

WO2020260596A1 - Gravity-based energy storage system - Google Patents Gravity-based energy storage system Download PDF Info Publication number ... 2020-06-26 Priority to JP2021577890A priority Critical patent/JP2022538342A/ja 2020-06-26 Priority to US17/623,048 priority patent/US11965490B2/en

Free Energy is a perpetual motion machine that operates indefinitely and independently without any other source of fuel, electricity, or any other renewable energy source other than gravity. Free Energy produces more energy than the amount of energy necessary to operate the machine itself. Never before has a machine of this nature been produced.

The present invention is realized by apparatus and methods for harvesting, storing, and generating energy by permanently placing a large rigid buoyant platform high in the earth's atmosphere, above clouds, moisture, dust, and wind. Long, strong and light tethers can connect the buoyant structure to the ground which can hold it in position against wind forces.

-17 Publication of WO2016040746A1 publication Critical patent ... FIG. 3 there is shown one embodiment of the subsurface low-cost suspended-mass energy-storage system 10 with ... the motion of tether 158 ensuring its proper spooling onto drum 164 and effectively lowering the overall center of gravity of the energy storage module 167 ...

Energy Vault Inc received a granted US patent US 10,683,851 B2 for their energy storage system that stores and releases energy via the stacking of blocks. In particular, the claims of the patent, which define the scope of the ...

Gravity energy storage is a new type of physical energy storage system that can effectively solve the problem of new energy consumption. This article examines the application of bibliometric, social network analysis, and information visualization technology to investigate topic discovery and clustering, utilizing the Web of Science database (SCI-Expanded and Derwent ...

Solid gravity energy storage technology (SGES) is a promising mechanical energy storage technology suitable for large-scale applications. However, no systematic summary of this technology research ...

The invention discloses a gravity energy storage module and a modularized gravity energy storage system, which comprise a plurality of mass block layers, elevator devices on two sides and a generator, wherein the mass block layers are stacked in the vertical direction, a plurality of mass block storage positions are transversely arranged on each mass block layer, a horizontal ...

The main countries and regions of patents that accepted gravity energy storage technology patents are shown

in Fig. 2(a). The figure clearly illustrates, China is the most important target market for gravity energy storage technology, accounting for 60% of the total number of the global gravity energy storage technology patents.

**Abstract:** An energy storage and delivery system includes an elevator, where the elevator is operable to move one or more blocks from a lower elevation to a higher elevation to store energy (e.g., via the potential energy of the block in the higher elevation) and operable to move one or more blocks from a higher elevation to a lower elevation (e.g., by gravity) to ...

The present invention provides novel designs and improved methods for the construction and operation of a gravity powered energy storage facility. This facility might also be called a gravity battery or a gravitational potential energy storage device. The device converts electricity into gravitational potential energy, and vice versa, by raising and lowering massive ...

The Influence of Advanced Battery Patents Funded by the U.S. Department of Energy's Vehicle Technologies Office and Other DOE Offices Report prepared for: U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE) Vehicle Technologies Office (VTO) 1000 Independence Avenue Washington, DC 20585 Report ...

Gravity Energy storage. Gravity battery . Storing energy by using gravity,, lifting weights when we have power by giving energy to the geared motor and take it back when we need them. More &&

2. SIGNIFICANT PATENTS IN GRAVITY ENERGY STORAGE. Numerous patents have been awarded that document various innovations in gravity energy storage technology. ...

Invention defines a method and apparatus for storing energy where a power source is used to reposition a mass in a gravitational field to a position of higher potential energy where the ...

energy storage and in particular o an apparatus and system for gravity-based energy storage using weights. BACKGROUND OF THE INVENTION [0002] Gravity-based energy storage systems are increasingly being recognised as one method of energy storage and grid balancing that is reliable, can operate over a very large cycle life and demonstrates a ...

The invention proposes a gravity energy storage system based on a shaft and a roadway, comprising a shaft (1), a roadway (2), an upper rail (3), a lower rail (4), a supporting beam (5), and a motor generator (6). ), winch (7), car (8) and n heavy object carriers (9); in the energy storage condition, one heavy object carrier (9-n) moves from the lower rail (4) to the car (8) Inside, the ...

Gravity energy storage is a new technology that stores energy using gravity. It has the potential to be a cornerstone of sustainable energy systems, with its capacity for long-term energy storage ...

Gravity energy storage with suspended weights for abandoned mine shafts Thomas Morstyn, Martin Chilcott,

M. McCulloch, 2019, Applied Energy, 26 Citations, 28 References ...

Electrolysers for hydrogen production. The 1.5°C Pathway report issued by the International Renewable Energy Agency (IRENA) predicts that hydrogen and derivatives will need to account for 12% of final energy use by ...

Gravity energy storage news report latest; Top 10 gravity energy storage scale rankings; 100mwh gravity energy storage project; Sand gravity energy storage; Gravity energy storage related companies; Gravity how gravity energy storage works; Top 10 national gravity energy storage projects; What is a gravity energy storage facility

The utility model is related to a kind of high efficiency gravity energy storage device, it is characterized in that, the high efficiency gravity energy storage device includes support meanss, fixed pulley group, running block, weight, steel wire rope, roller, decelerator, motor and frequency converter, the support meanss whole installation is trapezoidal, including support frame and ...

-18 Priority to US14/490,630 priority Critical patent/US10138875B2/en ... The Gravity Field Energy Storage & Recovery System [GFESRS] invention is a mechanical, electrical and electronic system that has the ability to harness any electrical or mechanical power source and allow it to do work to configure a mechanical system into a state ...

Gravity energy storage, or gravity batteries, is an emerging technology that utilizes gravitational potential energy for large-scale, sustainable energy storage. This system operates by lifting a heavy mass using energy and later releasing it to produce electricity through a generator. ... Over the past five years, patenting activity in gravity ...

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An energy storage system and method that enables gravity-based energy storage to have a significantly larger capacity in a single shaft for given capital cost and thus an improved cost per unit energy for large scale energy storage as well as enabling continuity of power input and output at an external connection point across the extent of the system's energy capacity comprises a ...

The present invention provides novel designs and improved methods for the construction and operation of a gravity powered energy storage facility. This facility might also ...

An energy storage system comprises a cable (13) (13) and a mass (20) suspended from the cable (13) in a shaft (12) (12). The cable (13) is attached to a winch (11) by which the mass may be raised in the shaft (12) to store potential energy, and the mass is lowerable in the shaft (12) to release the potential energy. The mass comprises at least two sections clamped together ...

-24 Priority to US16/140,520 priority Critical patent/US10677227B2/en ... According to "A Study of Lead-Acid Battery Efficiency Near Top-of-Charge and the Impact on PV System Design by John W. Stevens and Garth P. Corey: ... The Gravity Field Energy Storage & Recovery System invention is a mechanical, electrical and electronic system ...

An energy storage system comprises a weighted object 5 suspended from a cable(s) 7, a lifting device 8 driving the cable 7 to move the weighted object 5 through a substantially vertical distance, and a generator 9 connected to the lifting device 8. The system may comprise a guidance system such as tensioned cables 4. The system is enclosed in a vertical hole or ...

An energy storage system and method that enables gravity-based energy storage to have a significantly larger capacity in a single shaft for given capital cost and thus an improved cost...

Gravity energy storage systems, using weights lifted and lowered by electric winches to store energy, have great potential to deliver valuable energy storage services to enable this transformation. The technology has inherently long life with no cyclic degradation of performance making it suitable to support grids into the future and has be ...

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