Energy storage motor patent

A flywheel based energy storage apparatus includes a housing and a hub-less flywheel mounted within the housing. The hub-less flywheel has a mass which is shifted radially outwards from a central axis of the hub-less flywheel thus increasing the energy density of the apparatus. The flywheel includes an outer axially extending annular surface, an inner axially ...

Regardless of specialty, however, companies are filing patent applications directed at improving energy storage and electric motor efficiency. Storage and efficiency present critical obstacles in achieving mainstream all-electric or hybrid-electric flight. Those trends are likely to continue throughout 2024 and beyond. Endnotes

A flywheel energy storage system for a vehicle, comprising a first shaft, a second shaft operatively coupled to the first shaft and to the vehicle"s drivetrain, a flywheel operatively coupled to the first shaft, and a motor operatively coupled to the first shaft and electrically coupled to a power source, the motor being adapted to receive energy from the vehicle"s electrical system and the ...

flywheels are usually coupled to motor-generators, such that the motor receives input power from a power source (e.g., a local utility grid or renewable energy source) and stores the energy in the flywheel via the inertia of the rotating flywheel. Subsequently, the stored kinetic energy in the flywheel is transferred out of the flywheel by operating the flywheel motor as a generator, ...

It can be seen that the number of gravity energy storage patents has shown an obvious increasing in the past five years, and showing a sustained growth trend. ... has energy storage power generation grid-connected switch and energy storage switch whose ends are connected to energy storage motor. In: Patent 202075931Y (2020)

However, patent protection for other energy storage technologies is on the rise. The patent databases around the world are open for public inspection and insights into levels of activity and who is making patent filings can be found. ... Gravitational potential energy storage systems using a motor to lift a mass to store potential energy. This ...

The invention discloses a magnetic suspension flywheel energy storage motor for an electric car. The magnetic suspension flywheel energy storage motor is characterized in that the external of a rotor core and rotor teeth coaxially sleeve a left stator and a right stator which are arranged in the axial direction; a cylindrical axial magnetization permanent magnet is closely inlaid between ...

In a 9-megawatt energy storage project, six flywheels have been installed in combination with a large battery to create an innovative hybrid storage system in Heerhugowaard, around 35 kilometers from Amsterdam. ... The ABB motor and drive takes excess electrical energy from the grid and uses it to speed up the rotation of

the flywheel, so it is ...

Justia Patents US Patent Application for ENERGY STORAGE SYSTEM Patent Application (Application #20230116874) ... The energy storage system may be used as a power source for driving a motor such as an electric bicycle, a scooter, an electric vehicle, a fork lift, an unmanned aerial vehicle, a water vessel, and the like. In addition, the energy ...

The invention provides a flywheel energy storage motor device with variable power supply structure, which mainly solves the technical problem of improving device reliability, lowering cost and the like. The flywheel energy storage motor device adopts the following technical scheme that the stator windings of the motor are a group of independent Y windings, wherein one winding ...

The utility model discloses a novel energy storage motor mounting structure of a modular mechanism, which comprises a mechanism left side plate and a mechanism right side plate, wherein the mechanism left side plate and the mechanism right side plate are fixedly connected through four supporting rods to form a frame structure; the utility model discloses adopt the ...

The pump-motor assembly includes a pump-motor that maintains a minimum pressure of a liquid coolant in a liquid coolant system that cools the back-up energy storage unit, and a housing that is completely enclosed, the housing containing the pump-motor, and having a removable access panel on one side thereof the enclosed structure, and an ...

The utility model relates to a prevent slow-witted mechanism for energy storage motor. This kind of prevent slow-witted mechanism for energy storage motor includes: a first drive assembly rotatably connected to the housing, the first drive assembly being capable of rotation in a first plane upon actuation of the lock lever; and the second driving assembly is connected with the ...

16. An energy storage system, comprising: a plurality of blocks; and a crane comprising a frame comprising a tower and a plurality of jibs coupled to the tower, each pair of jibs extending on opposite sides of the tower, an electric motor-generator, one or more trolleys movably coupled to the frame, at least one of the one or more trolleys movably coupled to each of the plurality of ...

US20220044985A1 US16/987,256 US202016987256A US2022044985A1 US 20220044985 A1 US20220044985 A1 US 20220044985A1 US 202016987256 A US202016987256 A US 202016987256A US 2022044985 A1 US2022044985 A1 US 2022044985A1 Authority US United States Prior art keywords pump housing storage container energy storage motor assembly ...

Energy Storage Program Hazle Spindle LLC American Recovery and Reinvestment Act (ARRA) Beacon Power will design, build, and operate a utility-scale 20 MW flywheel energy storage ... by a metal hub and shaft with a motor/ generator on the shaft. Together, the rim, hub, shaft, and motor/generator assembly form the rotor. The rotor

According to an aspect of the present invention, there is provided a clean energy fuel free gravity force driven motor device, comprising: a drive axle; a belt; a pulley system; weighted wheeled trolley; a guide rail; a torsion spring arm; a solid leverage arm/bracket system; a spring arm leverage housing; and a vertical plane housing; wherein the weighted wheeled trolley is ...

To ensure grid reliability, energy storage system (ESS) integration with the grid is essential. Due to continuous variations in electricity consumption, a peak-to-valley fluctuation between day and night, frequency and voltage regulations, variation in demand and supply and high PV penetration may cause grid instability [2] cause of that, peak shaving and load ...

A flywheel energy storage system (1), comprising: an electric motor (112); a flywheel rotor (111), the electric motor being connected to the flywheel rotor to drive the flywheel rotor to rotate; and an asynchronous generator (20), the asynchronous generator comprising a stator and a rotor, wherein a flywheel rotor is disconnectably transmittingly connected to the ...

In the past few decades, electricity production depended on fossil fuels due to their reliability and efficiency [1].Fossil fuels have many effects on the environment and directly affect the economy as their prices increase continuously due to their consumption which is assumed to double in 2050 and three times by 2100 [6] g. 1 shows the current global ...

The utility model relates to the field of magnetic suspension energy storage motors, in particular to a magnetic suspension energy storage motor taking a flywheel as a thrust disc. The motor comprises a motor barrel, a motor stator, a radial magnetic bearing, an axial magnetic bearing and a motor shaft; the motor stator is fixedly embedded in the motor barrel and sleeved on the ...

The application relates to the technical field of flywheel energy storage and discloses a flywheel energy storage motor and a flywheel energy storage device, wherein the flywheel energy storage motor comprises a machine base and a stator assembly, the stator assembly is arranged in the machine base, and the stator assembly comprises a stator core, a stator winding, a first ...

Spring powered electric energy storage system. United States Patent No. 7834471 B2, 2010. Google Scholar [19] F.A. Hill, ... MiZQ, YuY, Wang ZQ, Tang JQ. Preliminary exploration on permanent magnet motor based mechanical elastic energy storage unit and key technical issues. Automation of Electric Power Systems 2013; 37:26-30. Google Scholar [25]

The disclosure relates to a flywheel energy storage system including a casing, shaft, flywheel, and electric motor assembly. The casing has an inner vacuum chamber, at least one outer accommodating slot and at least one separator which separates the inner vacuum chamber from the at least one outer accommodating slot. The shaft is rotatably disposed in the ...

Energy storage motor patent

An energy storage system stores power received from a power grid as potential energy in compressed earth materials. The energy storage system includes a motor-generator coupled to an anchor via a tensile member. The motor-generator is configured to apply a tensile force to the tensile member. The tensile force causes the motor-generator and the anchor to apply a ...

Energy storage implementations and selections are made considering economic and technical factors and they present a critical role in ensuring the energy future. Fig. 1 shows the evolution of the energy storage installations predicted to 2030, in which there is a clear growing trend in all developed countries. Regionally, the Asia-Pacific (APAC ...

An energy storage motor and a use method thereof, the motor comprises a shell, a stator core and a main shaft are fixed in the shell, a clutch device and a speed change device which are in transmission fit are arranged on the main shaft, the clutch device is connected with a flywheel rotor, and a gear ring is in transmission fit on the speed change device; the clutch device ...

The invention discloses a flywheel energy storage motor, belonging to the technical field of electric energy storage, comprising a flywheel rotor and a stator arranged at the outer side of the flywheel rotor in a surrounding way, and the flywheel energy storage motor also comprises: the bearing unit is used for positioning and supporting the flywheel rotor along the vertical ...