

INSIGHTS

Voice of the World

China Leads in IP Filing Across All Indicators

Edited by QI Liming

According to the World Intellectual Property Organization (WIPO), despite the disruption of the COVID-19 pandemic, global intellectual property (IP) filing reached new all-time highs in 2021, with China filing the largest number of patent applications, making up nearly half of the global total.

Data from WIPO's World Intellectual Property Indicators report on November 21 shows that innovators filed 3.4 million patent applications globally last year, which was up 3.6 percent from 2020. China ranks first among the top patent offices, with 1.5 million patent applications filed in 2021, well ahead of the U.S. in second place, and Japan in the third place.

Global trademark applications in 2021 reached more than 18 million, up 5.5 percent. With more than 9.5 million trademark applications, China is the top trademark office. More than 1.5 million industrial design applications had been applied in 2021, and



China bookstore. (PHOTO: VCG)

China also ranks first in this aspect, with more than 805,710 industrial design applications being applied for last year.

Latest data shows "continued and sustained growth" in intellectual property filings, "driven largely by increases

from Asia, with other regions also trending mostly upward," said WIPO Director General Daren Tang.

IPWatchdog commented that China has seen a massive surge in IP filings across the board along with high rates of growth, and the country is a global leader

in sheer numbers across all indicators.

The Chinese patent market has experienced a boom in recent years. This year China surpassed the U.S. to become the world leader of patents in force. China has 3.6 million patents in force followed by the U.S. with 3.3 million and Japan with two million.

India's No. 1 Hindi business news channel Zee Biz reported that Asia's share in patent filing has increased, and out of the world's total patents being filed, two-thirds are now being filed from the continent. A large share of this comes from China alone, where the country is continuously increasing its investment in the field of technology and innovation. Out of the top 10 patent-filing countries, China alone has filed more patents than the other nine countries combined.

"IP filing strength during the pandemic showed that people across the world continued to innovate and create despite the economic and social disruptions caused by the pandemic," said Daren Tang.

'Built by China' Benefits the World

Opinion

By GONG Qian

The ranking of the World's top 50 Construction Machinery Manufacturers was revealed on November 22. Among them, both China and Japan have 12 manufacturers being listed, while the U.S. has six and Germany has four.

The rise of China's construction machinery manufacturing industry is the result of China's great efforts to develop infrastructure and foreign investment in China, said Wang Peng, a researcher at Beijing Academy of Social Sciences.

To some extent, it epitomizes the rapid development of China's modern manufacturing industry. "With the application of more information technologies, China is transforming from a manufacturing giant to a world manufacturing power," said Hong Tao, professor at Beijing Technology and Business University.

China's strength and influence in manufacturing and construction can be demonstrated by the ongoing 2022 Qatar World Cup, with Made-in-China products being found everywhere, ranging from grand stadiums like the Lusail Stadium, to small items like plush mascots.

Described as "the jewel in Qatar's FIFA World Cup crown" by local media *The Peninsula*, the Lusail Stadium, is Qatar's biggest stadium. Currently, it is also the world's most advanced and complex professional football stadium built to FIFA standards.

Chinese companies have also taken part in the construction of other projects, such as 15 super-large water storage tanks. "The Chinese role in the construction was fast-paced with good quality. So far, they successfully passed all engineering quality tests without any prob-

lems," Khalisa Lingam, field director of the Qatar Strategic Reservoir Project, told CGTN.

China has been keeping its promise to build a better world, helping developing countries improve people's livelihoods and growing their economies. The country's efforts has been recorded on the banknotes issued by those countries.

For example, Lusail Stadium features on the new 10-riyal banknote of Qatar. This is the first time that a China-built infrastructure project is chosen to appear as the main symbol on the official currency of Qatar.

Chinese Foreign Ministry spokesperson Hua Chunying posted a series of images on Twitter in October, showing banknotes from different countries, all marked with the countries' iconic buildings built by China. These landmarks include Gwadar Port in Pakistan, Rama VIII Bridge in Thailand, Malawi Parliament Building, the Great Mosque of Algiers, Merowe Dam in Sudan, and National Library of Tajikistan.

Some key cooperation projects between China and other developing countries have also made a big impact. For example, the Phnom Penh-Sihanoukville Expressway in Cambodia started to operate on October 1. It marks the beginning of the age of expressway for the country, drastically reducing commuter and commercial transport traveling time.

On October 6, the Velana International Airport in Maldives launched its first Code-4F runway and a modern sea-plane terminal, which will notably improve the airport's ability to receive tourists. It is also a landmark project of China-Maldives Belt and Road cooperation.

There is no doubt in future that "Made-in-China" and Built by China campaigns are expected to deliver an increase in tangible benefits to people all over the world.

Hi! Tech

3D Printed Sodium Ion Microbatteries Developed

By TANG Zhexiao

Though lithium-ion batteries are preferred in a wide range of applications such as smartphones, electric cars and many electronic devices, the manufacturing of these batteries is costly and its extraction can be harmful to the environment.

A research team from the Chinese Academy of Sciences has developed a

new rechargeable sodium-ion microbattery (NIMBs), made by using low-cost raw materials.

Owing to the advantages of abundant sodium ion resources, low cost and fast transmission, this microbattery is considered to be a promising source for powering coplanar microelectronics.

During their research, the team demonstrated the 3D printed NIMBs with 3D interconnected conductive

thick microelectrodes for ultrahigh areal capacity and boosted rate capability.

Currently, microelectrodes fabricated by microfabrication techniques for sodium-ion microbatteries are usually of limited thickness (<10 μm). With the help of 3D printable inks, the multilayer printing of NIMB microelectrodes can reach a very high thickness of almost 1200 μm while maintaining effective ion

and electron-transfer pathways in them.

Furthermore, the planar NIMB microelectrodes, despite the large thickness, have shown decent mechanical flexibility under various bending conditions.

As 3D printers gain increasing resolution, sodium ion batteries could eventually outperform lithium-ion ones, said Akira Kudo, a materials scientist from Tohoku University.

Robot Assisted EV Charging Takes Off

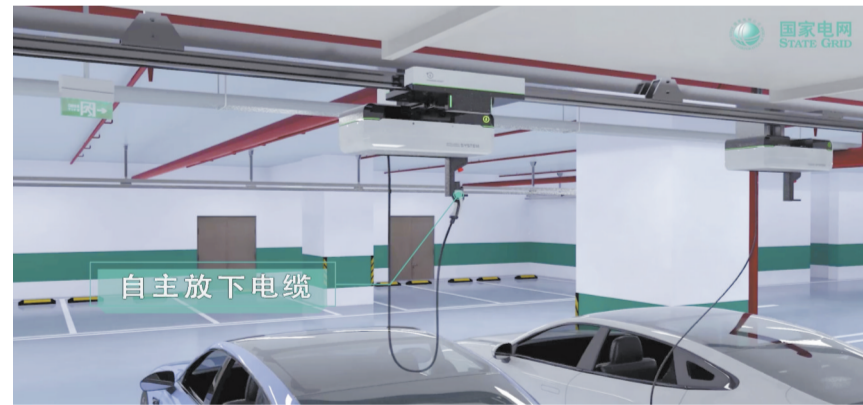
By GONG Qian

A rail-mobile shared flexible EV charging robot system has been developed by China's State Grid Suzhou Power Supply Company, as a solution to deal with the problem of less charging piles.

When car owners park their EV in a public car park, they can scan a QR code with their smartphone to activate the charging process, then input the number of parking spot. An automated robot will grab an available charging pile and quickly move it to the top rear

of the electric vehicle. Next, the owner can take out the charging gun, plug it into their vehicle and click the button "Starting Charging" on their smartphone screen. Once charging is completed, payment can be made through a mini program and will allow users to settle with digital RMB.

The system uses some technologies including robotic control, the Internet of Things, and advanced flexible orderly charging control technology. It has already been put into use in many cities in China, such as Beijing and Wuxi.



A EV owner can take out the charging gun and plug it into their vehicle. (PHOTO: SCREENSHOT)

Tackling Climate Change, Protecting Eco-environment

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In addition, the water resource allocation was also imbalanced due to the decrease of rain caused by North Indian Ocean monsoon circulation, which is especially serious in south Asia.

Other investigation projects including salt lake environment research, and oil and gas resource evaluation have been conducted by the expedition team.

Facilitating ecological conservation
In addition to scientific research

progress, the Expedition also generated contents and products that could contribute to ecological protection.

By means of a floating airship, unmanned aerial vehicles, underwater robots and helicopters, a management platform for geological scientific expedition and research was primarily built to serve unified conservation and systematic management of mountains, waters, forests, farmlands, lakes, grassland, ice and sand.

A comprehensive monitoring system covering weather, glaciers, waters, ecology and the environment was built at the basin of the Lhasa River, a major tributary of the Yarlung Zangbo River, and the river's regulation work has begun with the help of the system.

The expedition team had already carried out two successful tests regarding artificial snow by 2021, at the No. 1 Lhasa River Valley Glacier (Kuoqionggan-gri Glacier), in order to protect the gla-

acier park and slow down the glacial ablation caused by climate change.

There are also research results that could be used to promote biodiversity conservation, including, but not limited to, rewilding of nature reserves and protection of plants for the rational use.

The second Tibetan Plateau Scientific Expedition and Research served the global ecological environment, said Yao, adding that they are conducting an international research program, called the Third Pole Environment, and more than 300 scientists from over 30 countries are involved in the program.

(China) in Haikou, Hainan province.

Next year, international science payloads will be launched to get into China's space station for experiments, and the space station will be open to international astronauts, said the China Manned Space Agency on November 28.

Space Exploration Needs More Int'l Cooperation

November 21.

On the same day, China launched an international satellite data and appli-

cation cooperation center, along with the BRICS center for remote sensing satellite constellation data and application

Chinese EVs Give U.S. Auto Buyers More Options

By TANG Zhexiao

Although being shut out of the *Inflation Reduction Act*, which provides tax credits up to 7,500 USD for purchases of electric vehicles (EVs) assembled in North America, more and more U.S. buyers prefer to choose made-in-China cars amid the car shortage caused by a global scarcity of semiconductors.

After scaling up in its home market, China is increasingly manufacturing EVs for overseas buyers, said an article published on the Washington Post recently.

Transportation is responsible for 25 percent of carbon emissions from human activity globally, according to the International Council on Clean Transportation. Therefore, EVs have seen a surge due to technological developments and buyers' demand for zero-emissions driving.

Shannon Harrison, who bought a Chinese-made EV Polestar electric vehicle from a U.S. Dallas-area dealership, said, "As far as I'm concerned, as long as the car itself is a well-made car that gets me where I need to go, its place of origin doesn't play too much [of a factor] in my [buying] decision."

Chinese manufacturers began ramping up EV production before most Western rivals did, which gave them a "significant advantage" in manufacturing efficiency, said Matthias Schmidt, founder of Schmidt Automotive Research in Berlin.

Chinese Scientists Help Boost Maize Harvest in Kenya

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According to SAJOREC, more than 45 joint research programs have been put forward since its establishment in 2013, focusing on biodiversity investiga-

The data firm S&P Global Mobility found that Tesla is still the top-selling electric vehicle brand in the U.S., but its dominance is being eroded as more affordable models become available. Tesla's market share of new registered EVs in the U.S. through the third quarter has decreased from 71 percent to 65 percent compared with last year. According to S&P, they forecast Tesla's EV market share will decline to less than 20 percent by 2025.

Meanwhile, according to data from U.S. Trade Commission Data web, though China is still a relatively small EV supplier compared with other countries, U.S. imports of EVs from China are growing quickly, with a 12-month rolling total reaching more than 313 million USD in July 2022.

Nearly a quarter of all cars newly registered in China are electric or plug-in hybrid vehicles, meaning that the country is ahead of Europe and well ahead of the U.S. in adoption of these technologies.

Recently, Chinese automakers received five-star European New Car Assessment Program ratings.

As a U.S. consumer Mitchell Forst who bought a Polestar 2 in 2021 said to the Washington Post, he would have loved a car made in the U.S., but that was not his options, because the Chinese-made car was available more quickly than a Tesla was at that time.

tion, pathogenic microorganism detection, geographic science and remote sensing, high-yield and high-quality crop cultivation demonstration, and land and water resources management.

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"In the complex realm of space exploration, international cooperation will undoubtedly be the best practice for success," said Niklas Hedman, acting director of the United Nations Office for Outer Space Affairs at the workshop on No-