Patent Law and Space-related Technology

Robert H. Goddard (1882-1945) is believed to be the first person to successfully launch a liquid-fuelled rocket on 16 March 16, 1926, in Auburn, Massachusetts. His work is described in US Patent 1,102,653, filed on 1 October 1913 and granted on 7 July 1914. To mark the 100th anniversary of this giant leap towards space travel, Zachary Jelley and James Nunn consider how you can protect your innovations in space.

The commercialisation of space has increased greatly over the 21st century, particularly in recent years. As space-related activity increases, so too does the desire to safeguard investments in space technology from competitors. Patents are an important legal tool for protecting inventions and technological advances. However, patents only provide protection within the territory in which they are registered.

Naturally, there are therefore concerns about patent rights as they stand today can be used to prevent or stop infringing acts occurring in space (i.e., extraterritorially), and what laws or legal frameworks could be implemented in the future to provide clearer protection for space-related inventions.

Enforcement for Outer Space Activities

The Outer Space Treaty, which entered into force in 1967, provides an initial starting point for assessing the level of protection afforded by patents within outer space. Articles II and VIII of the treaty stipulate that, while no nation may claim sovereignty over a region of outer space or a celestial body, they retain jurisdiction over any registered objects they launch into space.

Man-made space objects may therefore form a kind of quasi-territory in which patent rights can be enforced.

The United States has incorporated this concept into its patent law under 35 U.S.C. § 105. This provision states that acts which would be considered infringing if carried out within U.S. territory are also considered infringing if carried out on a space object (or component thereof) under U.S. jurisdiction or control.

In the future, it would not be surprising if other countries incorporated similar provisions into their own patent laws.

The International Space Station (ISS) Intergovernmental Agreement (IGA) also provides specific guidance on how intellectual property rights function aboard the ISS. Article 21(2) states that, for the purposes of intellectual property law, activities occurring in an element of the ISS are "*deemed to have occurred only in the territory of the [state that registered said element]*".

A natural reading of this it that making or using an invention in a part of the ISS registered to a state in which the invention is patented would constitute infringement. Conversely, performing the same acts in a part of the ISS registered to a different state may be entirely lawful. Thus, to fully protect an invention aboard the ISS, it may be necessary to secure patent rights in all ISS partner states, or at least those whose modules the invention could reasonably be used in or transported through.

Enforcement on Terra Firma

The above examples relate to situations where a patented invention is used or present in outer space.

However, many space-related inventions will first be manufactured on Earth and later launched into space. Existing patent laws may therefore provide a way to control the launching of patented inventions.

At present, there are relatively few locations from which traditional rockets are launched. Obtaining patent protection in those jurisdictions could therefore be used to restrict importation and subsequent launch of a protected invention.

That said, many jurisdictions apply provisions allowing aircraft or other vehicles containing patented parts to temporarily enter their territory without infringing patent rights (implementing Article 5*ter* of the Paris Convention). If such provisions were extended to spacecraft, taking a broad interpretation of "aircraft", it is possible that a spacecraft entering a territory solely for the purpose of launching could be treated in a similar manner.

The safest option may well be to obtain patent protection in the jurisdictions where the spacecraft is manufactured, ensuring enforceable rights before the technology is moved to a launch site and/or launched into space. Because most space-related hardware must be fully assembled and tested on Earth before launch, manufacturing sites represent predictable, terrestrial points of control.

However, securing patent rights across all relevant jurisdictions can be prohibitively expensive, necessitating a strategic assessment of which territories offer the greatest practical value for enforcement. Enforcement may be further complicated by the difficulty of obtaining proof, given that the manufacture of space technology is commonly carried out under strict secrecy.

Final Remarks

As it stands, the best way to protect inventions intended for use in space is not fully established.

Existing legal provisions have yet to be properly tested, and it would not be surprising if new frameworks and regulations must be developed to modernise patent law. As the commercial space industry continues to develop, the demand for effective enforcement options will only increase.

In addition to their use within the cosmos, many space technologies have broader earthbound commercial use and value. It is therefore sometimes more important to protect these innovations on Earth than in space.

A prudent first move for any organisation is to secure a patent application early, to establish ownership and protect future opportunities, ensuring their inventions are protected to maintain commercial value on Earth, and as legal frameworks for outer space enforceability continue to develop.