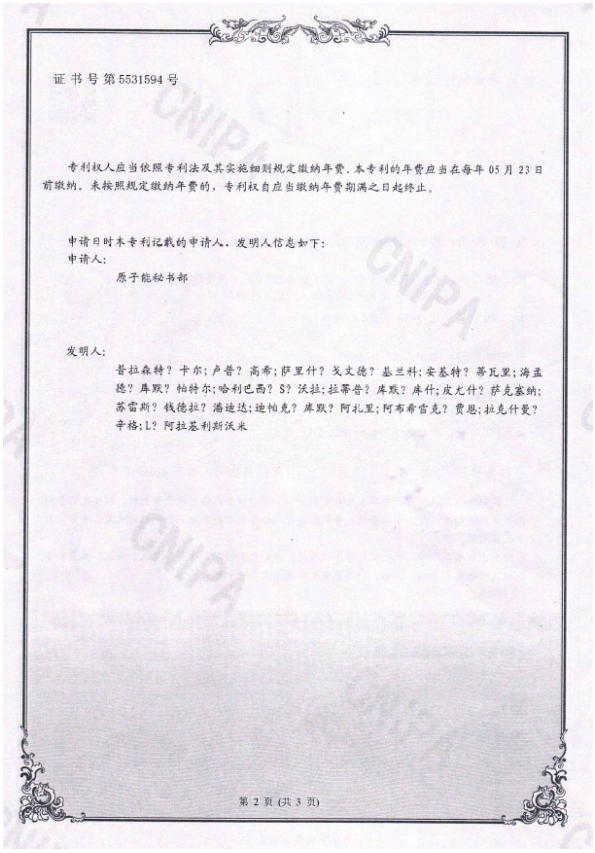

证书号第5531594号

专利权人应当依照专利法及其实施细则规定缴纳年费。本专利的年费应当在每年05月23日前缴纳。未按照规定缴纳年费的，专利权自应当缴纳年费期满之日起终止。

申请日时本专利记载的申请人、发明人信息如下：

申请人：

原子能秘书部

发明人：

普拉森特？卡尔；卢普？高希；萨里什？戈文德？基兰科；安基特？蒂瓦里；海亚德？库默？帕特尔；哈利巴西？S？沃拉；拉蒂普？库默？库什；皮尤什？萨克塞纳；苏雷斯？钱德拉？潘迪达；迪帕克？库默？阿扎里；阿布希雪克？贾恩；拉克什曼？辛格；L？阿拉基利斯沃米

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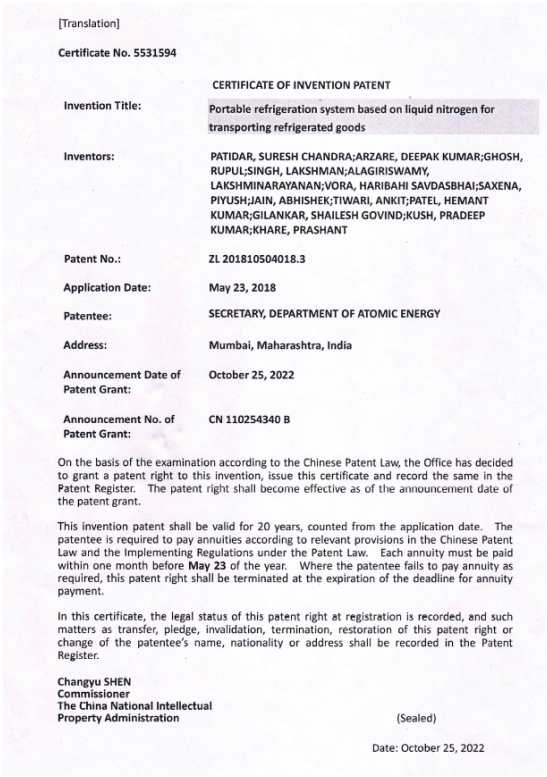


[Translation]

Certificate No. 5531594

CERTIFICATE OF INVENTION PATENT

Invention Title:	Portable refrigeration system based on liquid nitrogen for transporting refrigerated goods
Inventors:	PATIDAR, SURESH CHANDRA;ARZARE, DEEPAK KUMAR;GHOSH, RUPUL;SINGH, LAKSHMAN;ALAGIRISWAMY, LAKSHMINARAYANAN;VORA, HARIBAHI SAVDASBHAI;SAXENA, PIYUSH;JAIN, ABHISHEK;TIWARI, ANKIT;PATEL, HEMANT KUMAR;GILANKAR, SHAILESH GOVIND;KUSH, PRADEEP KUMAR;KHARE, PRASHANT
Patent No.:	ZL 201810504018.3
Application Date:	May 23, 2018
Patentee:	SECRETARY, DEPARTMENT OF ATOMIC ENERGY
Address:	Mumbai, Maharashtra, India
Announcement Date of Patent Grant:	October 25, 2022
Announcement No. of Patent Grant:	CN 110254340 B

On the basis of the examination according to the Chinese Patent Law, the Office has decided to grant a patent right to this invention, issue this certificate and record the same in the Patent Register. The patent right shall become effective as of the announcement date of the patent grant.

This invention patent shall be valid for 20 years, counted from the application date. The patentee is required to pay annuities according to relevant provisions in the Chinese Patent Law and the Implementing Regulations under the Patent Law. Each annuity must be paid within one month before **May 23** of the year. Where the patentee fails to pay annuity as required, this patent right shall be terminated at the expiration of the deadline for annuity payment.

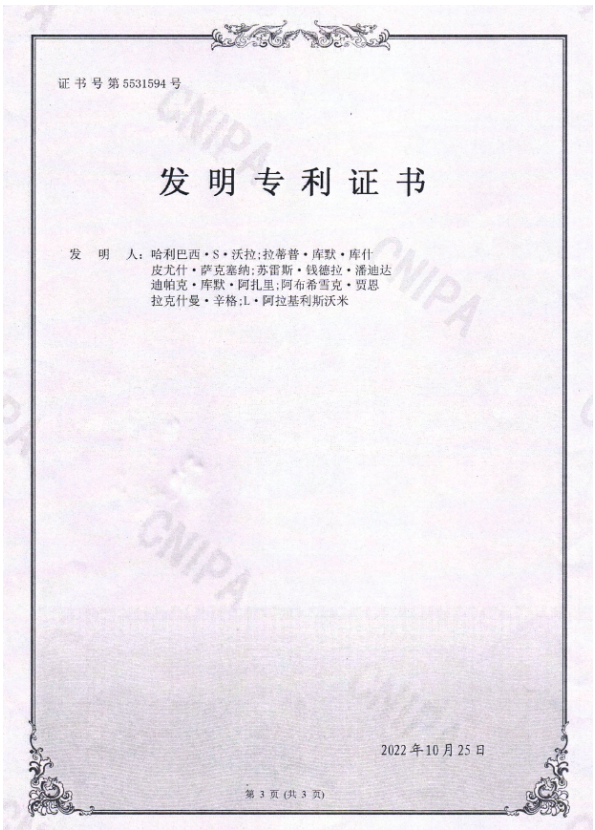
In this certificate, the legal status of this patent right at registration is recorded, and such matters as transfer, pledge, invalidation, termination, restoration of this patent right or change of the patentee's name, nationality or address shall be recorded in the Patent Register.

Changyu SHEN
Commissioner
The China National Intellectual Property Administration

(Sealed)

Date: October 25, 2022

Chinese patent certificate and its English translation.



证书号第5531594号

发明专利证书

发明人：哈利巴西·S·沃拉；拉蒂普·库默·库什
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迪帕克·库默·阿扎里；阿布希雪克·贾恩
拉克什曼·辛格；L·阿拉基利斯沃米

2022年10月25日

第3页(共3页)

Reported by:
Prashant Khare (prashant@rrcat.gov.in)

N.6: "Azadi ka Amrit Mahotsav" celebrated at RRCAT during the DAE Iconic Week (August 22-28, 2022)

During the DAE Iconic Week (August 22-28, 2022) celebration of Azadi Ka Amrit Mahotsav, RRCAT organised various events. There was an Inaugural Function on 22nd August, 2022, which was attended by ~500 invitees including approximately 120 officials from RRCAT, students and teachers from local universities and engineering colleges. The Inauguration Function was graced by Prof. (Dr.) Rohini V. Chowgule, Founder-Director of the Foundation for Environmental Medicine (FEM) and Trustee of Impact India Foundation, Prof. U. Kamachi Mudali, Vice-Chancellor, VIT Bhopal and former Chairman and Chief Executive, Heavy Water Board, Prof. Upinder Dhar, Vice-Chancellor, Shri Vaishnav Vidyapeeth Vishwavidyalaya, and Dr. Shri Krishna Gupta, Former OSD, DAE Secretariat, New Delhi, and former Project Director GCNEP and Dr. Shankar V. Nakhe, Director, RRCAT.

A lecture by the eminent speaker Shri Jayant Sahasrabuddhe, National Organizing Secretary, Vigyan Bharti, was organized during the Inaugural Function on "Indian Freedom Struggle and Science", where he spoke about the "Satyagrah" of Indian scientists during British Rule. The lecture was attended by all

Dignitaries sitting in the front row during Inauguration Function of DAE Iconic Week at RRCAT Convention Centre on 22nd August, 2022.

the participants. RRCAT scientists visited schools, universities & colleges and talked to the students and teachers about the Indian Freedom Struggle and the contributions of various sections of society in it. In the afternoon session of the Inaugural Day, a MoU was signed between RRCAT and VIT Bhopal University, Bhopal for fostering the collaborative research.

Government of India had given five themes to follow towards celebration of Iconic Week. These themes were Freedom Struggle, Ideas@75, Resolve@75, Actions@75 and Achievements@75. Our activities/events were planned accordingly. A glimpse of activities/events are as follows:

A meeting on DAE incubation program was organised where around 70 representatives from MSME interacted with our scientists working towards DAE incubation program. Another meeting was organised at RRCAT to introduce farmers to the liquid nitrogen based refrigerated transportation technology developed at RRCAT and named as Sheetal Vahak Yantra (SHIVAY).

Prof. U. Kamachi Mudali, and Dr. S. V. Nakhe, showing the signed MoU between RRCAT and VIT Bhopal University, Bhopal.

Apart from this, RRCAT scientists visited a total of 13 schools and 7 university/colleges. At all these places, scientists talked about Indian Freedom Movement, and contributions of various sections of societies in it, our scientific advancements in last 75 years, and our resolves and actions to make the country "Atmnirbhar".

Students from schools visiting Light Exploratorium during DAE Iconic Week in Sukhniwas Palace.

Students from 12 schools were invited to visit the "Light Exploratorium", a unique museum on light developed by RRCAT. Administrative staff at RRCAT visited a gram panchayat, where five schools had gathered and talked about Indian freedom struggle, they also distributed sanitary pads to female students. As public outreach activity, a camp for blood donation was organised and 105 units of blood were donated by RRCAT staff and their family members. Another camp for COVID-19 booster dose was organized and ~930 people were vaccinated, almost 90% of the people were non-CHSS beneficiaries.

Outreach activity during DAE Iconic Week at Govt. Higher Sec. School Gawali, Palasiya, Mhow, Indore.

While delivering lectures in schools, universities and colleges, evolution of Indian Nuclear Program and the vision of Dr. Homi J. Bhabha was the focus point. Our scientists familiarized the students and teachers with various visions of DAE and explained them about the three stage nuclear power program and, how we became "Atmanirbhar" in various associated technologies to nuclear power generation. In these lectures, apart from nuclear power program, the highlights were crop varieties developed at BARC and delivered to farmers, Bhabha Kavach for armed forces, Atmnirbharata in heavy water production and export, water desalination technologies for costal area of India, biomedical devices like Bhabhatron, ultra-compact ECG device, OncoDiagnoScope and Tuberculoscope, and Sheetal Vahak Yantra (SHIVAY).

The 10 vision schemes of DAE are: First stage of Indian Nuclear Power Program, Uranium and Rare Metals-Exploration, Mining & Milling, Second Stage of Indian Nuclear Power Programme, Health Care, Food Security, Water & Waste Management, Mega Science Schemes, Basic Research and Science Education, Directed Research and, Social Outreach and Awareness. RRCAT has worked on the following vision schemes out of the ten vision schemes of DAE.

Camp for oral cavity screening during DAE Iconic Week using OncoDiagnoScope developed by RRCAT.

Out of these DAE vision schemes, in the Health Care vision, RRCAT has developed OncoDiagnoScope and Tuberculoscope; In the Food Security vision, RRCAT has developed facilities like "Agricultural Radiation Processing Facility (ARPF)", liquid nitrogen based refrigerated transportation technology named as Sheetal Vahak Yantra (SHIVAY); In the Mega Science vision, we are collaborating with CERN, LIGO and Fermi Lab.; and in the basic and directed research vision, RRCAT has developed national facilities like synchrotron radiations sources Indus-1 and Indus-2, which have produced more than 950 research articles in past 5 years. During Azadi Ka Amrit Mahotsav, each of the lectures delivered in the schools, colleges and universities highlighted these developments and all the visitors to our laboratories were shown these devices and facilities. These lectures were also part of Social Outreach and Awareness vision of DAE.

Reported by:
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N.7: Bhartiya Bhasha Utsav celebrated at RRCAT by HBNI-RRCAT

Bhartiya Bhasha Utsav was celebrated at RRCAT by HBNI-RRCAT students and faculty on Janma Jayanti of Mahakavi Subramania Bharati on 11th Dec. 2022. Shri Rajesh Arya, SOH, Head, LED inaugurated the Bhartiya Bhasha Utsav.

Inauguration of Bhartiya Bhasha Utsav by Shri Rajesh Arya, SOH & Head, LED.

HBNI students prepared posters on different Indian languages showcasing the history and prominent figures of those languages. Also, the poster had information about culture of the zone where those languages are spoken. The posters were made in Hindi, Marathi, Bhojpuri, Maithili, Bengali, Odiya, Rajasthani, Haryanvi, Garhwali, Himanchali, Tamil and Malyalam languages.

Shri Rajesh Arya and other dignitaries visiting poster gallery.

A large number of students and RRCAT staff visited the poster gallery. The poster session was followed by cultural programs, where there were songs and poem recitations on all the languages listed above including Telugu language. Some girl students presented folk song and dances from their region. This was followed by a skit named "Tamasha" performed by the group "Rangrupiya Theaters" and Kabir Bhajans in Malviya Lok-Gayan Shaili Gayan by the group of "Lakhan Mandloi".

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N.8: Graduation Function of 22nd batch (OCES-2021) of BARC Training School at RRCAT

The Graduation Function of 22nd batch (OCES-2021) of BARC Training School at RRCAT took place on 27th Oct. 2022. Dr. S. Chaturvedi, Director, Institute of Plasma Research, Gandhinagar was the Chief Guest of the function and Dr. S. V. Nakhe, Director, RRCAT presided over the function. A total of fourteen Trainee Scientific Officers (twelve male and two female), which includes eight Physicists, five Electronics Engineers and one Electrical Engineer, graduated in this batch. Shri Ashok Kumar Sahoo was awarded Bhabha Medal for securing highest marks amongst all trainees. Dr. Chaturvedi and Dr. Nakhe distributed the Bhabha Medal as well as Graduation Certificates to all the TSOs.