

What are the patents for portable energy storage

How will government support electrochemical storage?

New research promoting soft-side innovations and business models will expedite integration of electrochemical storage into common markets. Further government support is necessary to promote responsible R&D spending that enables serious cost reductions across solar, wind, and storage, while also decarbonizing electricity and transportation.

Can solar and battery storage compete directly with fossil-based electricity options?

We find and chart a viable path to dispatchable US\$1 W-1 solar with US\$100 kWh-1 battery storage that enables combinations of solar, wind, and storage to compete directly with fossil-based electricity options. Electricity storage will benefit from both R&D and deployment policy.

Are patents a proxy for Innovation?

We consider patents filed according to the Patent Cooperation Treaty (PCT) as a proxy for innovation. Following the work of Griliches 42, others evaluated patenting in the energy sector, and concluded that patents are a valid indicator to measure innovativeness within the energy sector 2,28.

Are patents a valid indicator of innovation in the energy sector?

Following the work of Griliches 42, others evaluated patenting in the energy sector, and concluded that patents are a valid indicator to measure innovativeness within the energy sector 2,28. This result has been extended and re-confirmed by a number of authors 43.

Can the US become a leader in electric battery storage?

Further government support is necessary to promote responsible R&D spending that enables serious cost reductions across solar, wind, and storage, while also decarbonizing electricity and transportation. The US has the opportunity to become a leader, not a laggard, in electric battery storage manufacturing and development.

Will electricity storage benefit from R&D and deployment policy?

Electricity storage will benefit from both R&D and deployment policy. This study shows that a dedicated programme of R&D spending in emerging technologies should be developed in parallel to improve safety and reduce overall costs, and in order to maximize the general benefit for the system.

A self-sustaining, portable, power station that may be moved by land, air, or sea to an area that has no utilities. The station is provided with at least one wind turbine and/or solar panel arrays in communication with at least one electrical distribution and storage means. The derived electricity is used to power various systems including, albeit not limited to, a communications system, a ...

According to the invention, a portable energy storage device is used for supplying portable tools, which

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energy storage device has at least two connections for connecting at least two...

The energy storage device also includes a tank used to store the pressurized and adsorbed air and a motor. The motor is driven to recover the energy stored as compressed and adsorbed air by allowing the air to desorb and expand while driving the motor. ... 2009-03-16 RU RU2010139758/06A patent/RU2010139758A/en not_active Application ...

energy storage storage box portable energy portable view Prior art date 2020-07-22 Legal status (The legal status is an assumption and is not a legal conclusion. Google has not performed a legal analysis and makes no representation as to the accuracy of the status listed.) ... 2020-07-22 Priority to US29/743,457 priority Critical patent ...

A device and apparatus for portable storage of thermal energy is disclosed. In an embodiment the device includes a core, one or more transfer interface and a core insulation. The core stores thermal energy. The one or more transfer interface communicates energy from an external source to the core and communicates energy stored in the core to an external recipient.

A fuel-cell powered medical fluid processing machine or dialysis machine is disclosed. The machine is intended for remote or rural areas where standard household or utility power is not available or is subject to interruption. The fuel cell is powered by hydrogen or other source of protons, or may instead be powered by methanol or ethanol, such as a direct methanol fuel cell.

An energy storage device comprising a hyperelastic shape memory alloy element which changes to one shape while storing energy responsive to a stress, and a structure which applies the stress to the element, the structure being selected from the group consisting of a differential pulley mechanism, a knee brace and a pogo stick.

Hand cranks, levers, and pedals in optional combination with a gear box or multi-speed hub may be provided to add energy to the mechanical energy storage apparatus. ... 2005-03-02 Priority to US11/070,044 priority Critical patent ... It is a still further object of the invention to provide a portable, human-powered, electrical energy source ...

a portable storage apparatus can include various types of storage apparatuses including, but not limited to a backpack, a duffle bag, a saddle bag for a motorcycle or motorized bike, a camera bag, a "fanny bag", a cooler, a carry case, or any other type of apparatus that may incorporate all or any portion of the features disclosed herein. As such, it should be understood that the ...

Embodiments of the present invention may provide a portable energy harvesting, energy storage and battery charging device. The portable device consistent with embodiments of the invention may be worn as, for example, a wrist application. The portable device may incorporate any one of, or a combination of,

thermoelectric and solar energy harvesting technology as a source for ...

The utility model relates to a portable power supply device which comprises an electric energy storage module, a charge module and a power supply module, wherein the electric energy storage module is electrically connected with the charge module and used for storing electric energy; the charge module is used for receiving energy from a first power source in a wireless ...

Enphase Energy. has filed a patent for a portable energy system consisting of multiple microinverters, an AC input, and an AC output. The system can connect to other portable energy systems or components of an energy management system. GlobalData's report on Enphase Energy gives a 360-degree view of the company including its patenting strategy.

An energy storage system, more particularly to a power distribution system for providing power for an indeterminate period of time. The power distribution system comprises means for converting the energy from an alternator to AC/DC circuits. The alternator transmits electric current to a battery, where an inverter is electrically connected to the battery and transmits AC power to ...

A recent trend in smaller-scale multi-energy systems is the utilization of microgrids and virtual power plants [5]. The advantages of this observed trend toward decentralized energy sources is the increased flexibility and reliability of the power network, leveraging an interdependent system of heterogeneous energy generators, such as hybrid ...

inventions in the field of electricity storage. Because patents are filed many months, or even years, before products appear on the market, patent information is an early indicator of ... energy storage will be required annually by 2040, compared ... any energy service, including for portable electronics and their ever-expanding uses and even ...

Abstract: Various embodiments provide a battery, a bulk energy storage system including the battery, and/or a method of operating the bulk energy storage system including the battery. In various embodiment, the battery may include a first electrode, an electrolyte, and a second electrode, wherein one or both of the first electrode and the second electrode comprises direct ...

An energy storage system converts variable renewable electricity (VRE) to continuous heat at over 1000°C. Intermittent electrical energy heats a solid medium. Heat from the solid medium is delivered continuously on demand. An array of bricks incorporating internal radiation cavities is directly heated by thermal radiation. The cavities facilitate rapid, uniform heating via reradiation.

the portable solar powered cold storage system further comprising of variable frequency drive (VFD) for utilization of energy and optimal sizing of solar system. It is another aspect of the present invention, wherein the portable solar powered cold storage system works for 2-3 days during non solar hours.

DOE Patents Patent: Energy storage system. Energy storage system. Full Record; References (6) Other Related Research; Abstract. Energy storage systems are disclosed. The systems may store energy as heat in a high temperature liquid, and the heat may be converted to electricity by absorbing radiation emitted from the high temperature liquid via ...

JP6695800B2 - Portable electric energy storage device with thermal runaway mitigation - Google Patents Portable electric energy storage device with thermal runaway mitigation Download PDF ... 2016-11-04 Publication of JP2016534518A publication Critical patent/JP2016534518A/en 2020-05-20 Application granted granted Critical

Provided is a portable energy storage system (P-ESS) including a wireless communication module for forming a local wireless network. The P-ESS provides wireless communication between terminals within the local wireless network formed by the wireless communication module. In doing so, the terminals within the local wireless network are ...

CN-211089159-U chemical patent summary. The utility model discloses a portable energy storage power supply, include: the casing installs group battery, battery protection shield, DC-to-AC converter board, low clamp plate, control panel and the display screen in the casing, casing one side is equipped with AC delivery outlet, DC delivery outlet and DC input port, the top of casing ...

This invention is a compact and portable solar-powered camping light/lamp that utilizes recent advances in bulb and battery technology to produce high-intensity light continuously for up to 12 hours. It is well-suited for use during camping trips, in remote off-grid cabins, homes, and emergencies. The device incorporates a 12V solar panel that charges a standard 12V 12-18 ...

A solar energy portable power bank supplies power to external devices, and includes: a bank body, a solar panel, a storage battery, a power converter, a fan, an input port and an output port. The solar panel placed on the surface of the bank body provides electrical energy to the storage battery in case of no external power supply to charge the storage battery.

The portable solar and wind-powered energy generating system provides an ecologically friendly, portable system for generating electricity. The system includes a portable enclosure having a roof, along with first and second solar modules. The first solar module is mounted on the roof of the portable enclosure. A portable vertical support is removably positioned adjacent the portable ...

A portable wind power generator capable of being stored in a folded manner includes a storage case and a power-generating system. The power-generating system is disposed in the storage case. The storage case includes a case body and a plurality of covers. The case body and the plurality of covers form a hollow accommodating space. Further, the power-generating system ...

What are the patents for portable energy storage

Justia Patents US Patent Application for PORTABLE MODULAR ENERGY STORAGE Patent Application (Application #20230395923) PORTABLE MODULAR ENERGY STORAGE . May 16, 2023. In certain embodiments, a portable power pack includes two opposing plates for accommodating a set of one or more batteries therebetween. The two opposing plates define a ...

The system is a complete stand-alone, long term energy storage device that can include a portable enclosure with user interface, battery, battery control module, master isolation switch, DC to AC power inverter circuit, AC to DC battery charging circuit, battery state of charge indicator and DC charge control circuit with means to maximize the ...

A cryogenic energy storage system comprising a liquefaction apparatus for liquefying a gas to form a cryogen, wherein the liquefaction apparatus is controllable to draw power from an external power source to liquefy the gas, a cryogenic storage tank in fluid communication with the liquefaction apparatus for storing cryogen produced by the liquefaction ...

The utility model discloses a portable electronic cold storage device, comprising a shell and semiconductor refrigeration modules, wherein a cold storage box is fixed inside the shell; the cold storage box is of a straight cylinder structure of which one end is an open end and the other end is a sealed end; the section shape of the cold storage box with the straight cylinder structure is a ...

the present invention proposes an energy management method that utilizes DC voltage signaling to provide indirect communication between local controllers, to provide battery state-of-charge balancing, overcharge protection and undercharge that incorporates variable battery and generation source current limiters. Furthermore, this method is capable of providing offset ...

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