Departamento de Información Tecnológica

OFICINA CUBANA
OCPI
DE LA PROPIEDAD INDUSTRIAL

Alerta Tecnológica

SECTOR ENERGÍA RENOVABLE

Energía Solar Fotovoltaica

Primer trimestre 2018

INTRODUCCIÓN

Como parte de las estrategias de desarrollo energético trazadas en la política del estado cubano, se llevan a cabo en todo el país diferentes acciones para acelerar el desarrollo en Cuba de la energía solar fotovoltaica, que abarcan desde la electrificación de objetivos sociales y económicos, así como, la instalación de equipos de bombeo fotovoltaico en la actividad agropecuaria y de calentadores solares en instituciones de salud, educativas y turísticas. Para responder a la necesidad de información sobre esta temática de interés nacional, se pone a disposición de los usuarios, las últimas patentes publicadas sobre la materia.

La energía solar fotovoltaica es una fuente de energía que produce electricidad de origen renovable, obtenida directamente a partir de la radiación solar mediante un dispositivo semiconductor denominado célula fotovoltaica, o bien mediante una deposición de metales sobre un sustrato denominada célula solar de película fina.

Una planta solar fotovoltaica cuenta con distintos elementos que permiten su funcionamiento, como son los paneles fotovoltaicos para la captación de la radiación solar, y los inversores para la transformación de la corriente continua en corriente alterna.

Generalmente, un módulo o panel fotovoltaico consiste en una asociación de células, encapsulada en dos capas de EVA (etileno-vinilo-acetato), entre una lámina frontal de vidrio y una capa posterior de un polímero termoplástico u otra lámina de cristal cuando se desea obtener módulos con algún grado de transparencia. Muy frecuentemente este conjunto es enmarcado en una estructura de aluminio anodizado con el objetivo de aumentar la resistencia mecánica del conjunto y facilitar el anclaje del módulo a las estructuras de soporte.

Las células más comúnmente empleadas en los paneles fotovoltaicos son de silicio, y se puede dividir en tres subcategorías: las células de silicio monocristalino, las células de silicio policristalino (también llamado multicristalino) y las células de silicio amorfo.

Las emisiones de gases de efecto invernadero a lo largo del ciclo de vida para la fotovoltaica son cercanas a los 46 g/kWh, pudiendo reducirse incluso hasta 15 g/kWh en un futuro próximo. Un sistema fotovoltaico de 1 kW de potencia ahorra la combustión de aproximadamente 77 kg (170 libras) de carbón, evita la emisión a la atmósfera de unos 136 kg (300 libras) de dióxido de carbono, y ahorra mensualmente el uso de unos 400 litros (105 galones) de agua.[1]

LITERATURA DE PATENTE

El presente boletín de alerta tecnológica proporciona información actualizada sobre las patentes más recientes que se están publicando en el mundo en relación con el tema de paneles solares fotovoltaicos. Contiene 43 documentos de patentes correspondientes a invenciones concedidas, del año 2017 y publicadas en el período comprendido entre el 1ro de enero al 15 de marzo de 2018.

Las patentes fueron recuperadas de la base de datos propietaria del grupo France Telecom, *Questel Orbit*, que se encuentra entre las líderes mundiales en materia de información, con un alto nivel de actualización. Cuenta con documentos de patentes procedentes de 90 autoridades de patentes a nivel mundial.

[1] Wikipedia. Energía solar fotovoltaica. Actualizado marzo, 2018.

https://es.wikipedia.org/wiki/Energía_solar_fotovoltaica

Los documentos presentan un link al texto completo, obtenidos con la traducción mecánica proporcionada por la base de datos de patentes.

DATOS BIBLIOGRÁFICOS DE LOS DOCUMENTOS DE PATENTES

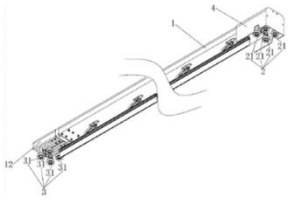
Título; publicación; país de origen; solicitante, fecha de prioridad y resumen.

- PHOTOVOLTAIC SOLAR PANEL CLEANING DEVICES AND PHOTOVOLTAIC SOLAR PANEL CLEANING APPARATUS ACCORDING TO THE BLADE MECHANISM

Publicación	País de Origen:	Solicitante	Fecha de prioridad
CN206977379U	China	HANGZHOU SHUN SEA PHOTOVOLTAIC TECHNOLOGY	2017-07-25

Abstract:

The present utility model relates to the field of photovoltaic power generation, there is disclosed a photovoltaic solar panel cleaning device cleans the blade mechanism and a photovoltaic solar panel device. The present utility model in which, a doctor blade mechanism comprises: on the upper rail and bottom rail is slidingly disposed in the walking beam, 1st slide member, 2nd slide member, a walking beam includes a head portion and tail portion; slider 1st, 2nd walking beam head and the tail portions are provided on the slide, and the upper rail, a lower rail sliding connection, the blade mechanism further includes: a walking beam of the head protector provided on the 1st, 2nd walking beam tail portions of the protective cover is disposed, for respectively covering the 1st slide member, 2nd slide member. Compared with the prior art, while walking beam is provided with a 1st protective shield, shield 2nd, respectively cover slide 1st, 2nd slide member, so that the sliding unit will not be exposed, a natural disaster such as rain erosion, the upper rail and bottom rail is avoided during appearing on the slip dead clamping, which reduces the overall cost of maintaining the cleaning device.



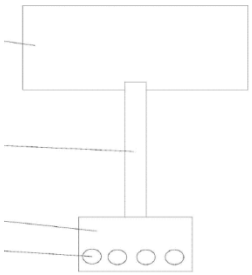
- PHOTOVOLTAIC SOLAR PANEL CLEANING DEVICES AND PHOTOVOLTAIC SOLAR PANEL CLEANING APPARATUS ACCORDING TO THE DEBUGGING DEVICE

Publicación	País de Origen:	Solicitante	Fecha de prioridad

CN206977387U	China	HANGZHOU SHUN SEA PHOTOVOLTAIC TECHNOLOGY	2017-07-25

Abstract:

The present utility model relates to the field of photovoltaic power generation, there is disclosed a photovoltaic solar panel cleaning device commissioning device and a photovoltaic solar panel cleaning device. The present utility model are, independently of the cleaning device comprises a debug case, the cleaning device is disposed on the debug interface, a data line connected with the debugging interface for debugging a cassette; wherein, the data line for a debug signal is sent to the debug cassette cleaning device. Compared with the prior art, the cleaning device is provided independent of the debugging box, the operator can be operated at a suitable position for debugging box, the operator to the photovoltaic solar panel cleaning apparatus is more convenient for debugging. Moreover, the cleaning cartridge through a debug interface of the debug data line is connected on the device, so that the plurality of cartridges can be one of the debugging device is controlled to be cleaned, thereby efficiently reducing the production cost.



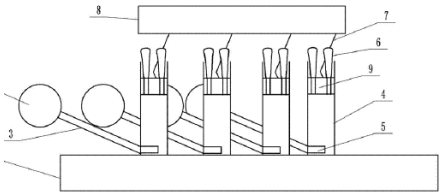
- PHOTOVOLTAIC SOLAR PANEL

Publicación	País de Origen:	Solicitante:	Fecha de prioridad
CN206993045U	China	QINGYUAN CITY GERMANY SHENG JIAHENG ENERGY & ENVIRONMENTAL PROTECTION PROJECT LIABILITY	2017-08-11

Abstract:

The present patent application belongs to the field of photovoltaic devices, and particularly relates to photovoltaic solar panels; located above the base body, a bottom surface of the body has a multiplicity of distributed in a circle around the strut fixedly connected, with respect to the support bar is provided on the surface of the base riser, the stand pipe is filled with water, the water level in the riser is floating in water of less density than the position of the buoyant blocks, the retainer for retaining the buoyant blocks are provided with a top portion of the riser, airtight cavity bored with a plurality of buoyant blocks internally. The rod away from the body and one end of the buoyant blocks are fixedly connected, through a through-hole is provided on the buoyant blocks buoyant blocks, is

adhered to a rubber air jacket through-hole; the bottom of the heating of the metal block is fixed to a stand pipe, a heating block in contact with the side wall is secured to the riser aluminum rod, one end of the riser is fixedly connected with an aluminum bar away from the disk-shaped metal collectors piece, each of the plane of the offset angle between the adjacent metal collectors piece; the present patent application can facilitate rapid installation, and is capable of adjusting the tilt angle of the solar panel, increasing the energy utilization efficiency.

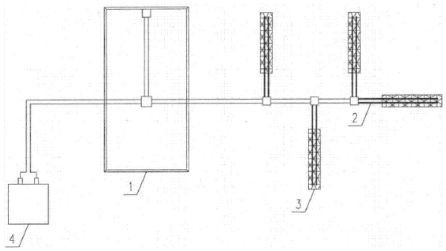


ANTI-ICING STRUCTURE TRANSMISSION TOWER

Publicación	País de Origen:	Solicitante:	Fecha de prioridad
CN206834681U	China	CPI POWER ENGINEERING	2017-05-18

Abstract:

The present utility model provides an anti-icing transmission tower structure, comprising a transmission tower body, a thermally conductive electronic silica gel plate are disposed on the photovoltaic solar panel and enhances transmission tower body, a thermally conductive refractory body and a transmission tower is provided on the insulating layer laminated electronic silica gel plates; photovoltaic solar panels are connected to an electrical power outlet at one end of the metal wire heat, heatconducting high-temperature resistant metal wire provided on the electric transmission tower body with an insulating layer on the silica gel between electrons. A photovoltaic solar panel to generate a DC power transmission to the electric heating wires, temperature-resistant heat-conducting electrons through Joule effect silica, so as to avoid a hidden-surface back of the body of ice transmission tower. The present utility model has a simple structure, long life, low cost, good frost resistance, high strength of ice anti-cover, without geographical environment, under all conditions maintain normal operation, a non-uniform capability of withstanding ice tower is improved, has a greater versatility and advantages.

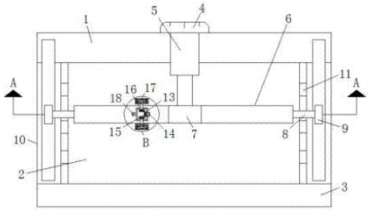


- PHOTOVOLTAIC SOLAR PANEL SURFACE EMISSIONS PROCESSING DEVICE

Publicación	País de Origen:	Solicitante:	Fecha de prioridad
CN206865406U	China	GU YANLIN	2017-06-07

Abstract:

The present utility model discloses a photovoltaic solar panel surface emissions processing apparatus, comprising a solar panel, an upper end of the solar panel is provided with a top cover, a lower end of the trough and the solar panel is provided, with the top cover and located between the collection of the solar panel mounting bracket is connected with two sides, with the fixing frame is connected between the solar panel has a plurality of fixing rod, a top cover is provided at the upper end of the capstan motor 1st center, one end of a telescoping rod and the 1st drive motor is provided, the telescopic rod extends outward through the top end is provided with a connector block, and a connection block is provided with a transverse plate side of the outer wall of the levels, connection blocks mounted on one side of the brush remote from the transverse plate, both ends of the transverse plate symmetrically arranged on the support rod, one end of the transverse plate and the supporting rod is provided with stop blocks away from, the mount has a resilient member is provided with stoppers corresponding to the inner wall. The present utility model has a simple structure, easy operation, achieves gray stains cleaning of the solar panel surface, and the advantages of soot.



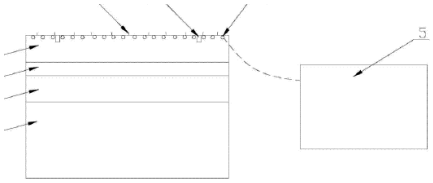
- SOLAR PHOTOVOLTAIC PAVEMENT

Publicación	País de Origen:	Solicitante:	Fecha de prioridad
CN206887678U	China	MU RANYANG	2017-06-20

Abstract:

The present utility model discloses a solar photovoltaic road surface, includes a foundation base layer, 1st tempered glass layer, a photovoltaic solar panel, 2nd layer of toughened glass, the temperature control device, a photovoltaic solar panel enclosed in 1st layer and 2nd tempered glass layer of toughened glass, tempered glass layer and the 2nd 1st tempered glass layer being a double-layer laminated glass
according to the regular hexagon, tempered glass layer top surface with an abrasion resistant layer and the 2nd, 2nd LED lamp and tempered glass layer contained within the heat strip, heat bar connected to the temperature control apparatus, the tempered glass layer and the 2nd 1st tempered glass layer through a screw secured to foundation base layer, a photovoltaic solar panel is a monocrystalline silicon photovoltaic cell or a polycrystalline silicon photovoltaic cell. The present utility model is simple in structure, easy

to implement, as a carrier of the road surface, both the photovoltaic solar panel was fully protected, yet able to satisfy load and Friction conventional transportation of the claims.

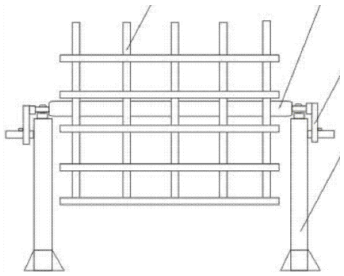


- A NOVEL ROTATABLE PHOTOVOLTAIC SOLAR BRACKET

Publicación	País de Origen:	Solicitante:	Fecha de prioridad
CN207083044U	China	TIANJIN RENHUI NEW ENERGY TECHNOLOGY	2017-04-01

Abstract:

The present utility model provides a novel photovoltaic solar rotatable holder, characterized in comprising a bracket, a mounting shaft, the rotary shaft, a mounting frame, a chassis, a fixing mechanism, a bracket mounted on the upper side frame, rack mounting shaft mounted on the upper side, a mounting shaft mounted inside a rotating shaft, the shaft is fixed to the leading end bracket, a mounting bracket is mounted on the shaft side, the present utility model is a rotatable photovoltaic solar rack, without the use of a connecting rod, facilitates the replacement of the solar panel angle, the changing time savings, thereby improving the working efficiency.

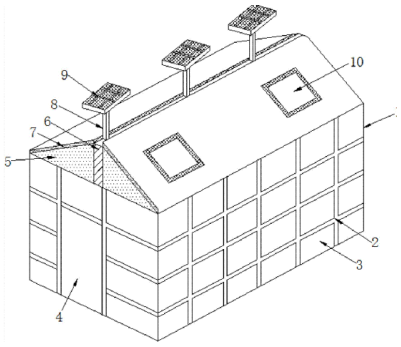


- AGRICULTURAL PLANTING THE ENERGY SAVING ENVIRONMENT FRIENDLY GREENHOUSE

Publicación	País de Origen:	Solicitante:	Fecha de prioridad
CN207054239U	China	HUBEI WENLONG LANDSCAPE HORTICULTURE	2017-07-24

Abstract:

An agricultural planting an energy-saving environment friendly greenhouse, comprising a shed body, plexiglass, metal drums, concentrated sulfuric acid, ammonium hydrogen carbonate and carbon dioxide concentration monitor, mounted with an interior of the frame plexiglass, metal drums are mounted on the left side shaft, concentrated sulfuric acid and ammonium bicarbonate are placed inside the barrel is metal, the carbon dioxide concentration monitor is attached to the left interior shed body, the present utility model is scientific and reasonable structure, convenient and safe to use, is provided with a metal barrel, concentrated sulfuric acid and ammonium bicarbonate or the like, concentrated sulfuric acid and ammonium bicarbonate to produce carbon dioxide reaction, the reaction product of ammonium sulfate, commonly known as a nitrogen fertilizer, may be used as a crop growing fertilizers, carbon dioxide concentration due to the closed greenhouse is avoided due to the problem of reduced; is provided with a plexiglass, plastic film has better optical transparency than, long service life of the organic glass, a plastic film is resistant to digestion is avoided, the problem of short service life.

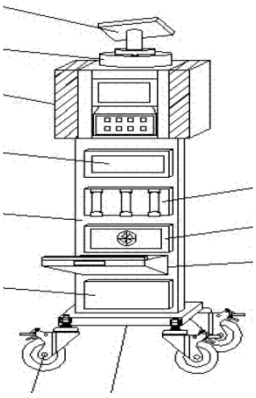


- RADIATION MONITORING DEVICE FOR A SUBSTATION

Publicación CN207036966U	País de Origen: China	Solicitante: PEOPLE ELE APPLIANCE SHANGHAI	2017-08-13

Abstract:

The present utility model discloses a radiation monitoring device for a substation, comprising a support plate, the upper end of the support plate is fixed to the main body is detected, the detection body includes an epiphany board shown, epiphany with a control panel fixed lower end of the board shown, are fixed symmetrically on either side of the board shown epiphany detector, is fixed to the upper end of the body to detect the photovoltaic controller, is fixed to the upper end of the photovoltaic controller solar panel, the panel is slid ably mounted on one side of the support plate, the display panel are fixed beneath the illumination lamp, the illumination lamp are fixed beneath the heat-dissipating fan, the lower end of the heat-dissipating fan mounted with a sliding rack which is moved, the mobile rack which comprises a support grid, the grid support is fixed to the upper end of bilaterally symmetrical side plates, slides under the shelf provided with a storage body movement. The present utility model can be based on the monitored location which is convenient to be moved, and the result of monitoring of the optical fiber.

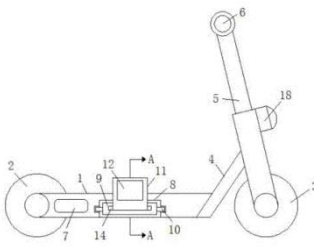


- PHOTOVOLTAIC SOLAR ELECTRIC SCOOTERS

Publicación CN206856885U	País de Origen: China	Solicitante: GU YANLIN	2017-06-07

Abstract:

The present utility model discloses a photovoltaic solar electric scooters, comprising a pedal, the pedal has one end provided with a drive wheel, and the pedal away from the drive wheel has one end fixed connected with connecting rods, connecting rods to rotate away from the lift assembly is connected to one end of the pedal, steering wheel of the lift assembly is provided with a lower end, and a lifting assembly is attached to the upper end of the handle, pedal equipped with a movable inner wall of the cavity, the cavity is connected with two symmetric sliding movement and the movable plate, the outer wall of the movable plate symmetrically arranged on both sides of 1st fixture block, there is a reversing plate rotatably connected through a groove within the mobile plate, the outer wall of the reversing plate mounted on one side of photovoltaic solar panels, and the other side outer wall of the reversing plate is provided with a receiving slot, a top wall of the developer container with the extension arms are pivotally connected. The present utility model is simple in structure, easy to operate, it is possible to adjust the angle of suitable light, energy-saving and environment-friendly, and that is convenient and, for portability.

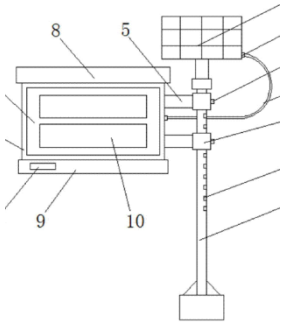


- NOVEL CITY PLANNING INDICATORS

Publicación	País de rigen:	Solicitante:	Fecha de prioridad:
CN207068398U	China	HUAIYIN TEACHERS COLLEGE	2017-06-19

Abstract:

The present utility model discloses a novel urban planning signs, includes a bracket, a sign, LED circuit boards and a solar panel, a side bracket is provided with a slot, the bracket surface is provided with a slider, the slider end provided with a plug, the slider and the other end is provided with a connecting rod, a connecting rod end is provided with a sign, a sign periphery is provided with a bezel, LED circuit board is disposed inside a sign, LED bulbs are provided above a LED circuit boards, indicators are provided above a canopy, drainage eaves is disposed beneath a sign, a solar panel is arranged on the bracket, a sign face is provided with a tempered glass. The present utility model structure is simple, novel design, through setting of the slider, it is possible to effectively adjust the height of the sign, so that the height of a sign having adjustable function, it is possible to meet different operational environments, have good promotion value.



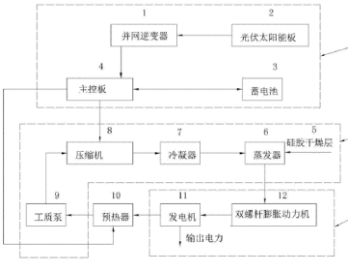
- AIR-POWER-GENERATING APPARATUS

Publicación	País de rigen:	Solicitante:	Fecha de prioridad:
CN207048826U	China	GUIZHOU SUOER TECHNOLOGY	2017-05-19

Abstract:

The present utility model discloses an air-power-generating apparatus, comprising a heat pump cycle system, heat pump cycle system includes an evaporator connected in this

order, a condenser, a compressor, refrigerant pump and intra-system connecting conduit; further comprises a solar power supply system and expand the genset, photovoltaic solar panels and the grid inverter power supply system including solar energy, photovoltaic solar panels connected by a cable grid-tie inverter, a grid-tie inverter is electrically connected to the master control board, the main control board connected to the battery and the compressor; the evaporator and the refrigerant pump expansion generator unit and in turn communicates with a conduit between the upper, an evaporator of the evaporator is fitted around the upper wire of the outer wall is provided. Full use of solar energy, geothermal energy and low-temperature air, and air can be organically combined with the light energy, a solar power generation is supplied to the compressor power, avoiding the external power source, the evaporator is fitted on the outside of a wire is used, the moisture in the sucked air, thereby to avoid frosting.



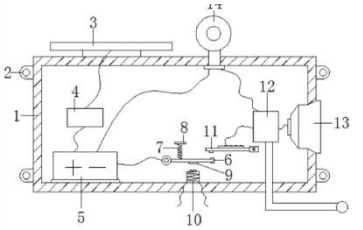
o METHOD BASED ON A SOLAR LIGHTING ANNOUNCEMENT DEVICE

Publicación	País de rigen:	Solicitante:	Fecha de prioridad:
CN207034941U	China	WANG TONG	2017-05-23

Abstract:

The present utility model discloses a solar illumination of one of the electrical arts based on the announcement device, comprising a mounting housing, left and right sides of the housing is installed with two sets of screw mounting board are soldered, with the solar panel is mounted on top of the housing is mounted, the mounting shell through the inner wall of the screw mount with a photovoltaic charging controller, a charging controller connected to the photovoltaic solar panels through wire, wire connected to the battery through the bottom of the photovoltaic charging controller, a battery connected to a bottom of the housing is mounted to the bottom of the cavity, through the right side of the battery is connected to a conductor wire, which is based on solar lighting broadcast device, of a battery charging apparatus for a solar panel as a daily basis, is environment-friendly, through a broadcast

assembly is provided, during a power outage, the battery as a power source in a broadcast equipment, facilitate the particular information dissemination.

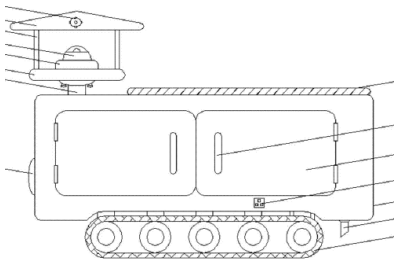


- LAND SURVEYING APPARATUS ACCORDING TO ONE

Publicación:	País de rigen:	Solicitante:	Fecha de prioridad:
CN207036830U	China	YE LIANQIAO	2017-08-04

Abstract:

The present utility model discloses a land survey device, comprising a track, gear housing, electric lifting posts, telescopic rod and an electric circuit cabinet, device housing is attached to the bottom of the track, with the solar panel is mounted on top of the apparatus housing, the output of electric lifting pillar through bolt is mounted the mounting platform, mounting platform for attaching the mount has a high-definition camera through above, the surface of the shelter shed light sensor is mounted through a screw, a controller is provided with a data storage hard disk, are respectively provided with GPS positioning controller circuit cabinet below the surface and nontransmission module module, the output of the telescopic rods are welded to a metal detection probe according to the motor. The present utility model is provided with a series of structure through remote control the apparatus while taking account not only the intelligence, the results of the survey can be further transmitted to a remote terminal in real time.

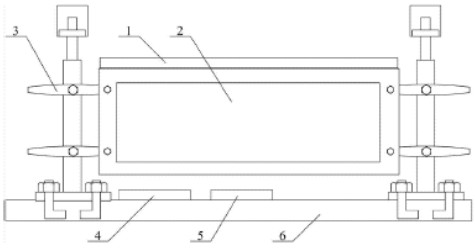


- NEW TYPE OF HIGHWAY GUARDRAIL FOR BRIDGES

Publicación: CN207017155U	País de rigen: China	Solicitante: DAN YUHUI Hou Junmei XING BINGDONG	Fecha de prioridad: 2017-06-30

Abstract:

The present utility model provides a novel highway bridges to a guardrail, solar panels, damping barrier means, a fixed bracket device, a battery, a photovoltaic charger and a concrete floor, an upper portion of the solar panel is bolted to the damping barrier means, barrier means is bolted to the fixed support means and damping fixed bracket device of the central portion, a fixed bracket device are mounted respectively at upper left and right of the concrete floor, an upper portion of the battery is bolted to the concrete floor. The present utility model has the advantages of: setting of the damping through barrier means, facilitate the damping effect upon collision of the vehicle with the guardrail plays, improve the protective effect of the guardrail, guardrail is prolonged service life, the infrared sensor and the flash lamp through an arrangement, functions as a warning to facilitate an accident occurs during the night, while preventing a secondary collision occurs.



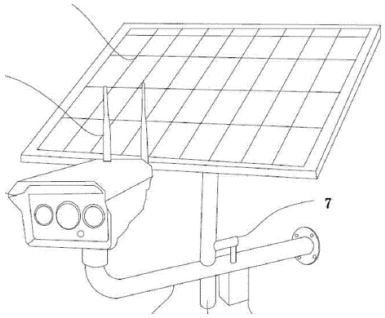
- SOLAR MINI MONITOR DEVICE

Publicación: CN207022114U	País de rigen: China	Solicitante: DING YONGXIANG	Fecha de prioridad: 2017-05-08

Abstract:

The present utility model discloses a solar mini monitor device, includes a housing made of aluminum with an aircraft, and one of the three lines combined with a tail-line, the housing incorporates a monitoring component, whose bottom is provided with a mounting bracket, is provided with a solar panel support rods fixed part of the bracket, and a solar panel mounted on the solar panel support rods, a solar panel mounted on a photovoltaic frame,

and providing the electrical energy storage battery to provide power monitoring module, a monitoring component has two transmission antennas bringing, solar support rod extending through the fixing bracket, and a fixing bracket having a bottom of a lifting mechanism, an elevating support rod drives the lifting mechanism solar energy. The present utility model are small, fully waterproof, and can automatically sense the lift the solar panels, wind resistance capacity of the solar panel is increased, and by a solar panel power supply, is environment-friendly, without the need for wiring, and the whole remote monitor can be realized, has wireless telecommunication means, and can be widely applied to various fields.



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