Does the battery have patented technology

Where do battery patents come from?
The majority of battery patents are found to originate in Asiawhile high battery patent intensities are revealed in the performance of several Asian and European countries. Overall,a considerable increase in annual battery patenting activity is observed from 2000-2009 to 2010-2019.

How many battery patents are there in the world?
Over 90,000battery inventions from the period 2000-2019 analyzed. Patent data explored from technometric and textmetric perspectives. Global battery patenting activity growth mostly originating in Asia. Three country clusters emerge with different circularity potentials. Battery advances so far suggest incomplete circular transition.

Are lithium-ion batteries patentable?
To be very clear: This especially means that the lithium-ion battery category does not contain any patent familiestagged as solid-state battery inventions. The fourth step's purpose was to add patent data related to redox-flow and nickel-hydrogen batteries to the dataset.

Are battery patents growing?
Overall,a considerable increasein annual battery patenting activity is observed from 2000-2009 to 2010-2019. Second,we also found that four battery technologies - redox-flow,solid-state,sodium-ion,and lithium-sulfur batteries - have displayed vibrant growth in recent years.

Which technologies grew in relevance to battery patenting?
We find that several battery-related technologies and applications, such as energy storage systems, battery management systems, wireless power transmission, electric vehicle charging, and uncrewed aerial vehicles (i.e., drones), grew in relevance both in absolute terms and relative to general battery patenting activity.

Are all patents related to solid-state batteries tagged?
Please note that due to the considerable overlap of the concept of solid-state batteries with other technologies,especially lithium-ion batteries,all patent families that were classified as patents related to solid-state batteries were untaggedin any other category in which they acquired tags through the process described here.

Will the lightning pace of battery innovation last? A report by the European Patent Office and International Energy Agency has shown the massive growth of battery technology innovation since 2000 and given an insight into ...

This study builds on battery patents that can roughly be characterized in the following way: (1) inventions

related to the casing, wrapping, or covering, i.e., non-active parts ...

Patent analytics in EV battery technology reveals key innovations, market leaders, and trends, guiding stakeholders in R& D and strategic decisions. It also highlights ...

In this article, Nathaniel interrogates Toyota"s patent portfolio in the hunt for the technical details behind the breakthrough and poses that the solution might lie in the formation of a clay-like solid electrolyte composition for ...

How many patents does the Founder and CEO of BYD have? ... Click here to read about Innovation behind BYD"s Blade Battery! 10 Best BYD Patents. USD680524S1 is ...

To understand the significance of the 4680 battery, it"s essential to appreciate the history of battery technology. Batteries have existed for over 200 years, evolving from simple ...

Battery technology is at the forefront of modern consumer and industrial markets. Developments have come a long way over the past 25 years, but innovation has ...

According to patents that have been recently granted to NIO related with its Battery Swap technology, the EV maker will make the replacements faster, increase the ...

Upgraded technology means the batteries are made using fewer parts -- also meaning less weight. ... This article has been amended to clarify Tesla"s cylindrical 4680 ...

Batteries have the potential to contribute significantly to a greener and more sustainable future, and so are a critical sector in the drive to net zero. What do the latest ...

The rapid rise in battery-related patent applications underscores a growing drive towards sustainable power in the race to reach net zero. EPO statistics emphasise the areas ...

Building on the work of the Swedish inventor Ernst Waldemar Jungner, who first patented a nickel-iron battery in 1899, Edison sought to refine the battery for use in automobiles.

The growth and spread of rechargeable batteries are reflected in an increase in patent applications in battery technologies, which have grown at a much faster rate than patent ...

Batteries have the potential to contribute significantly to a greener and more sustainable future, and so are a critical sector in the drive to net zero. What do the latest patent statistics reveal about innovation in the ...

The growth and spread of rechargeable batteries are reflected in an increase in patent applications in battery

technologies, which have grown at a much faster rate than patent applications overall (Figure 1). Battery patent applications ...

As the drive towards renewable energy use gains pace, there has been an increase in global patent filings relating to battery technology. While lithium-ion batteries ...

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