

JH Solar

Hydrogen energy storage power generation patent



Overview

Combining the energy expertise of the IEA with the EPO's patent knowledge, it provides the most comprehensive and up-to-date global review of patenting trends in a broad range of technologies – from the production of hydrogen to its storage, distribution and transformation, through to its end-use.

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A hydrogen powered generator includes at least one fuel cell, a power converter that receives a raw power from the at least one fuel cell and outputs a converted power; and a hydrogen storage assembly that supplies hydrogen to the at least one fuel cell. In one instance, the hydrogen storage.

This study by the EPO and IEA is the most comprehensive, global and up-to-date investigation of hydrogen-related patenting so far. It covers technologies for the full range of hydrogen supply, storage, distribution, transformation and end-user applications, as well as introducing new search.

A renewable energy storage system which uses hydrogen as a storage medium. The system comprises a hydrogen generation module for producing hydrogen through electrolysis of water wherein the hydrogen generation module is powered by one or more renewable energy sources and a hydrogen storage module.

Abstract: The invention provides a thermal energy storage system comprising a metal-containing first material with a thermal energy storage density of about 1300 kJ/kg to about 2200 kJ/kg based on hydrogenation; a metal-containing second material with a thermal energy storage density of about 200. What is a hydrogen storage power system?

The power system containing hydrogen storage can be divided into power generation, energy storage, or load according to the different parts. Ensuring the system's safe operation and achieving the system's operating goals

requires an appropriate energy management control strategy.

Is hydrogen storage a viable energy management system?

The development of the current energy management system containing hydrogen storage is promising. Future research will focus on multi-energy complementary energy management systems combined with big data and intelligent autonomous optimization design.

What is a hydrogen patent?

Their patent portfolios are mainly focused on production by electrolysis and applications based on fuel cells but also extend to established technologies for the storage and distribution of liquid or gaseous hydrogen, an area of focus for these countries which plan to import stored hydrogen in the near future.

What happened to hydrogen patenting in the US?

By contrast, hydrogen patenting decreased significantly in the US after 2015, and the US was a distant third to the EU and Japan in 2020, despite being the main innovator in hydrogen in 2011 in terms of volume of international patent families.

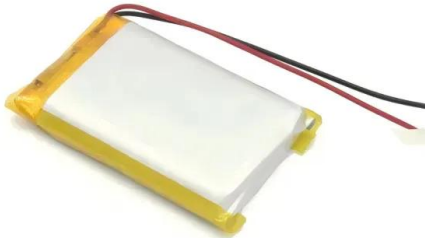
What is a portable hydrogen storage module?

Air Products and Chemicals has designed a portable hydrogen storage module whose structure is shown in Fig. 7. This design takes advantage of hydrogen with higher energy density. This design uses solid-state hydrogen storage, and hydrogen can be adsorbed on metal hydrides. The product has less pollution compared to lithium battery energy storage.

What is a hydrogen energy management strategy?

A suitable energy management strategy can make the hydrogen energy system better meet the demand, prolong the life of each part in the design, reduce the system operating cost and maximize the system performance, thereby providing different optimization goals at the technical and economic levels.

Hydrogen energy storage power generation patent



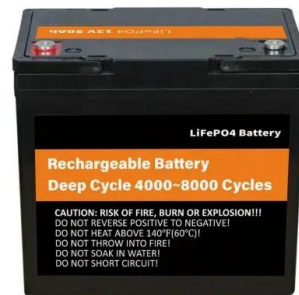
Innovation trends in electrolyzers for hydrogen production: ...

The growing political interest around the globe in climate-neutral energy production and energy storage technologies and the promise that hydrogen technology offers is the driving force ...

System and method for hydrogen-based energy storage

An energy storage system and method employ electrolysis to convert excess electrical energy into hydrogen gas and oxygen gas stored in cryogenic flux capacitor units. When needed, the

...



CN114000978A

The invention relates to the field of power generation equipment, in particular to hydrogen production energy storage equipment and a building breeze power generation system.



Mitsubishi Power Americas, Inc. , Mitsubishi Power ...

Mitsubishi Power's power generation solutions include natural gas, steam, aero-derivative,

geothermal, distributed renewable technologies, environmental controls, and services. Energy storage ...

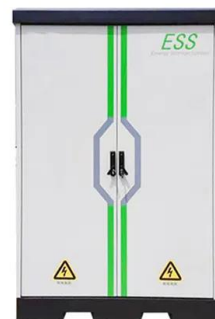


HYDROGEN STRATEGY

A low-carbon hydrogen economy, beyond petrochemical and transportation sectors, will require fossil fuels to support emerging carbon-neutral market opportunities like utility-scale, hydrogen ...

Hydrogen-based Cat® Power Generation Solutions , Cat

With the industry's widest range of diesel, gas, and mobile generator sets, hybrid energy storage solutions, automatic transfer switches, and switchgear, the Cat team will work directly with you ...



Overview of US patents for energy management of renewable energy

The power system containing hydrogen storage can be divided into power generation, energy storage, or load according to the different parts. Ensuring the system's safe ...

2020 Patent and Patent Application Analysis for

Beginning in FY2008, PNNL has conducted an annual review of patents related to fuel cells, hydrogen production, delivery, and storage resulting from HFTO R&D funding*

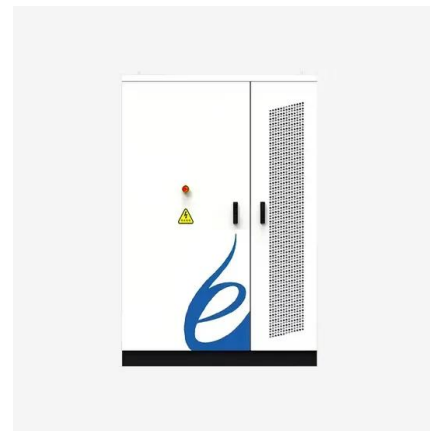


Method for Generating Electric Energy Using Hydrogen Storage

A recent patent filing by inventor Charles Robert Wilson introduces an inventive system for generating electric energy by using hydrogen storage, from the generation of ...

Recent progress in electrolyser control technologies for hydrogen

Highlights o Zero carbon technologies facilitate the clean energy transition on specific technology trajectories. o Hydrogen electrolyser benefits energy storage technologies ...



Hydrogen Storage Material Patent by LG Chem

Key takeaways include: - Significant improvements in storage efficiency over existing technologies. - Broad potential applications across automotive, power generation, and portable electronics sectors. - ...

Hyundai Patents Hydrogen-Based Mobility ...

Traditional hydrogen storage and power generation setups often encounter issues related to pressure inconsistencies, which can affect performance and safety. Hyundai's approach ensures a more stable and ...



Recent developments in state-of-the-art hydrogen energy ...

Hydrogen storage in an international stage is discussed on the countries' bold initiatives and targets to realize clean hydrogen technologies for the sustainability and ...

Hydrogen Production: Solar-Powered Systems by Erthos IP LLC

Key Takeaways Erthos IP LLC's patent introduces a holistic and innovative approach to hydrogen production using solar power. It's designed to be environmentally ...



Hydrogen energy systems: A critical review of technologies

The global energy transition towards a carbon neutral society requires a profound transformation of electricity generation and consumption, as well as of electric power systems. ...

energy storage power generation fuel cell

energy storage power generation fuel cell
Hydrogen is a secondary energy carrier for renewable energy. It can be harvested from water electrolysis with wind and solar energy, stored and ...



LAVO Hydrogen.

At LAVO, we're focused on green hydrogen. LAVO's Hydrogen Energy Storage System (HESS) combines patent pending metal hydride storage technology with a lithium-ion (Li-ion) battery, ...

Hydrogen Patents for a Clean Energy Future - ...

Patents are strong indicators of innovation activity which can give very detailed insights into the state and direction of the science. This study, which combines the expertise of the International Energy Agency ...



Advancements in hydrogen storage technologies: Enhancing ...

The research aims to assess and progress hydrogen storage systems from 2010 to 2020 with an emphasis on obtaining high efficiency, safety, and capacity. To strengthen ...

Hydrogen Storage Patents (Class 420/900)

Abstract: Hydrogen energy systems for obtaining hydrogen gas from a solid storage medium using controlled laser beams. Also disclosed are systems for ...



Apparatus And Method For A Hydrogen Powered Generator With ...

A hydrogen powered generator includes at least one fuel cell, a power converter that receives a raw power from the at least one fuel cell and outputs a converted power; and a ...

Patent landscape review of hydrogen production methods:

...

This current patent review can be fully utilized by the researchers to keep abreast of the latest trends in hydrogen-generating strategies which could potentially aid in the ...



Hydrogen based renewable energy storage system

The system comprises a hydrogen generation module for producing hydrogen through electrolysis of water wherein the hydrogen generation module is powered by one or more renewable ...

Hydrogen patents for a clean energy future

This study, which combines the expertise of the International Energy Agency and the European Patent Office, is the most comprehensive, global and up-to-date investigation of hydrogen ...



US8864974B2

A hydrogen generator comprising an enclosure, a series of spaced plates contained within the enclosure and defining between them liquidtight cells, with a plate forming a first wall of each ...

CN117294026A

The invention relates to a high-efficiency clean energy storage power generation system and a method based on an argon power circulation hydrogen machine, wherein renewable energy ...



Hydrogen patents for a clean energy future: A global trend

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This study by the EPO and IEA is the most comprehensive, global and up-to-date investigation of hydrogen-related patenting so far.

Overview of US patents for energy management of renewable energy

Review of U.S. patents for hydrogen-containing renewable energy systems management methods. Review of U.S. patents for application of hydrogen-containing.



Hydrogen patents for a clean energy future: A global trend

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