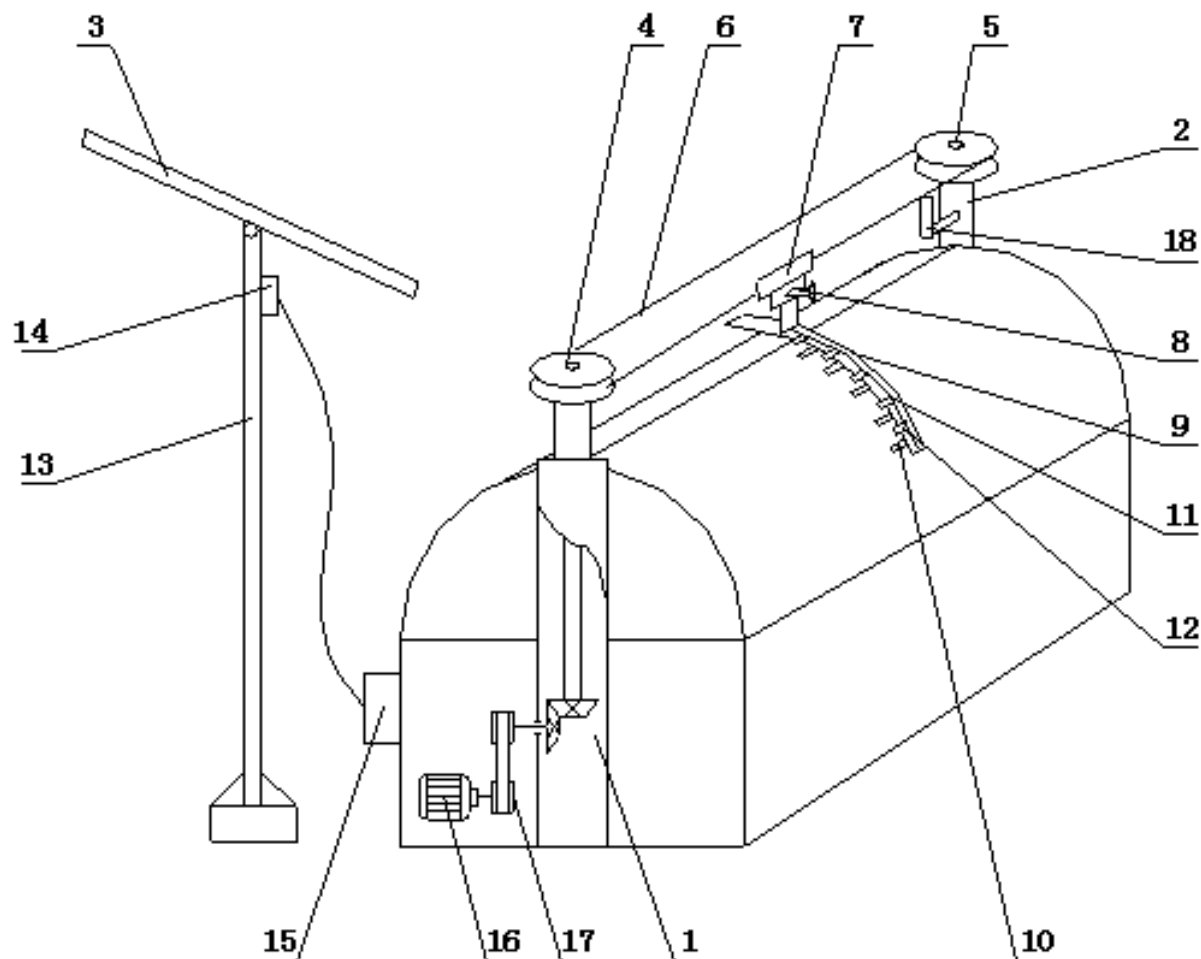
XINJIANG HAOTIANNENG ENVIRONMENTAL PROTECTION TECHNOLOGY

Family 57/77 - FAMPAT - ©Questel

Title

(CN204866683U)

Automatic cleaning device of greenhouse booth

Images**Publication data including kind & date**[CN204866683](#)

U

2015-12-16

CN204866683U

**Abstract**

(CN204866683U)

The utility model relates to an automatic cleaning device of greenhouse booth, it includes the front column, rear column and photovoltaic solar panel, the top of front column is provided with the action wheel, the top of rear column is provided with from the driving wheel, be connected with the hawser between action wheel and the follow driving wheel, hawser fixed mounting has the link, the link is connected with adjusts the seat, it has the cleaning rack through bolted connection to

adjust the seat, brush and nozzle are installed to the cleaning rack, the nozzle is connected with the aqueduct, photovoltaic solar panel fixes the top at the support post, photovoltaic solar panel is connected with photoelectric converter, photoelectric converter is connected with the electric cabinet, the electric cabinet is connected with the motor, the output shaft of motor has the belt pulley, the belt pulley is connected with the action wheel, and has the advantages of reasonable design, moreover, the steam generator is simple in structure, high durability and convenient use, energy saving and environmental protection, the manpower is also saved, and labor intensity is reduced, therefore, the carrier wave prepaid electric energy meter is low in cost, high reliability and high work efficiency, and the application range is wide, the safety and stability, good economic benefits, no shedding and long service life.

Inventors

WANG HUAIZHEN

Latest standardized assignees - inventors removed

CHANGYUAN LUYU ECOLOGICAL FARMING COOPERATIVES

Family 58/77 - 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

ANHUI UNIVERSITY OF SCIENCE & TECHNOLOGY

Family 59/77 - 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

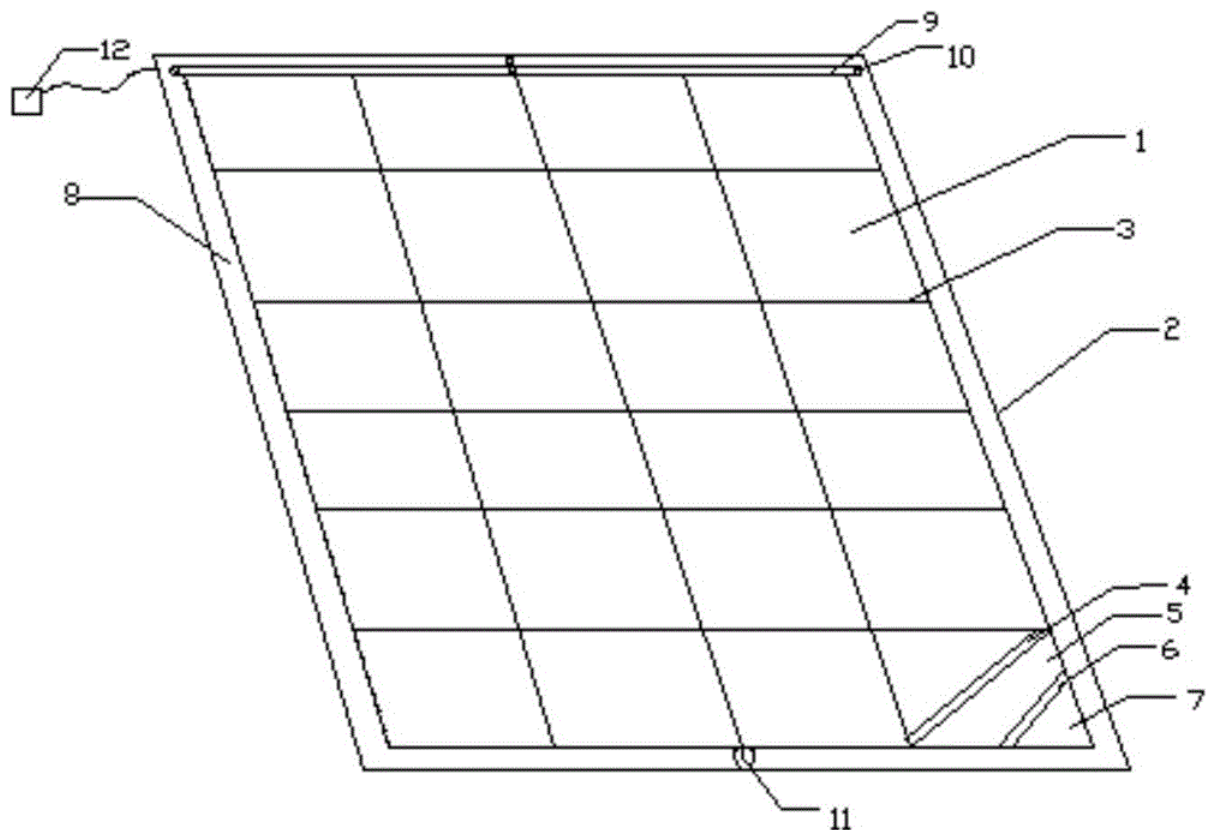
QINGDAO QINGQUAN BIOTECHNOLOGY

Family 60/77 - 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

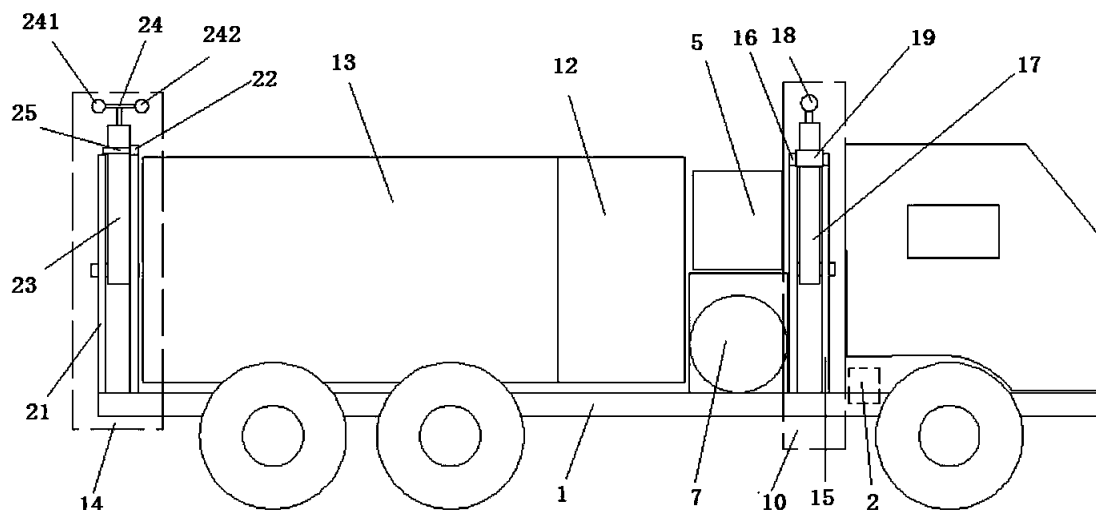
WUXI CHANGJIANG ELECTRICAL APPLIANCE EQUIPMENT

Family 61/77 - FAMPAT - ©Questel

Title

(CN204870703U)

No touch high pressure cleaning car

Images**Publication data including kind & date**

CN204870703 U 2015-12-16 CN204870703U

**Abstract**

(CN204870703U)

The utility model belongs to the technical field of solar cell panel cleaning equipment, especially, relate to a no touch high pressure cleaning car, which comprises a base, be equipped with cleaning equipment on the chassis, the anterior driver's cabin that is of vehicle chassis, last various cleaning equipment and the preceding rotation chassis of being equipped with of vehicle chassis, the vehicle chassis rear portion is equipped with back rotation chassis, preceding rotation chassis includes preceding support frame, ring gear track before the circle is annular, preceding electric telescopic arm and fog knife rest, preceding electric telescopic arm is connected through the pivot with preceding support frame, be equipped with preceding running gear on the preceding electric telescopic arm, preceding running gear matches with preceding ring gear track, preceding running gear rotates on the ring gear track in the front, preceding electric telescopic arm top is equipped with preceding electric telescopic handle, be equipped with the fog knife rest on the preceding electric telescopic handle, be equipped with the atomizer on the fog knife rest, back rotation chassis's structure is the same with preceding rotation chassis's structure, back rotation chassis's top is equipped with the back tool rest, be used for jet -propelledly and wash water, this device can wash solar cell panel by the efficient.

Inventors

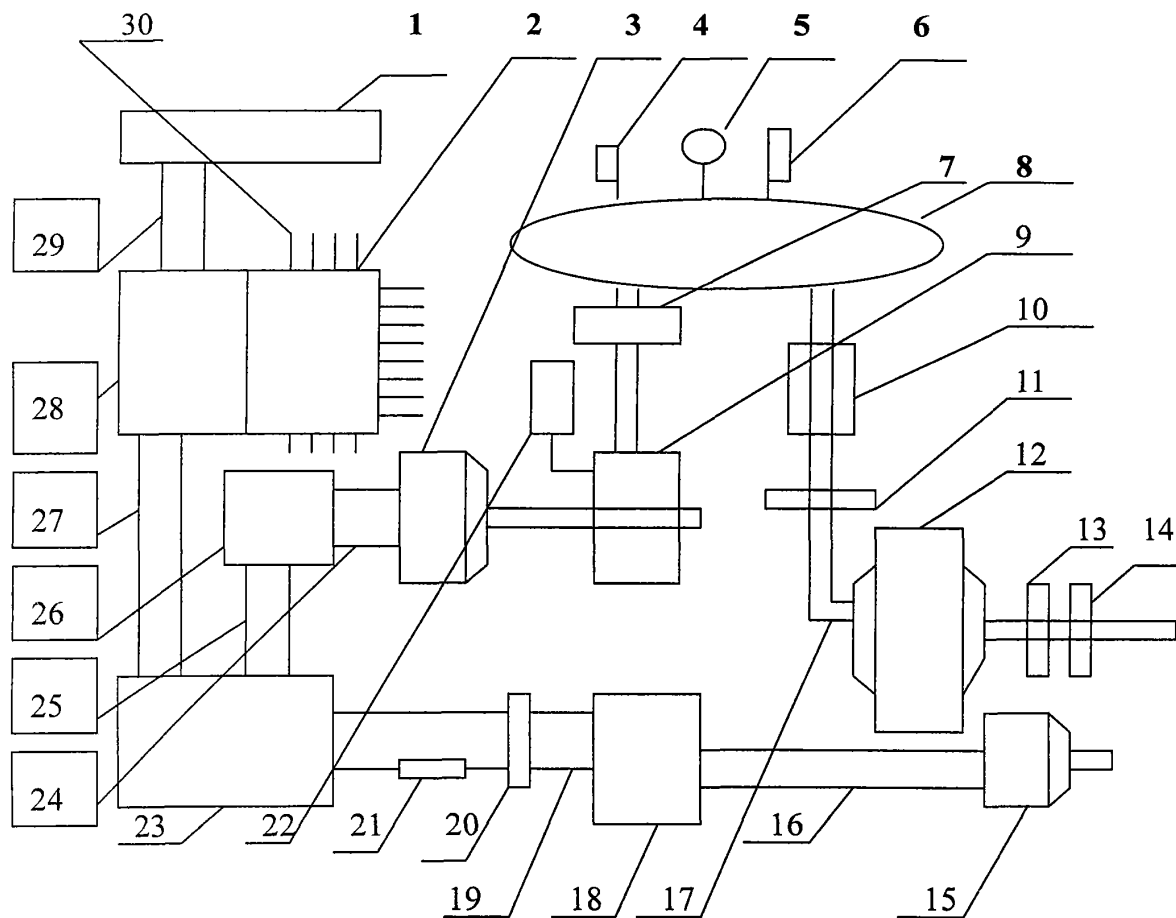
WANG CHEN

Family 62/77 - FAMPAT - ©Questel

Title

(CN201197083U)

Solar multi-electrodynamic force machine

Images**Publication data including kind & date**[CN201197083](#)

Y

2009-02-18

CN201197083U

**Abstract**

(CN201197083U)

The utility model discloses a solar multilevel power machine. The power machine consists of a battery charging part which consists of a solar panel and a storage battery, a motor driving unit which is connected with the storage battery, a CPU processing unit and a pneumatic transmission unit which are respectively connected with a sensor. The utility model adopts the maximum power point tracking technology to solve the problem of voltage fluctuation when solar energy is used for charging, and adopts gas transmission to solve the problems of oil leakage, oil pollution and oil change; and air can be transmitted at a long distance. The utility model achieves optimal power transmission by the combination of electricity, a motor and pneumatic transmission, and uses solar energy with high efficiency; and the output load achieves the requirements of the power supply of mobile devices and fixed power supply in speed, torque and power. The solar multilevel power machine has the advantages of low cost, no pollution and only clean air discharge, can be used for constructing small size to medium size power plants or mobile generating equipment, and can be conveniently used as the power supply for running machines such as vehicles, ships, tanks, and the like.

Inventors

GAN LIZHANG

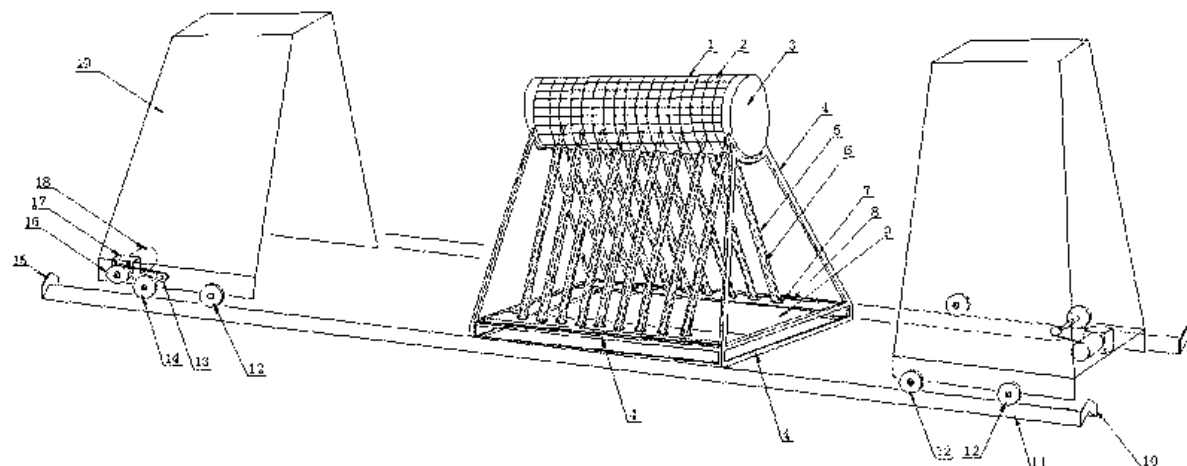
Family 63/77 - FAMPAT - ©Questel

Title

(CN202792613U)

Omni-directional light-receiving rapid-heating solar water purifier

Images



Publication data including kind & date

CN202792613

U 2013-03-13 CN202792613U



Abstract

(CN202792613U)

The utility model discloses an omni-directional light-receiving rapid-heating solar water purifier and belongs to the field of clean energy application. Two A-shaped supports are connected through four feet, two hollow cylindrical glass boxes are provided, the inner box is filled with water, violet gold coatings are plated on the inner wall of the outer box and the outer wall of the inner box, and a cavity exists between the two boxes. End covers are sleeved at two ends of the outer box, and a hail preventive net is connected between the end covers. A tube seat is connected between two short edges of each support and provided with a pit, a hollow heat collecting tube is inserted in each pit, the upper end of each tube is communicated with the outer box, and a hollow heat conducting tube with the upper end stretching into the inner box is disposed in the tube cavity. A reflector is laid between the tube seats, an in-out water pipe and an electrical heating rod stretch into the inner box, and a temperature sensor is attached to the outer wall of the inner box. Two insulating covers are covered on the supports, a panel on one side of each cover is connected with a motor, a reducer, a large chain wheel, a small chain wheel, a traveling wheel, a roller, a front collision plate and a back collision plate sequentially; tracks are laid on two sides of each insulating cover; and the traveling wheels and the rollers are erected on the tracks. According to the water purifier, the light-receiving area is large, the light-receiving time is long, the heat efficiency is high, scaling and sediment accumulation of the heat collecting tube are avoided, and water is clean.

Inventors

HU YINGQI

Family 64/77 - FAMPAT - ©Questel

Title

(WO201423102)

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

Images

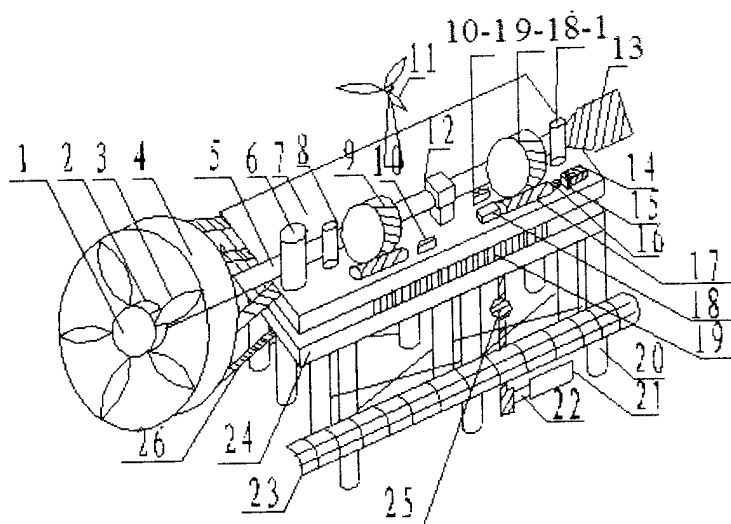


图 1 / Fig. 1

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

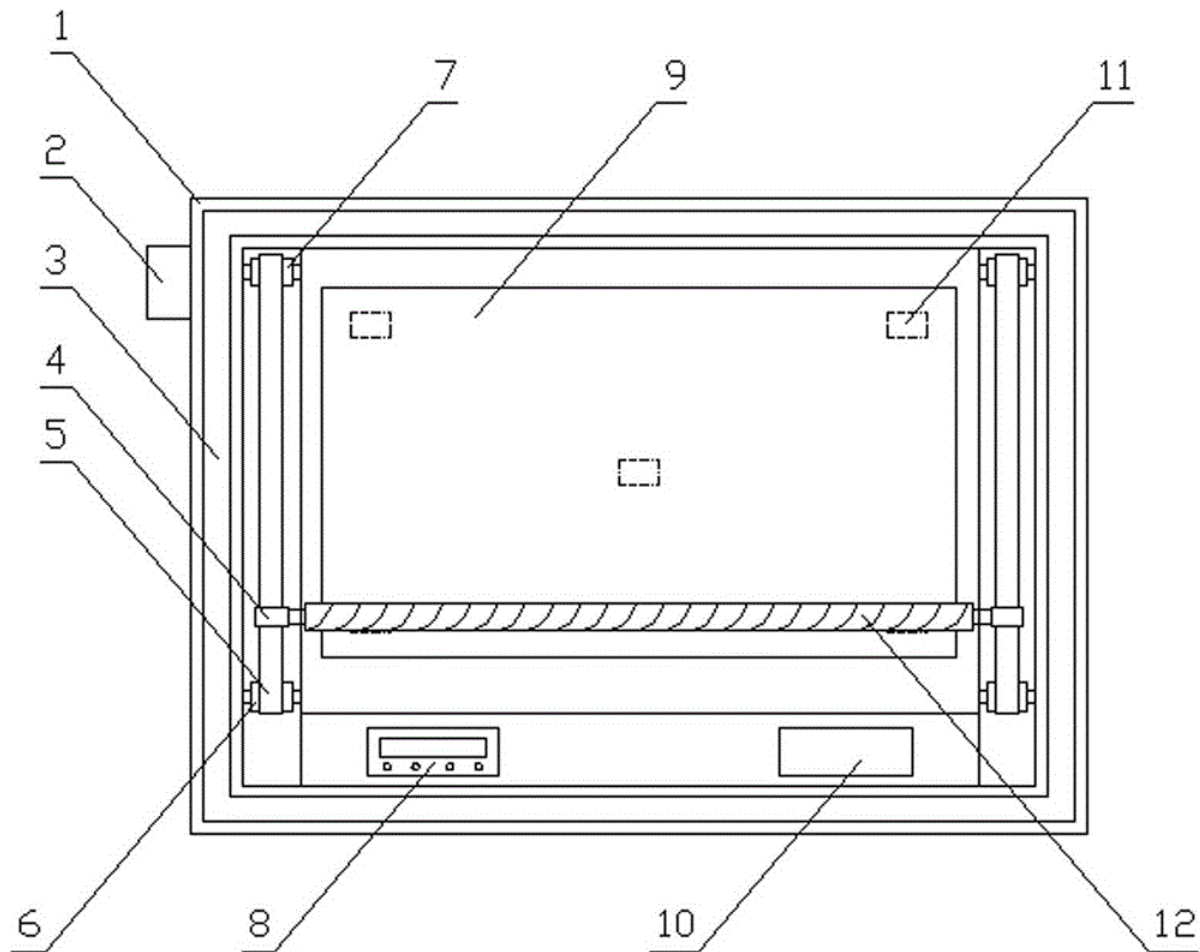
Family 65/77 - FAMPAT - ©Questel

Title

(CN205264280U)

Electronic information display screen

Images



Publication data including kind & date

CN205264280

U

2016-05-25

CN205264280U



Abstract

(CN205264280U)

The utility model provides an electronic information display screen, relate to display screen technical field, which comprises a fram, the LED display screen, micro motor and controller, the LED display screen is equipped with in the frame, the LED display screen installs inside has bright sensor, the lower extreme all is equipped with the action wheel and follows the driving wheel on the frame both sides, action wheel and follow driving wheel are around there being the conveyer belt, action wheel and driven taking turns to all are equipped with the elevator, be connected with round roller between the elevator, circle roller overcoat has clean drum, clean drum is located LED display screen front end, the action wheel is connected with the outer little letter motor of frame, be equipped with solar light panel around the frame on the frame, the frame lower extreme is equipped with interconnect's controller and battery box, the controller is connected with micro motor and bright sensor respectively, the battery box is connected with solar light panel. This electronic display screen knot adopts solar light panel, and is not only energy -conerving and environment -protective to can not receive the influence when cutting off the power supply in the city, utilize bright sensor, reached automatic purpose of cleaning the display screen, convenient to use.

Inventors

HUANG CHUNNAN

MA NAJI

SUN JIAN

XU FENG

HU XIAO

Latest standardized assignees - inventors removed

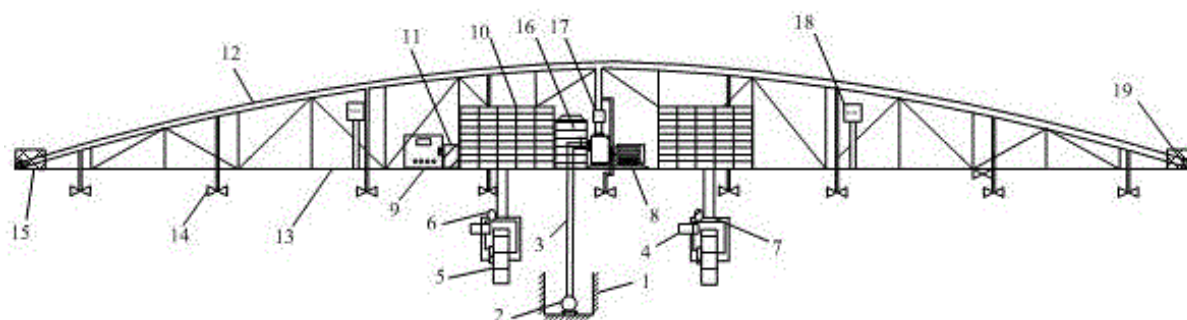
HEILONGJIANG UNIVERSITY OF SCIENCE & TECHNOLOGY

Family 66/77 - 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

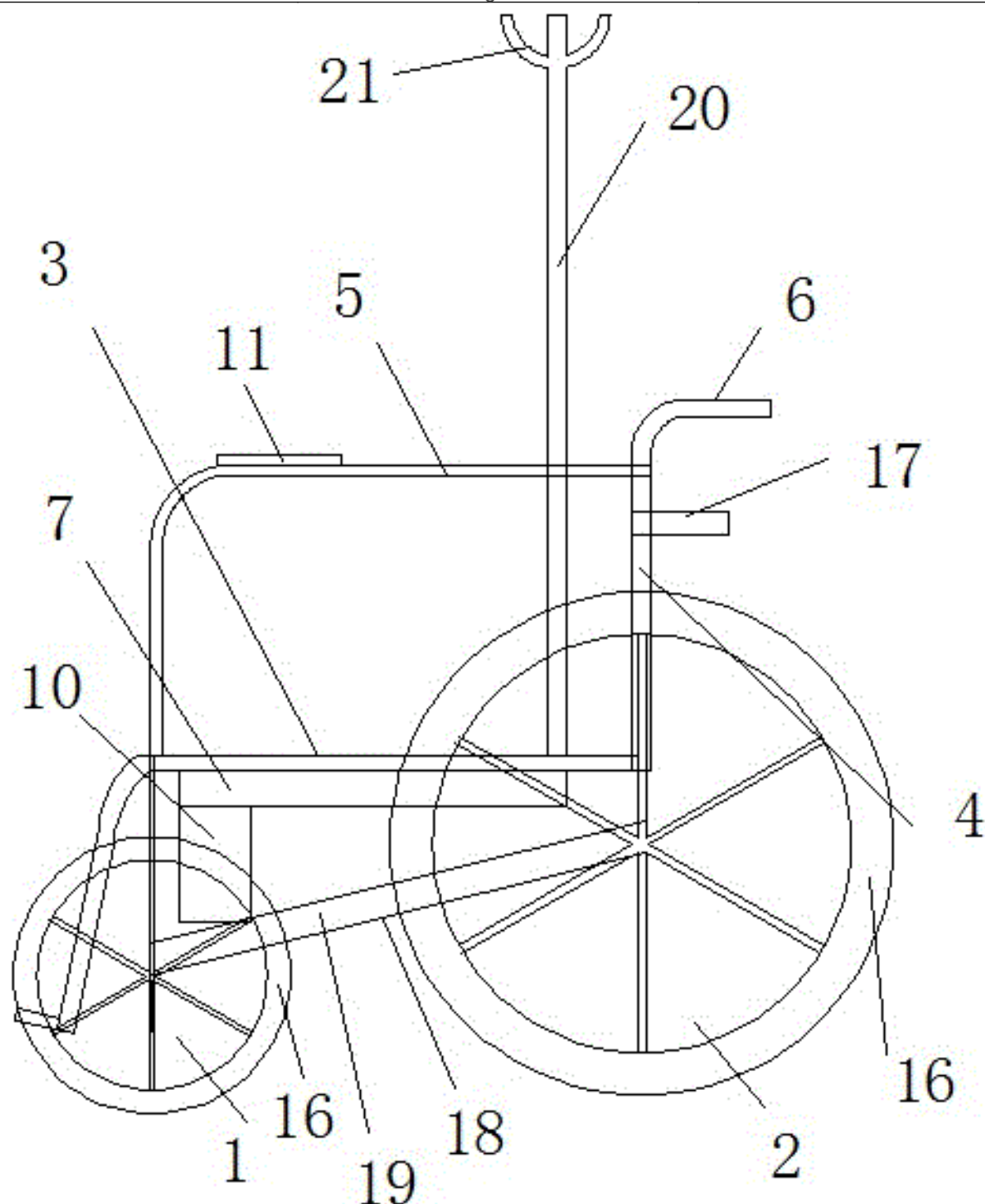
Family 67/77 - FAMPAT - ©Questel

Title

(CN106667681)

Multifunctional wheelchair for department of cardiology

Images



Publication data including kind & date

[CN106667681](#)

A 2017-05-17 CN106667681



Abstract

(CN106667681)

The invention discloses a multifunctional wheelchair for the department of cardiology. The multifunctional wheelchair is optimized and improved against the problem that an existing wheelchair for a patient of the department of cardiology only has a displacement function and cannot bring more convenient and more comfortable functions to the patient. Power is supplied to each driving motor through solar panels, the solar panel can be drawn out of tracks arranged on the two sides of a box welded to the bottom of a wheelchair seat, the number of the solar panels is a plurality, the solar panels are hinged to each other, the solar panels can be placed in the box with a minimum section, and the solar panels are very convenient and swift and do not occupy the spatial position of the wheelchair, and energy is clean; a heating device composed of a rotating shaft and a hinged shaft is additionally arranged, the heating device can be placed on the back side of a backrest when the patient does not use the heating device; when the patient needs the heating device, the hinged shaft can rotate to the backrest, namely the front of the patient's chest, through the rotating shaft; when the patient feels cardiovascular

discomfort, namely cardiac insufficiency, flowing of blood in the angiopathy can be promoted through the heating of the heart part by the heating device, and the patient's discomfort is relieved.

Inventors

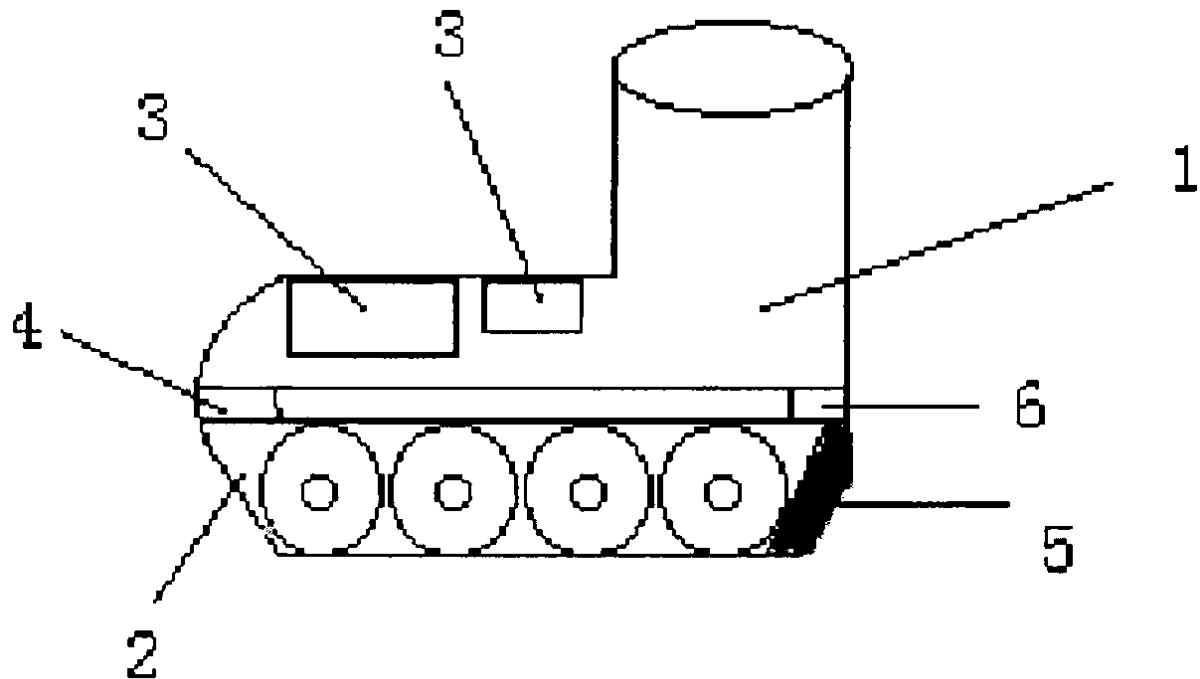
AN CONGCONG

Family 68/77 - FAMPAT - ©Questel

Title

(CN204561092U)

Electronic shoes of environmental protection

Images**Publication data including kind & date**

[CN204561092](#)

U

2015-08-19

CN204561092U

**Abstract**

(CN204561092U)

The utility model discloses an electronic shoes of environmental protection, including the shoes body, the motor, running gear and power generation facility, running gear is for installing the track outside wheel and the wheel below the shoes body, power generation facility includes solar cell panel and battery, and solar cell panel is attached in vamp or shoes body side, and the battery is installed inside the sole, still include wireless remote controller. The utility model discloses a clean energy, it provides power, low carbon environmental protection to be shoes by solar energy, adopt the track to replace the wheel, it is steadily comfortable, control more easily, older people also can wear, control shoes through hand-held remote controller or sound, nimble intelligence is simply easily learned, does not require the user, with low costs, the price is human-oriented, and the ordinary people can afford to consume

Inventors

YU ZHANGJING

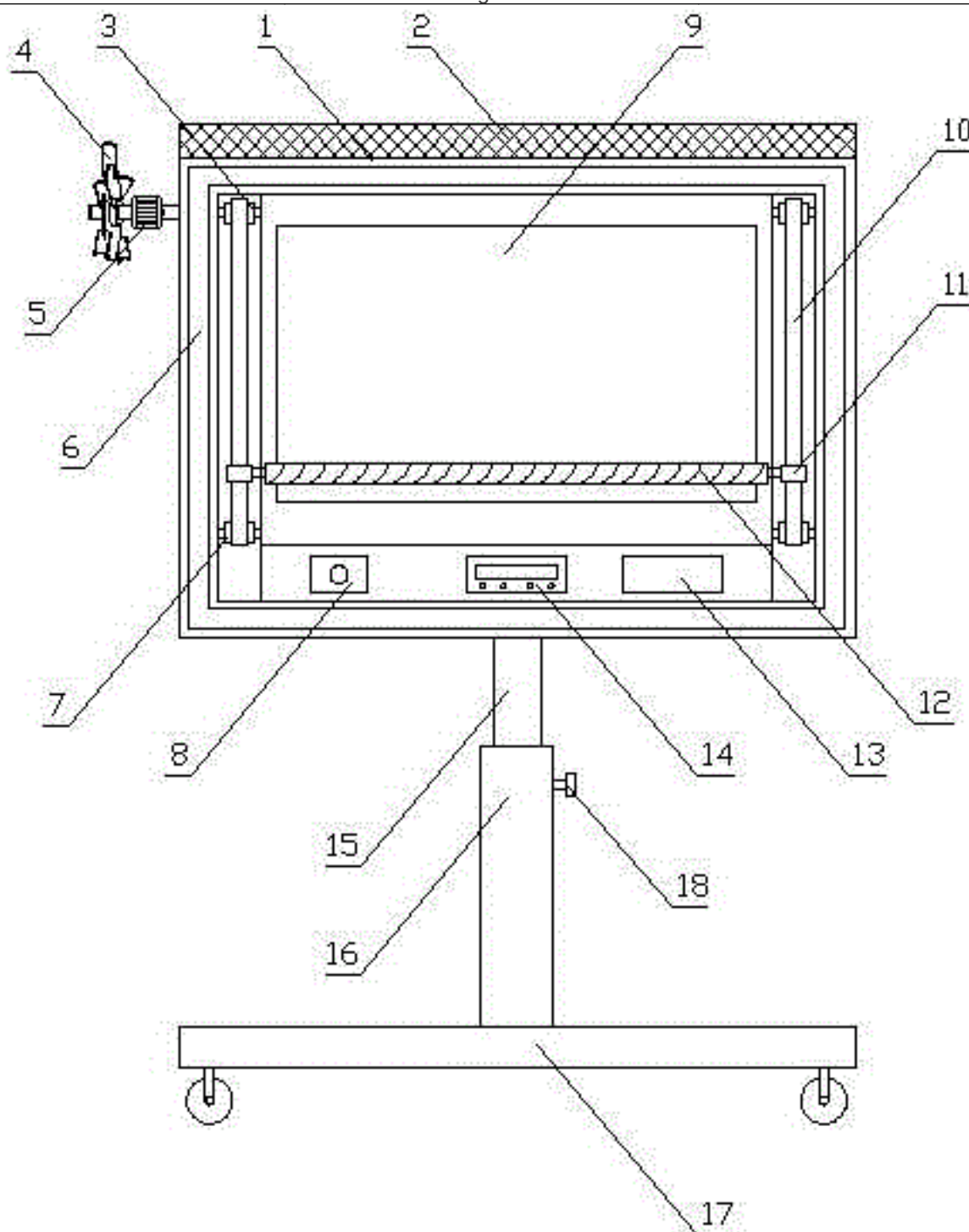
Family 69/77 - FAMPAT - ©Questel

Title

(CN205334910U)

Highway construction sign plate

Images



Publication data including kind & date

CN205334910

U 2016-06-22 CN205334910U



Abstract

(CN205334910U)

The utility model provides a highway construction sign plate, relate to denoter technical field, which comprises a fram, the denoter, micro motor and adjustment mechanism, adjustment mechanism includes the base, the sleeve pipe, bracing piece and adjusting bolt, bracing piece top connecting frame, the frame is top mounted to have solar light panel, there is the denoter in the frame, the denoter below is equipped with interconnect's photosensitive sensor, controller and battery box, be equipped with LED lamp strip on the frame frame, the lower extreme is equipped with the action wheel and follows the driving wheel on the frame both sides, action wheel and follow driving wheel are around there being the conveyer belt, be equipped with the elevator on the conveyer belt, there is round roller between the elevator, the action wheel is connected with the transmission shaft, be equipped with little letter motor and impeller on the transmission shaft. This highway construction sign plate adopts solar light panel, photosensitive sensor and the cooperation of LED lamp strip, has solved the problem of seeing unclear denoter night, has reached energy -concerning and environment -protective purpose, adopt

the impeller, believe that motor and clean drum cooperate a little to utilize the rain resource electricity generation, solved the problem of seeing unclear denoter rainy day.

Inventors

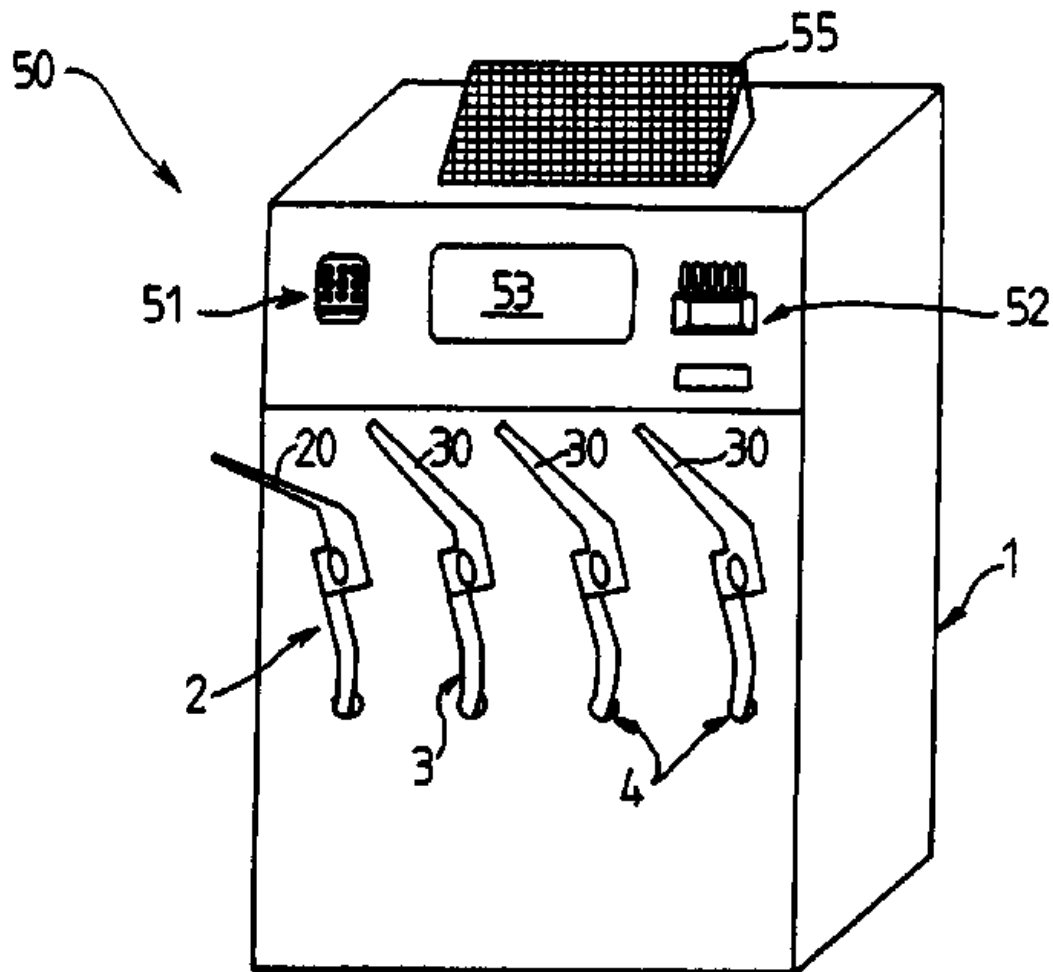
SHAO ZHANGSHUN

Family 70/77 - FAMPAT - ©Questel

Title

(FR2691751)

Equipment to drain and refill engine oil conveniently - uses pumps similar to automatic petrol pump but using suction from dipstick tube to drain with normal pump filling

Images**Publication data including kind & date**

[FR2691751](#)

A1 1993-12-03 FR2691751

**Abstract**

(FR2691751)

The equipment drains crankcase engine oil by suction (2) from the oil level dipstick or gauge tube. New oil filling may be via the usual filler from an oil distributor (4), similar to an automatic petrol pump. In the same way, cleaning oil (3) may be introduced, followed by turning the engine over several times. The suction pistol (20) may be attached to a flexible pipe, connected to a motorised pump and reservoir for waste oil. The complete service unit (50) may have payment slots (51, 52) and be powered by a solar panel (55). **ADVANTAGE** - Cleaner than normal gravity draining method, which necessitates sliding under the vehicle, on ramp. Useful for DIY.

Inventors

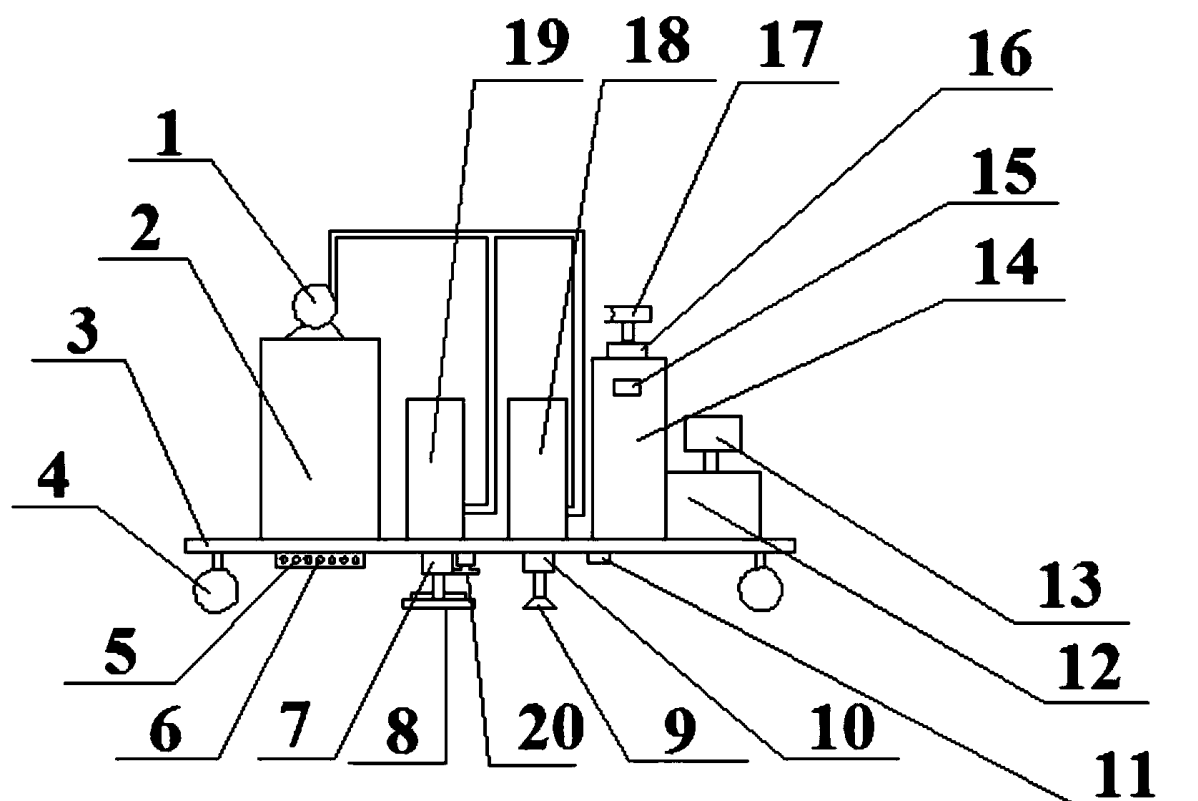
ELIAS GHANEM

Family 71/77 - FAMPAT - ©Questel

Title

(CN204618115U)

Novel drag ground robot

Images**Publication data including kind & date**

CN204618115

U

2015-09-09

CN204618115U

**Abstract**

(CN204618115U)

The utility model provides a novel drag ground robot, including organism part, walking part, action part, drivetrain parts, accessories subtotal control section, the organism part be the rectangular bodily form frame of one, and the walking part is including the four universal wheel, and the action part includes hydrojet board, cleaning cloth splint and high -pressure blow gun, and drivetrain parts includes solar cell panel, the accessories part including air powered pump, stock solution jar, lifter no. 1, lifter no. 2, miniature imaging head, infrared keep away hinder that sensor, carousel, surveillance camera are first, cylinder no. 1 and cylinder no. 2, control section include the singlechip, the utility model discloses to spray the washing liquid, clean with multiple functions such as ground weather as an organic whole, be suitable for the large tracts of land place cleaning work, greatly improved the clean effect on ground to realize the intellectuality of whole clean process, used manpower sparingly, used solar energy as power, to not pollution of environment, and the energy saving.

Inventors

LI QIANG

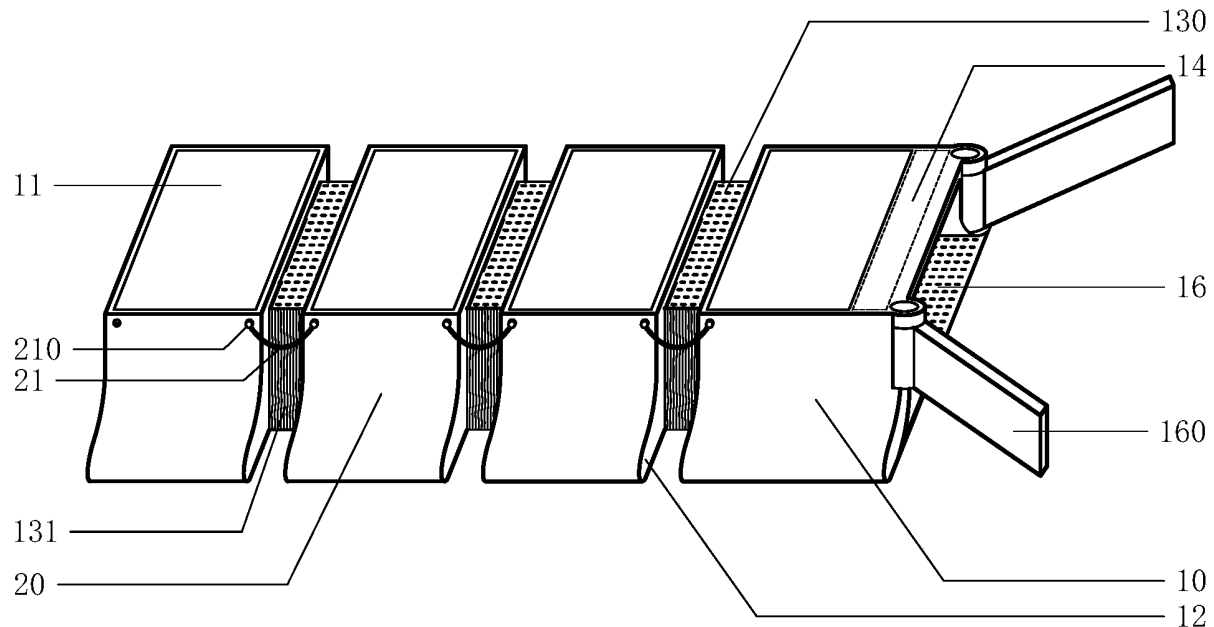
Family 72/77 - FAMPAT - ©Questel

Title

(CN204383730U)

Combined type rubbish fishing ship

Images

**Publication data including kind & date**

CN204383730

U

2015-06-10

CN204383730U

**Abstract**

(CN204383730U)

The utility model provides a combined type rubbish fishing ship comprising traction guide cabins and object storing and energy collecting cabins which are in a box type structure. Each cabin is provided with a solar cell panel, a cabin floating body and a butt joint cabin door. Each butt joint cabin door is provided with a rigid cabin door plate, a flexible cabin door plate and a cabin connecting piece. The top and the bottom of each traction guide cabin are provided with an electric control system and a maneuvering propeller respectively. The object storing and energy collecting cabins are connected with the tail ends of the traction guide cabins. Electricity transmission cables are arranged between the object storing and energy collecting cabins and the traction guide cabins. According to the combined type rubbish fishing ship, power is provided through the solar cell panels, the combined type rubbish fishing ship move back and forth repeatedly in landscape lakes, landscape rivers, landscape ponds and other landscape water areas, melon rind, shells, drink boxes, leaves, food packaging bags and other rubbish floating on the water are fished and removed in time, and therefore the landscape water areas are kept beautiful and clean. In this way, the combined type rubbish fishing ship is reasonable in structure, convenient to use, and capable of improving the living environment of people.

Inventors

RAO YIKE

Latest standardized assignees - inventors removed

QUZHOU TUYI INDUSTRIAL DESIGN

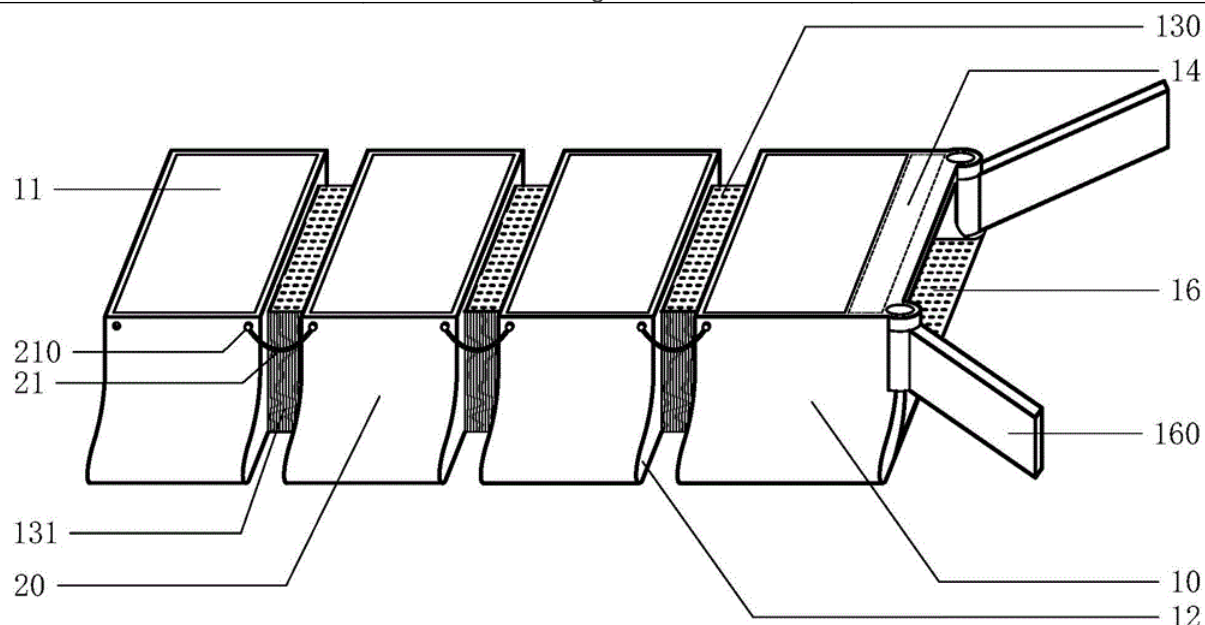
Family 73/77 - FAMPAT - ©Questel

Title

(CN104443292)

Combined type rubbish fishing boat

Images



Publication data including kind & date

CN104443292	A	2015-03-25	CN104443292
CN104443292	B	2017-02-08	CN104443292B



Abstract

(CN104443292B)

The invention relates to a combined type rubbish fishing boat. The combined type rubbish fishing boat comprises a traction guide bin and an object storage energy collecting bin, the traction guide bin and the object storage energy collecting bin are of box-type structures and are each provided with a solar panel, a cabin floater and a butt joint bin door, each butt joint bin door is provided with a rigid bin door plate, a soft bin door plate and a cabin connecting piece, an electronic control system and a maneuvering propeller are arranged at the top and the bottom of the traction guide bin respectively, the object storage energy collecting bin is connected with the tail end of the traction guide bin, and a transmission cable is arranged between the traction guide bin and the object storage energy collecting bin. According to the embodiment, the solar panels are used for providing power, the combined type rubbish fishing boat can move back and forth in landscape water areas such as landscape lakes, landscape rivers and landscape pools, melon rinds, shells, beverage boxes, leaves, food packages and other rubbish can be removed and fished in time, and a beautiful and clean environment can be kept for the landscape water areas. In this way, the combined type rubbish fishing boat is reasonable in structure, convenient to use and capable of improving the living environment of people.

Inventors

RAO YIKE

Latest standardized assignees - inventors removed

QUZHOU LECHUANG ENERGY SAVING TECHNOLOGY

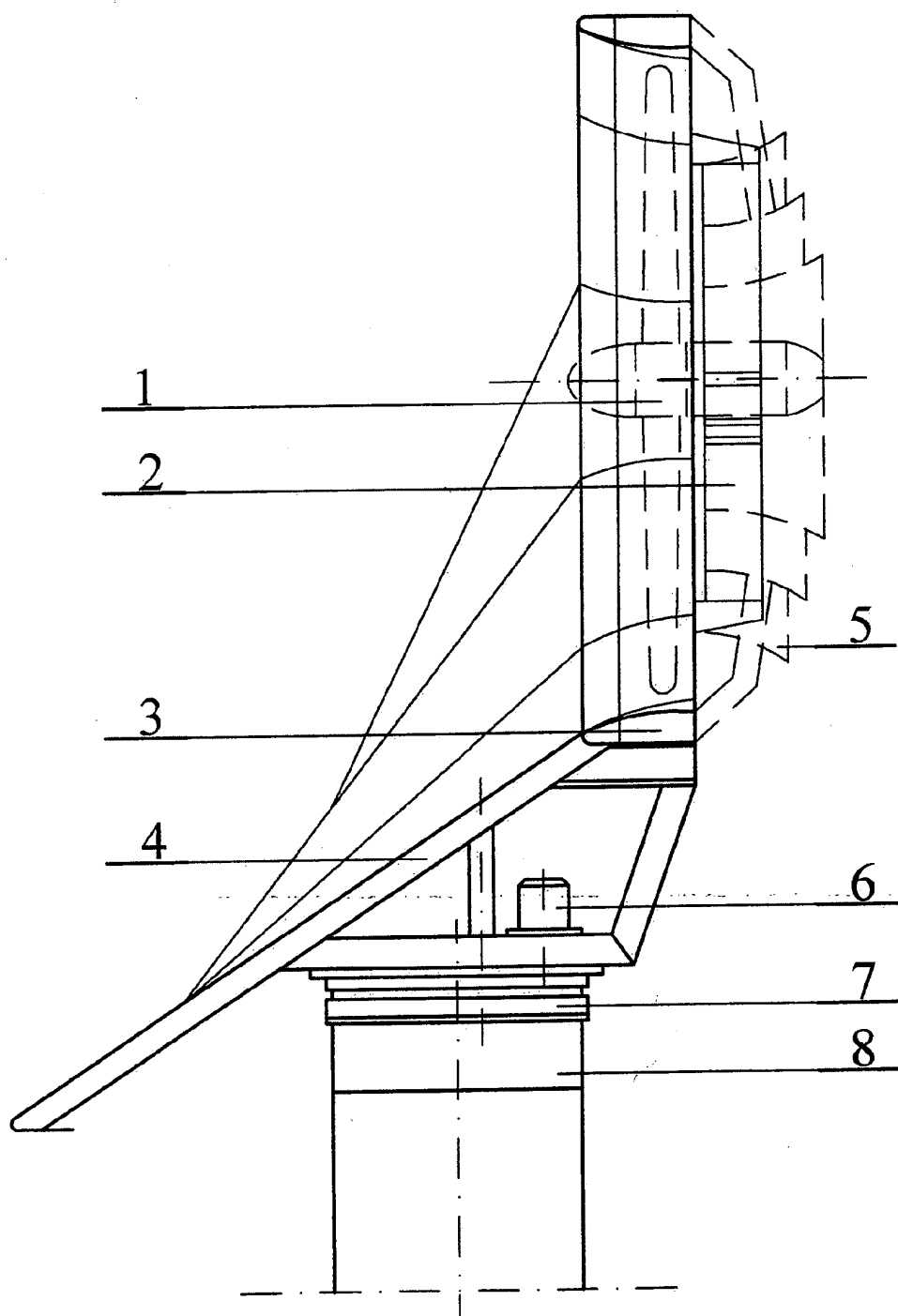
Family 74/77 - FAMPAT - ©Questel

Title

(WO2010150030)

Wind turbine in a combined nozzle

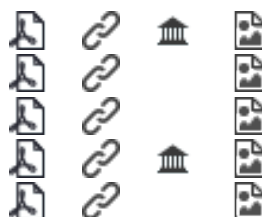
Images



PICTURE 2

Publication data including kind & date

WO2010150030	A2	2010-12-29	WO2010150030
HRP20090362	A2	2010-12-31	HRP20090362
HRP20090362	A9	2011-02-28	HRP20090362
WO2010150030	A3	2011-06-16	WO2010150030
HRPK20090362	B3	2011-12-31	HRPK20090362

**Abstract**

(WO2010150030)

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

Family 75/77 - 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 sports objects/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

Family 76/77 - FAMPAT - ©Questel

Title

(WO201629873)

Rail transport system for use in suspended transport of road transport vehicles

Images

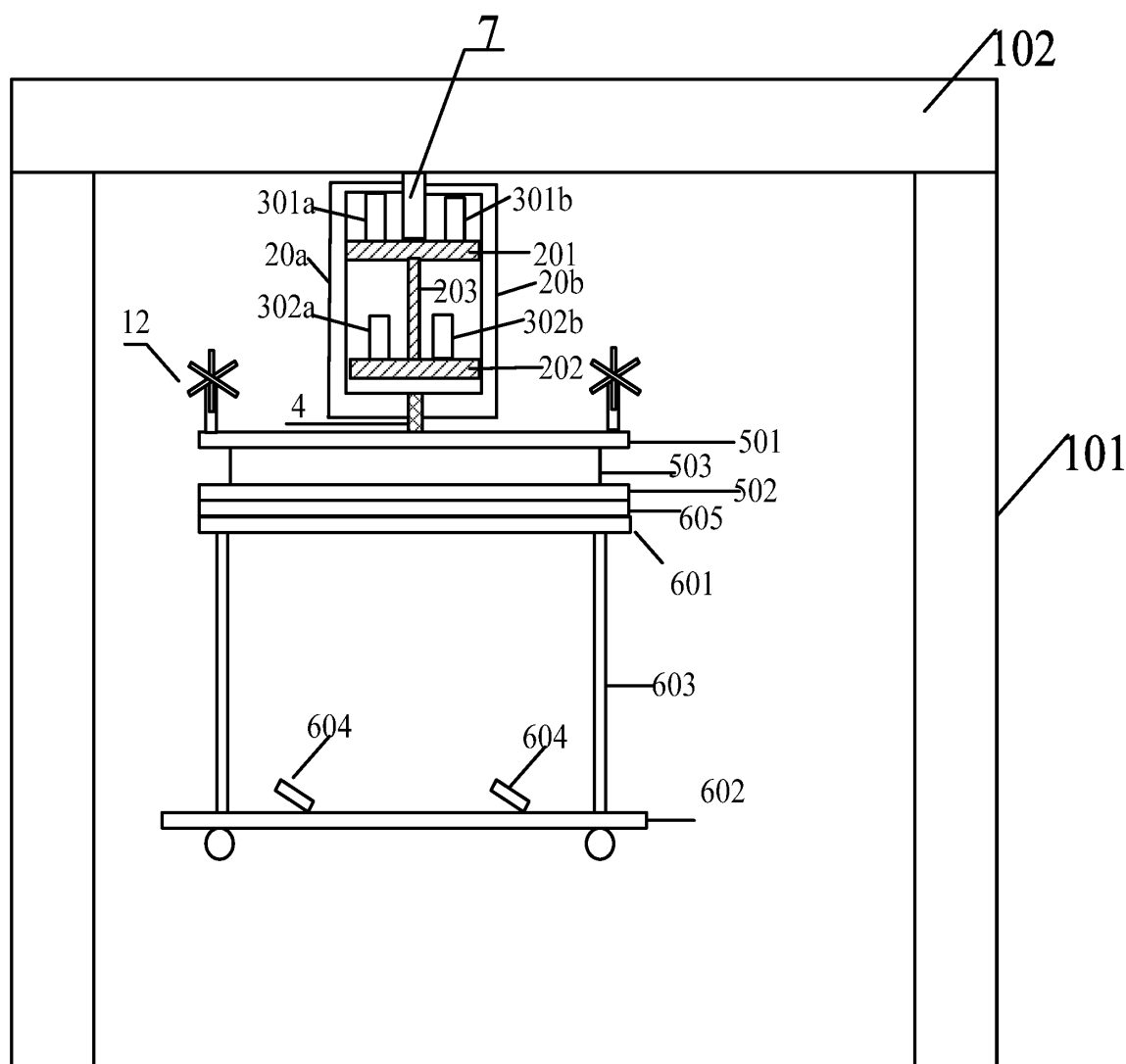


图 1 /Fig.1

Publication data including kind & date

CN204110030	U	2015-01-21	CN204110030U
WO2016029873	A1	2016-03-03	WO201629873

**Abstract**

(WO201629873)

Provided in the present invention is a rail transport system for use in suspended transport of road transport vehicles. By arranging trays on a track and by employing electromagnetic theory for holding baskets by attraction, road transport vehicles are allowed to travel into the baskets and to move by being carried by the baskets. Employment of the described solution allows road transport vehicles to travel off the ground, thus allowing effective alleviation of traffic congestion on the ground. Moreover, the road transport vehicles move by being carried by the baskets, the need for fuel consumption is obviated, thus saving energy while reducing pollutants discharged into the air. In the case of automobiles, while costs in fuel consumption per kilometer when in operation are one yuan or more, costs for traveling per kilometer (including all costs such as depreciation) in the present system are no more than 0.5 yuan, thus greatly reducing operating costs for automobile owners. Furthermore, the energy for the described solution is supplied primarily by wind power and solar power, both of which are green, environmentally friendly, and clean energies, while the demand for wind power also solves the problem that most turbines in the country are unused for extended periods of time.

Inventors

XUE SHIQING

LU YONGFEI

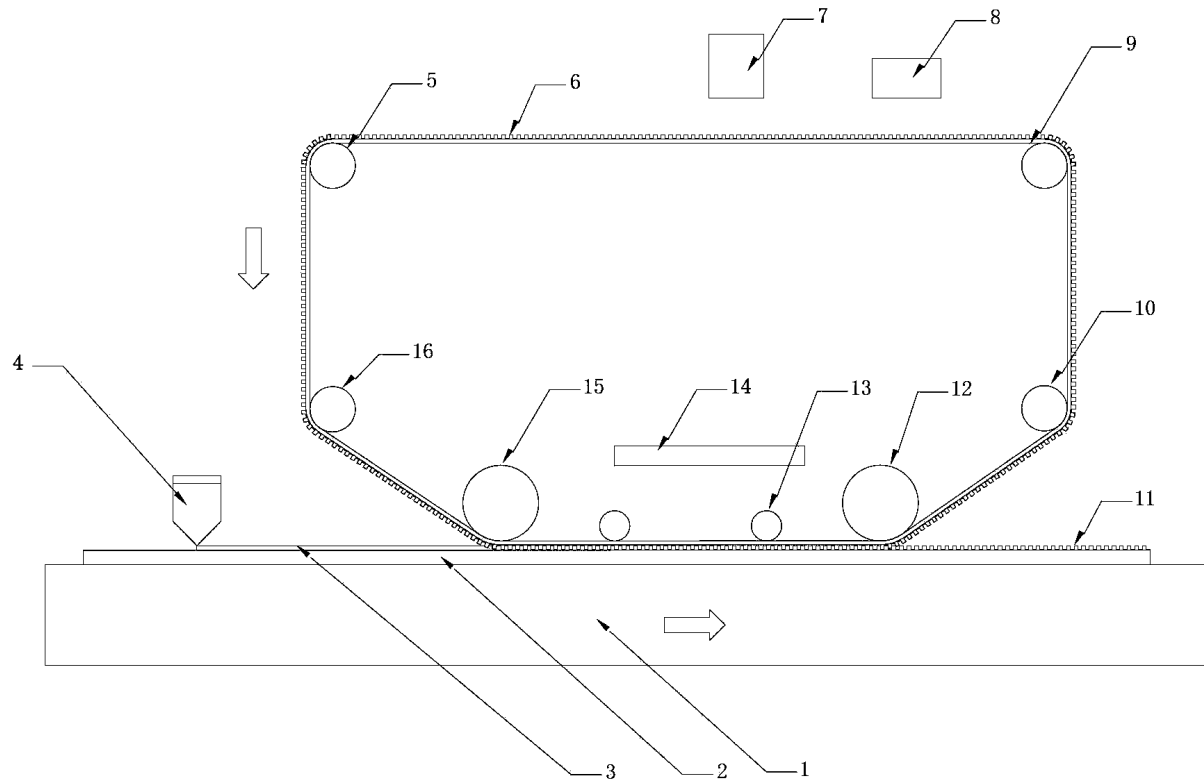
XUE JINGJIE

Family 77/77 - FAMPAT - ©Questel

Title

(CN103235483)

Large-area nanometer imaging device and large-area nanometer imaging method

Images**Publication data including kind & date**

CN103235483	A	2013-08-07	CN103235483
CN103235483	B	2016-01-20	CN103235483B

**Abstract**

(CN103235483B)

The invention discloses a large-area nanometer imaging device and a large-area nanometer imaging method. The device comprises a piece-supporting platform, a substrate, a coating device, mould feeding devices, a belt-shaped module, a release agent spraying device, a module cleaning device, an auxiliary impression device, an UV (Ultraviolet) solidifying device, an impression device and the like. The method for realizing large-area nanometer imaging based on the device comprises the following steps of: (1) pretreating; (2) coating an impression material; (3) performing impression molding; and (4) processing a mould. The large-area nanometer imaging device and the large-area nanometer imaging method, provided by the invention, have the advantages that a nanostructure on a non-smooth rigidity line with an oversized size is manufactured in an efficient and low-cost large-scale manner, an industrial-grade solution is provided for large-area nanometer imaging of a large-size rigidity substrate, and the large-area nanometer imaging device and the large-area nanometer imaging method are applied in industry large-scale manufacture such as high-performance glass, solar panels, panel displays, micro-optics devices and LEDs (light-emitting diodes).

Inventors

LAN HONGBO

Latest standardized assignees - inventors removed

QINGDAO BAONA PHOTOELECTRIC EQUIPMENT