NOTE

Solving a Patent Infringement Loophole for Objects in Outer Space: A Novel Interpretation of 35 U.S.C. § 105

Brian Smallshaw[*]

ABSTRACT

Amid a developing space technology industry, Congress passed 35 U.S.C. § 105 in 1990 to protect inventions in outer space from patent infringement. The Act clarified when an object in space should be considered made, used, or sold within the United States, but provided an exception for when another country registers the object under the Convention on Registration of Objects Launched into Outer Space. Traditionally, this exception has been read to create a flags-of-convenience loophole. A potential infringer could register their space object in another country and benefit from the U.S. market without fear of infringement liability under U.S. case law addressing extraterritorial infringement. As the space technology industry continues to grow rapidly each year, protecting patent rights for inventors is a necessary step to ensure the United States does not fall behind competing countries technologically or economically. This Note explores why the traditional interpretation of 35 U.S.C. § 105 is not in agreement with the goals of the patent system or the intention of Congress and offers a novel interpretation that avoids the loophole and brings the statute in line with patent policy and Congress's intent. Further, this Note discusses why interpreting the exception as a limitation on the scope of the statute is a particularly effective solution to eliminate the loophole and addresses two possible counterarguments against the solution.

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Introduction

As technology advances in the modern age, the scientific arts continuously introduce new issues that must be legislated and adjudicated. One such rapidly advancing area is the space technology industry: From 2021 to 2022, successful rocket launches increased by approximately twenty-eight percent globally, setting a record for the number of successful launches in a year.[1] The industry saw continued growth in 2023

[1] John Coykendall, Kate Hardin, Alan Brady & Aijaz Hussain, *Riding the Exponential Growth in Space*, Deloitte Insights (Mar. 22, 2023), https://www2.deloitte.com/us/en/insights/industry/aerospace-defense/future-of-space-economy.html [https://perma.cc/E6F3-7JVB] ("2022 was a record year for the space sector, with 186 successful rocket launches (41 more than in 2021)—the most ever, signaling a rapid transformation of the space sector.").

with 223 launches,[2] and it grew again in 2024, bringing the new record of orbital launches in a year up to 259—over double the number of launches just four years prior.[3] Public support for space exploration is strong,[4] and advancements in rocket and satellite technology have encouraged the industry's recent growth.[5] As the industry expands, countries and private companies are racing to develop even more sophisticated technology to corner the burgeoning market.[6] The increase in competition and innovation has naturally led to an increase in the number of patents protecting space technology as companies move to monetize the inventions in which they have heavily invested.[7]

Amid the explosion of space activity, several patent experts have questioned whether the United States adequately protects space technology patents from infringement.[8] Specifically, 35 U.S.C. § 105,[9] which affects the circumstances in which an object in outer space is said to infringe a U.S. patent,[10] is commonly interpreted to mean that space objects registered by foreign countries cannot be found to have

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2 *Recap of All Global Launches for 2023*, SpaceWorks (Jan. 10, 2024), https://www.spaceworks.aero/recap-of-all-global-launches-for-2023/ [https://perma.cc/2FU6-J2VQ].

3 Press Release, Ed. Team, Space Found., The Space Report 2024 Q4 Shows Record Annual Launches, Strong H2 Market Performance, and Growing Demand for Tracking and Removal of Orbital Debris (Jan. 21, 2025), https://www.spacefoundation.org/2025/01/21/the-space-report-2024-q4/ [https://perma.cc/BV3X-CAPL].

4 *See* Cary Funk & Mark Strauss, Pew Rsch. Ctr., Majority of Americans Believe It Is Essential That the U.S. Remain a Global Leader in Space 7 (June 6, 2018), https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2018/06/PS_2018.06.06_science-and-space_FINAL.pdf [https://perma.cc/XC44-57LF] ("Although most Americans believe that NASA still has an essential role to play in the exploration of space, they also express confidence that private companies can make meaningful contributions in such areas as developing safe spacecraft and conducting research to expand scientific knowledge.").

5 Coykendall et al., *supra* note 1 ("A major driver of growth in the space sector has been the development of new technologies, such as reusable launch vehicles, SmallSats (satellites of low mass and size, usually under 2,600 lbs.), and CubeSats (square shaped miniaturized satellites).").

6 *See* Sarah Kreps, Avishai Melamed & Ray Jayawardhana, *The Promise and Perils of the New Space Boom*, Brookings Inst. (Nov. 2, 2022), https://www.brookings.edu/articles/the-promise-and-peril-of-the-new-space-boom-us-china-competition-spacex-international-law/ [https://perma.cc/U6X7-MVNE] ("Undeniably, the U.S. has a distinct first-mover advantage, having captured a large share of the market and demonstrated the affordability of space launches.").

7 Stephen A. Brookman, *Patents in the Emerging World of NewSpace*, Perkins Coie (July 3, 2023), https://www.perkinscoie.com/en/news-insights/patents-in-the-emerging-world-of-newspace.html [https://perma.cc/9ZGK-4ZV8] ("Space-related filings increased significantly in the early 2000s and have continued a steady upward trend since 2012. While the overall filings dipped before and during the COVID-19 pandemic, space-related filings numbers continued to rise through mid-2021.").

8 *See, e.g.*, Theodore U. Ro, Matthew J. Kleiman & Kurt G. Hammerle, *Patent Infringement in Outer Space in Light of 35 U.S.C. § 105: Following the White Rabbit Down the Rabbit Loophole*, 17 B.U. J. Sci. & Tech. L. 202, 206 (2011).

9 35 U.S.C. § 105.

10 *See id.* §§ 105, 271.

infringed a U.S. patent.[11] An infringer could exploit the U.S. market and undercut the patent owner merely by registering the patent in another country.[12] This potential loophole has been deemed a "Flag of Convenience," akin to highly criticized maritime laws that enable ship owners to register their ships in foreign nations to take advantage of more lenient regulations offered by another jurisdiction.[13] The common interpretation of 35 U.S.C. § 105 leads to a similar result for patents, which directly opposes the goals of the patent system.[14]

Consider, for example, a satellite that infringes a U.S. patent and services companies or individuals within the United States. Ignoring the registration exception, such a satellite would likely be liable for infringement of the U.S. patent under the current extraterritorial principles established by relevant cases.[15] This protects the interests of the patent owner and enables the patent owner to benefit as the sole provider of the technology within the United States, exactly as the patent system intends.[16] However, if such a satellite was merely registered in another country—all else being equal—then the patent owner would not be able to establish infringement within the United States and would need to compete with the infringer in the U.S. market.[17] At least one foreign scholar has already identified this loophole and advised that foreign nations should capitalize on it at the detriment of inventors within the United States.[18]

The Note argues that the correct reading of the registration exception is that objects that are registered in another country are excepted from the scope of 35 U.S.C. § 105, which prevents this loophole. This proposal would avoid the need to amend the statute while eliminating the harmful loophole and bringing the statute in greater accord with the intention and vision of Congress when the statute was written. This Note first explains the general goals of the patent system, the jurisdictional

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11 *See* Kevin Davidson & Keri Sicard, *Extraterrestrial Law: Protecting Patents in Outer Space and on Celestial Bodies*, IPWatchdog (Aug. 20, 2023, 12:15 PM), https://ipwatchdog.com/2023/08/20/extraterrestrial-law-protecting-patents-outer-space-celestial-bodies/id=164862/ [https://perma.cc/7RQP-M7V7].

12 *See id.* ("The Flags of Convenience Loophole allows infringement with impunity. The U.S. patent owner has no protection in this scenario.").

13 *Id.*; *see* Walton J. McLeod, Note, *The Flags-of-Convenience Problem*, 16 S.C. L. Rev. 409, 410 (1964).

14 *See infra* Section I.A.

15 *See* Ro et al., *supra* note 8, at 219–20.

16 *See infra* Section I.A.

17 *See infra* Section I.A.

18 *See* Dov Greenbaum, Opinion, *Israel's Space Race Has an IP Issue That Needs Its Own Exploration*, CTech (Sept. 2, 2022, 10:46 AM), https://www.calcalistech.com/ctechnews/article/bj9uyg01o [https://perma.cc/4ARC-XEBW] ("[I]f you want to develop AI-mediated space technologies and you want to be safe from the nuisance of IP infringement lawsuits, maybe consider developing and launching it from Israel.").

scope of U.S. space law and patent law, the history of 35 U.S.C. § 105, and the Act's adverse effects under its popular interpretation. Then, this Note proposes its novel interpretation of 35 U.S.C. § 105 derived from legislative history and an alternative textual reading of the law. Finally, this Note compares the proposed interpretation to solutions that have been suggested by other sources and addresses possible objections to the proposed solution.

I. The Conflict Between Space Law and Patent Law

A. Goals of the Patent System

To understand patent law's shortcomings with respect to space objects, one should first briefly explore the original goal of the patent system. At the dawn of the United States as an independent nation, one of the most widely recognized challenges for the country in maintaining its early success was establishing a sustainable economy.[19] Recognizing the need for domestic scientific innovation if the United States was to keep pace with foreign nations, George Washington encouraged "the exertions of skill and genius in producing [new and useful inventions] at home" during his first State of the Union address to Congress in 1790.[20] Soon after, Congress passed the Patent Act of 1790,[21] creating a legal framework for the United States to derive economic strength from transformative inventions like the steamboat, which was patented only a year later,[22] and the cotton gin, patented in 1794.[23]

Today, the American economy continues to rely on science, technology, and innovation,[24] and history has shown the importance of protecting an inventor's intellectual property. Countries that have not provided such rights have suffered economically; for example, the inability to adequately protect patents contributed to Russia's struggles in rebuilding its economy after the Soviet Union collapsed.[25]

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19 *See* Janet A. Riesman, *Money, Credit, and Federalist Political Economy*, *in* Beyond Confederation 128, 128–29 (Richard Beeman et al. eds., 1987).

20 George Washington, President of the U.S., State of the Union Address (Jan. 8, 1790), https://founders.archives.gov/documents/Washington/05-04-02-0361 [https://perma.cc/Q8QK-XBJC].

21 Patent Act of 1790, ch. 7, 1 Stat. 109.

22 *Today in History - August 26: Steaming Along*, Libr. of Cong., https://www.loc.gov/item/today-in-history/august-26/ [https://perma.cc/ZJ29-X8BC]; *see also Patents Signed by George Washington*, Mount Vernon, https://www.mountvernon.org/george-washington/the-first-president/patents/patents-signed-by-george-washington [https://perma.cc/7WCD-FG5E].

23 Martin J. Adelman, Randall R. Rader & John R. Thomas, Cases and Materials on Patent Law § 1.3[b][2] (5th ed. 2018); *see also* Mount Vernon, *supra* note 22.

24 *Science, Technology, and Innovation*, U.S. Dep't of State, https://www.state.gov/policy-issues/science-technology-and-innovation/ [https://perma.cc/5P8Q-SBWA].

25 Marina Portnova, Comment, *Ownership and Enforcement of Patent Rights in Russia: Protecting an Invention in the Existing Environment*, 8 Ind. Int'l & Comp. L. Rev. 505, 505 (1998).

According to former U.S. Trade Representative Jeffrey Lang, companies were unwilling to engage in trade with Russia without sufficient intellectual property protection.[26] Within the United States, there is a strong correlation between the number of patents granted and capital investment.[27] Data connecting economic growth and patents shows that "[l]ong-term economic growth is primarily the result of the growth of technological knowledge" as measured by the number of patents filed in a given period.[28] From the outset, these historical realities and data support the claim that the patent system has played an important role in the United States's global scientific and economic dominance through *domestic* protection of innovation.

In conjunction with economic growth, the disclosure of how inventions work is "[a] principal purpose of the patent law."[29] When inventors feel that a patent will not successfully protect their intellectual property, however, they will often resort to trade secrets, whereby detailed information about the invention is not disclosed to the public and even receives discovery protections in litigation.[30] For example, after the Supreme Court's decision in *Alice Corp. v. CLS Bank International*,[31] which generally limited the patent protection afforded to computer programs,[32] software companies shifted their focus away from patents and toward trade secrets.[33] Although this can be a suitable short-term alternative for inventors, the public suffers because an industry that resorts to trade secrets sees less innovation, meaning new and useful technologies—ranging from everyday gadgets to medical treatments—may never reach the market.[34]

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26 *See id.*

27 *See* Jacob Schmookler, Invention and Economic Growth 196–98 (1966).

28 *See id.*

29 Adelman et al., *supra* note 23, § 1.6, at 68.

30 *See id.*; Fed. R. Civ. P. 26(c)(1)(G).

31 573 U.S. 208 (2014).

32 *See* Joseph Allen Craig, Note, *Deconstructing Wonderland: Making Sense of Software Patents in a Post-*Alice *World*, 32 Berkeley Tech. L.J. 359, 360 (2017) ("Although *Alice* did not announce a per se rule against software patents, it created a patent-eligibility test that made it difficult for software to be patented, and it called many software patents into question, prompting many decisions invalidating software patents.").

33 Samuel J. LaRoque, Comment, *Reverse Engineering and Trade Secrets in the Post-*Alice *World*, 66 U. Kan. L. Rev. 427, 427–28 (2017); *see also* Robins Kaplan LLP, *Software and Trade Secrets: Rethinking IP Strategies After* CLS v. Alice, JD Supra (June 30, 2014), https://www.jdsupra.com/legalnews/software-and-trade-secrets-rethinking-i-15738/ [https://perma.cc/NF4V-Z6H2] ("As a result [of *Alice*], software innovators may find that, in some cases, trade secret law now offers the best method for protecting proprietary software advancements.").

34 *See* Andrea Contigiani, David H. Hsu & Iwan Barankay, *Trade Secrets and Innovation: Evidence from the "Inevitable Disclosure" Doctrine*, 39 Strategic Mgmt. J. 2921, 2938 (2018) (analyzing how protecting intellectual property through trade secrets rather than patents reduces innovation output).

B. Development of Jurisdictional Reach in Outer Space

At the height of the space race, the international community recognized the role outer space would play in future scientific and political endeavors. Accordingly, dozens of nations signed the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies ("Outer Space Treaty") to govern human activity in space.[35] The treaty declared that outer space belongs to no nation and lies outside the jurisdiction of any one country.[36] It also provided a jurisdictional framework governing liability in outer space both for governments and private entities.[37]

Enforcing responsibility is obviously challenging if the international community is unable to determine from which country a space object originated, so the Convention on Registration of Objects Launched into Outer Space ("Registration Convention") followed the Outer Space Treaty in 1976.[38] The Registration Convention mandates all parties to retain a registry of any space objects for which they are responsible and submit the registry to the United Nations; responsibility is carried by the "launching State" of the object, and the launching state "shall register the space object by means of an entry in an appropriate registry which it shall maintain."[39] The launching state is responsible for any object launched into space from its territory, so it must register both private and public objects.[40] Additionally, the Outer Space Treaty states that "[a] State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object," creating a jurisdictional basis in the launching state.[41] By maintaining a registry that is submitted to the United Nations, a spacefaring nation cannot evade liability by claiming that it does not own a tortious space object that it does actually own. In total, seventy-seven nations are party to the convention, including several major spacefaring nations.[42]

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35 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

36 *Id.* art. I.

37 *Id.* art. VI.

38 Convention on Registration of Objects Launched into Outer Space, *opened for signature* Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15 (entered into force Sept. 15, 1976) [hereinafter Registration Convention].

39 *Id.* art. II.

40 *See id.*

41 Outer Space Treaty, *supra* note 35, art. VIII.

42 *See generally* Registration Convention, *supra* note 38 (listing China, Russia, India, and New Zealand, the four most active launching states after the United States, as parties to the convention).

C. Development of Extraterritorial Reach of Patent Enforcement

Traditionally, U.S. patents are only infringed if the underlying invention is made, used, imported, sold, or offered for sale within the United States.[43] Essentially, the protection a U.S. patent offers ends at the physical boundaries of the United States; someone who sells an infringing device would not be liable if their sale was done outside the country.[44] During the mid-twentieth century, the development of remote technology required the U.S. Court of Claims[45] to reconsider whether the availability of patent enforcement needed to be extended beyond the country's borders in *Decca Ltd. v. United States*.[46] The court established a balancing test that included three considerations for determining whether an extraterritorial object was used within the United States in an infringement suit: (1) "ownership of the equipment by the United States," (2) "control of the equipment from the United States," and (3) "actual beneficial use of the system within the United States."[47]

In 2005, the judiciary once again heard a case involving extraterritorial land-based technology in *NTP, Inc. v. Research In Motion, Ltd.*[48] The patentee, NTP, owned a patent claiming a device that allows a user to remotely receive emails.[49] When Research In Motion developed the popular BlackBerry telephone, which also allowed users to remotely receive emails, NTP sued for patent infringement under 35 U.S.C § 271.[50] Research In Motion argued that because one of its data towers was located in Canada, the entire invention was not being practiced within the United States and was therefore not infringing within the United States.[51] In its decision, the Federal Circuit narrowed the *Decca* test by forgoing the ownership prong and found that Research In Motion's actions occurred within the United States; Research In Motion was therefore liable for violating 35 U.S.C. § 271.[52] The court reasoned that "use" of the patented invention occurred within the United States because BlackBerry users in the United States "controlled" the cellular tower by prompting it to transfer data every time they accessed email

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43 35 U.S.C. § 271(a).

44 *See* Susy Frankel & Daniel J. Gervais, Advanced Introduction to International Intellectual Property 42 (2016).

45 Congress replaced the Court of Claims in 1982 with the Court of Federal Claims for trials and the Court of Appeals for the Federal Circuit for appellate cases. Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25 (codified as amended in scattered sections of 28 U.S.C.).

46 544 F.2d 1070 (Ct. Cl. 1976).

47 *Id.* at 1083.

48 418 F.3d 1282 (Fed. Cir. 2005), *abrogated on other grounds by* Zoltek Corp. v. United States, 672 F.3d 1309, 1322–23 (Fed. Cir. 2012).

49 *See id.* at 1287.

50 35 U.S.C § 271; *see NTP*, 418 F.3d at 1289–90.

51 *See NTP*, 418 F.3d at 1311.

52 *See id.* at 1315–17.

from their phones.[53] The users also benefited from this remote access, thereby satisfying the extraterritorial test.[54] Notably, however, *NTP* did not involve any space objects.[55] So 35 U.S.C. § 105, which had been in effect for fifteen years but only pertains to space objects,[56] was not relevant.[57]

Ignoring 35 U.S.C. § 105, an analogous situation to *NTP* in which a space satellite is used to transfer data for U.S. residents would likely be found to infringe any pertinent U.S. patents. Such a satellite would be prompted to send data, either upon instantaneous demand or through a prior agreement, satisfying the "control" prong in *NTP*, and the data would inherently be used for some benefit, likewise satisfying the "beneficial use" prong.[58]

D. Convergence of Space Law and Patent Law

Although the courts have provided some guidance on extraterritorial infringement,[59] the inherent unpredictability of technological innovation and the uniqueness of each scientific field create challenges to developing patent law.[60] Over the past century, an evolving understanding of chemistry, for example, has forced a reexamination of what is considered a nonobvious invention worthy of a patent.[61] Likewise, the modern ability to isolate gene sequences and perform highly advanced algorithms that were once impossible without computers has prompted the question of what it means for something to be an invention in the first place.[62] Continuing this trend, as space technology has advanced, the necessarily remote nature of the inventions and the lack of sovereign

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53 *See id.* at 1316–17.

54 *See id.* at 1317.

55 *See id.* at 1287–90 (discussing the facts at issue, none of which pertained to space objects).

56 *See* 35 U.S.C. § 105.

57 *See NTP*, 418 F.3d at 1311–25 (analyzing the patent infringement claim without any reference to 35 U.S.C. § 105).

58 *See id.* at 1316–17.

59 *See supra* Section I.C.

60 *See, e.g.*, Bilski v. Kappos, 561 U.S. 593, 605–06 (2010) (plurality opinion) (altering the test for what qualifies as patentable under 35 U.S.C. § 101 because "times change," "[t]echnology and other innovations progress in unexpected ways," and "[the Information] Age puts the possibility of innovation in the hands of more people and raises new difficulties for the patent law").

61 *See, e.g.*, *In re* Papesch, 315 F.2d 381, 391–92 (C.C.P.A. 1963) (holding that chemicals with unexpected properties can be considered nonobvious despite the traditional view that the physical structure of the invention is the determining factor); 35 U.S.C. § 103.

62 Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 569 U.S. 576, 591 (2013) (reasoning that the discovery of the location of particular genes was not patentable); Alice Corp. v. CLS Bank Int'l, 573 U.S. 208, 223 (2014) ("[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.").

territory in space have caused similar confusion about how to enforce the field's patents.[63]

To address this issue, 35 U.S.C. § 105 extends territorial reach to patented inventions in outer space if they are under the jurisdiction or control of the United States.[64] The statute, however, contains an exception that arguably creates a loophole for infringers to avoid liability. The statute reads,

> Any invention made, used or sold in outer space on a space object or component thereof under the jurisdiction or control of the United States shall be considered to be made, used or sold within the United States for the purposes of this title, except with respect to any space object or component thereof that is specifically identified and otherwise provided for by an international agreement to which the United States is a party, or with respect to any space object or component thereof that is carried on the registry of a foreign state in accordance with the Convention on Registration of Objects Launched into Outer Space.[65]

Commentators have interpreted this statute and exception to mean that registration in a foreign country serves as a categorical bar to winning an infringement lawsuit stemming from a U.S. patent; in other words, if the object is registered by another country, then the object shall *not* be considered to be made, used, or sold within the United States.[66] Under this interpretation, a company that wants to use another patentee's technology to exploit the U.S. market could launch their object—such as a satellite—from another country, have it registered there, and sell its service to entities within the United States.[67] If sued for infringement, the company could entirely avoid the object being considered used within the United States.[68] By enabling the exploitation of patented technology, the law would disincentivize U.S. companies from investing in the rapidly growing space technology industry, as a company cannot realize a return on investment if another company can undermine the market by copying the technology.[69] Even if companies continue to invest in the industry, their only effective protection would be through trade secrets.[70] This would slow down advancement of the

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63 *See* Brookman, *supra* note 7 ("A U.S. patent is generally only effective within the jurisdiction of the United States. So, what happens when someone practices a U.S. patent in space?").

64 35 U.S.C. § 105.

65 *Id.* § 105(a).

66 *See, e.g.*, Ro et al., *supra* note 8, at 213.

67 *See id.* at 214–15.

68 *See id.* at 221.

69 *See supra* Section I.A.

70 *See supra* note 33 and accompanying text.

industry, hurting both the U.S. economy, which relies on technological innovation, and the public at large, which would be denied useful services.[71]

Such an interpretation runs contrary to Congress's intent. When drafting the bill in 1988, the House Committee on Science, Space, and Technology wrote that the overall goals of 35 U.S.C. § 105 were to "focus on commercial development of space" and provide "clarity to the question of application of U.S. patent law in space."[72] By including exceptions in the statute, Congress did not intend to restrict commercial developments in space, but instead sought to maintain flexibility in how intergovernmental space objects—specifically international space station operations—are treated.[73] The attention to intergovernmental objects such as the space station was pertinent at the time, as the commercial space technology industry was still miniscule compared with government projects, and objects like the space station had a greater comparative role in the overall space technology sector.[74] Congress added the exception to the statute to create flexibility and highlight that the exception "is an important aspect of current negotiations on U.S. Space Station operations with its international partners."[75] The committee continued, "This flexibility is particularly important in multinational cooperative agreements relating to space stations . . . ."[76] Congress was focused entirely on a scenario involving governmental projects when writing the exception, and it evidently did not have in mind the collateral possibility of protecting private actors seeking to avoid liability by launching their infringing object from a foreign country.[77] Not only does the common interpretation of the statute oppose Congress's interest in promoting the commercial space technology industry,[78] but it has become increasingly inapposite in recent decades as the growth of commercial investment has far outpaced that of government investment.[79] The shift toward commercial interests leads objects like the

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71 *See supra* Section I.A.

72 H.R. Rep. No. 100-51, pt. 2, at 2–3 (1988).

73 *See id.* For instance, the International Space Station is exempted from 35 U.S.C. § 105 because its jurisdiction is instead governed by an international agreement. *See* Agreement Concerning Cooperation on the Civil International Space Station, Jan. 29, 1998, T.I.A.S. No. 12,927.

74 *See* Nancy Gallagher & John D. Steinbruner, Reconsidering the Rules for Space Security 16–17 (2008).

75 H.R. Rep. No. 100-51, pt. 2, at 3.

76 *See id.*

77 *See id.* at 1–3 (making no reference to private actors).

78 *See id.* at 3.

79 *See* Space F., Org. for Econ. Coop. & Dev., Space Economy Investment Trends 15, 18 (2024), https://www.oecd.org/content/dam/oecd/en/publications/reports/2024/04/space-economy-investment-trends_7eafcb97/9ae9a28d-en.pdf [https://perma.cc/ZC25-WTZS].

International Space Station, which itself may be deorbited by 2030,[80] to have decreasing comparative importance to the industry.[81] The accelerating development of the commercial space technology industry requires proper patent protection to avoid industry reliance on trade secrets or outright abandonment of investment in the field. Because Congress intended to provide that protection through 35 U.S.C. § 105, practitioners should seek an interpretation that is more congruous with the purpose of the statute and the policy goals of patent law.

II. Avoiding a Loophole

A. Proposed Solution: Read the Exception in 35 U.S.C. § 105 as a Limit on Its Scope

To avoid reading a loophole into 35 U.S.C. § 105, the statute should be read such that objects registered in another country that is party to the Registration Convention are excepted from the statute's scope. Otherwise, by reading the registration exception[82] to apply only to the part of the statute that reads "shall be considered to be made, used or sold within the United States for the purposes of this title,"[83] the exception prevents a finding that an object on a foreign registry infringed a U.S. patent.[84] Essentially, when an object has been registered outside the United States by a party to the Registration Convention, practitioners currently interpret the rule to mean that any invention made, used, or sold in outer space on a space object or component thereof under the jurisdiction or control of the United States shall *not* be considered to be made, used, or sold within the United States for the purposes of this title.[85]

However, in order to bring the interpretation of the statute into greater accordance with Congress's intent and avoid abuse of this loophole, the exception should instead be read to apply to the entire preceding independent clause of the statute.[86] Moreover, by reading 35

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80 Nat'l Aeronautics & Space Admin., International Space Station Deorbit Analysis Summary 1 (2024), https://www.nasa.gov/wp-content/uploads/2024/06/iss-deorbit-analysis-summary.pdf [https://perma.cc/KD37-8SWM].

81 *See id.* at 3, 6.

82 *See* 35 U.S.C. § 105(a) (excepting from the statute "any space object or component thereof that is carried on the registry of a foreign state in accordance with the Convention on Registration of Objects Launched into Outer Space").

83 *Id.*

84 *See, e.g.*, Ro et al., *supra* note 8, at 214–15.

85 *See id.*

86 The entire preceding independent clause reads, "Any invention made, used or sold in outer space on a space object or component thereof under the jurisdiction or control of the United States shall be considered to be made, used or sold within the United States for the purposes of this title . . . ." 35 U.S.C. § 105(a).

U.S.C. § 105 such that objects that are registered in another country are excepted from its scope, the statute satisfies the functional role of an exception in the first place.[87] The recommended interpretation would thus suggest that 35 U.S.C. § 105(a) *as a whole* is inapplicable if the object is registered by another country, rather than meaning that an object is categorically not made, used, or sold within the United States.

There are three possible scenarios that this interpretation of the statute would touch: (1) the object has been registered by the United States, (2) the object has been left unregistered, or (3) the object has been registered by a foreign country that is party to the Registration Convention.

In the first scenario, the exception would not be triggered, and U.S. jurisdiction or control would be evident by the U.S. registration. The use of the space object would therefore be considered within the United States, and a patentee would have a cause of action for infringement.[88]

In the second scenario, it is possible the object has not been registered either because the launching state is not party to the Registration Convention or due to administrative oversight on behalf of the launching state.[89] Although the exception would not be triggered, if the object is under the jurisdiction or control of the United States, the use of the object would automatically be considered within the United States per 35 U.S.C. § 105.[90] This is particularly important because even if the object is not benefiting entities within the United States, merely showing U.S. jurisdiction or control will be enough for a U.S. patentee to have a cause of action for infringement.[91]

In the third scenario, the exception would be triggered, and the preceding clause of the statute would therefore not apply, so there would be no *statutory* extension of territoriality. Applying prior case law, namely *NTP*, a court would be able to rely on extraterritorial principles for patent enforcement.[92] Specifically, a court would inquire whether the infringement factually occurred within the United States, which would be the basis for U.S. jurisdiction and create a cause of action under 35 U.S.C. § 271(a).[93] Consider again the example involving

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87 *See* Charles J. Zinn, *Provisos and Exceptions in Statutory Composition*, 44 A.B.A. J. 269, 269 (1958) ("[An exception's] purpose is to take out of the purview of the statute something that would otherwise be a part of it.").

88 *See supra* Sections I.B–.C.

89 *See supra* Section I.B.

90 *See* 35 U.S.C. § 105 ("Any invention made, used, or sold in outer space . . . under the jurisdiction or control of the United States shall be considered to be made, used or sold within the United States for the purposes of this title . . . .").

91 *See supra* Section I.C.

92 *See supra* Section I.C.

93 *See* NTP, Inc. v. Rsch. In Motion, Ltd., 418 F.3d 1282, 1317 (Fed. Cir. 2005); 35 U.S.C. § 271(a).

a foreign-registered satellite that uses technology patented within the United States and supplies services to people within the United States.[94] Without an interfering statute, a court could analogize those facts to the facts of *NTP*: A cellular tower located in another country that is prompted to send data by and benefits people within the United States—as was the case in *NTP*—is a nearly identical situation to a satellite located in outer space that is prompted to send data by and benefits people within the United States.[95] Because the court found this constituted an infringing use within the United States in *NTP*, the loophole would be closed in an equivalent case involving a space satellite or any similar type of space object.[96]

Notably, the third scenario requires showing both control and beneficial use to establish that the infringement occurred within the United States.[97] This combination is a higher standard than in the second scenario, in which merely showing jurisdiction or control of the object creates a cause of action.[98] This strict standard would fulfill Congress's desired flexibility to protect intergovernmental objects like the space station from infringement suits while simultaneously promoting protection for commercial patentees.[99]

Supported by the courts' precedent of interpreting statutes and rules with the goals of the patent system in mind,[100] this Note's novel interpretation closes the supposed loophole in 35 U.S.C. § 105.

B. Comparing This Solution to Other Common Proposals

Over the past decade, a variety of other solutions have been proposed. Practitioners and scholars have recommended filing international patents in specific countries,[101] encouraging new treaties between the United States and other nations,[102] and passing legislation that would allow extraterritorial reach for an infringement cause of action.[103] Each of these, however, presents obstacles not faced by an interpretive solution.

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94 *See supra* Section I.C.

95 *See NTP*, 418 F.3d at 1317.

96 *See id.*

97 *See supra* Section I.C.

98 *See supra* Section I.C.

99 *See supra* Section I.D.

100 *See infra* Section II.C.

101 *See* Davidson & Sicard, *supra* note 11.

102 *See* Andrew Stevens & Todd M. Hopfinger, *Obtaining and Enforcing Patents for Outer Space*, Sterne Kessler (July 31, 2020), https://www.sternekessler.com/news-insights/publications/obtaining-and-enforcing-patents-outer-space [https://perma.cc/M3Y3-WQ8P].

103 *See* Ro et al., *supra* note 8, at 231.

1. Patenting in as Many Countries as Possible Is Too Costly

Filing patents in multiple countries may seem like a good option for inventors, especially because the solution is entirely within the patentee's control. Whereas interpretative solutions, international treaties, and statutory amendments all require some action by a third party,[104] a patentee could theoretically ensure protection of their invention by filing a patent in every member state of the Registration Convention. However, there are seventy-seven parties to the convention,[105] which makes covering the map more daunting, both because of the cost of obtaining a patent and the difficulty in enforcing patents in many foreign nations.

Analysts have calculated that the cumulative filing, issuance, and maintenance fees for a patent in all 195 countries would cost approximately $2 million.[106] Assuming, as a rough calculation, that the cost to file for and maintain a patent in all 195 countries would remain proportional to the cost to file for and maintain a patent in seventy-seven specific countries, a patentee would be expected to pay over $750 thousand in administrative fees alone over the lifetime of the patent.[107] This does not account for traditional fees associated with patent prosecution, such as attorney's fees, translation fees, prior art searches, and other costs that rise with the increased time and labor of filing in so many countries.[108] Although this estimate is for just one patent, many major companies file hundreds of patent applications each year, multiplying the costs by factors of tens to thousands and making this solution even more impractical.[109] The patentee could, however, target only countries in which infringers are likely to exploit this loophole, thereby filing in fewer locations and reducing costs.[110] But a potential infringer with a large incentive to exploit the loophole could still choose from the remaining countries where no patent is filed. Even for important inventions, tech companies will typically apply for a patent in fewer than ten

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104 *See infra* Sections II.B.2–.3.

105 *Convention on Registration of Objects Launched into Outer Space*, UNITED NATIONS TREATY COLLECTION, https://treaties.un.org/pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXIV-1&chapter=24&Temp=mtdsg3&clang=_en [https://perma.cc/2DLN-6SHK].

106 *See Cost of a Worldwide Patent: Everything You Need to Know*, UPCOUNSEL (Nov. 16, 2020), https://www.upcounsel.com/cost-of-a-worldwide-patent [https://perma.cc/532V-WS4L].

107 *See id.*

108 *See* JEFFREY G. SHELDON, HOW TO WRITE A PATENT APPLICATION § 18:1.2 (3d ed. 2015).

109 *See* Thomas Alsop, *Companies with the Most United States Patents Granted to Them in 2023*, STATISTA (May 22, 2024), https://www.statista.com/statistics/274825/companies-with-the-most-assigned-patents/ [https://perma.cc/XRG8-M2Y6].

110 *See* Davidson & Sicard, *supra* note 11 ("China is a major spacefaring nation. By obtaining a China patent, the inventor is afforded protection from infringement that would not otherwise be available.").

countries,[111] far short of the seventy-seven that are party to the Registration Convention.

Moreover, even if the patentee does commit to filing in all member states, enforcing international patents has proven difficult in many countries, including several prominent spacefaring nations.[112] In particular, Russia and India both score below average for patent enforcement according to an annual Chamber of Commerce study comparing the intellectual property frameworks of fifty-three global economies.[113] At the same time, these two nations have launched a significant number of objects into outer space.[114] With the infrastructure in place for launches, these countries are attractive locations for an infringer to carry out such activity, and a patentee would have a limited guarantee that their patent rights would be enforced there due to the countries' weak patent systems. Overall, the solution of patenting in multiple countries, despite being entirely within the inventor's control, is impractical due to the cost of patenting in dozens of countries and the unreliable patent programs of pertinent nations.

The statutory interpretation this Note proposes would eliminate the need for broadly filing international applications. Even if the inventor does not own a patent in the registering state, they can still show that there is beneficial use and control within the United States, and thus infringement.[115] Although that would not guarantee as much protection as a patent owned in the registering state, the interpretive solution does not preclude an inventor from utilizing both options simultaneously. Overall, compared with applying in numerous countries, the proposed interpretation would reduce prosecution time and costs for the inventor while also providing more flexible coverage.

2. Challenges of International Treaties

Because 35 U.S.C. § 105 has extraterritorial scope and is therefore an international issue, treaties that provide more guidance on intellectual property rights in outer space are a natural suggestion for closing

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111 Michael K. Henry, *Where Should We File in 2020? Recent Trends in Foreign Patent Filings*, Henry (Nov. 22, 2019), https://henry.law/blog/trends-in-foreign-patent-filings/ [https://perma.cc/D79C-S2BZ] ("For important patent applications, most tech companies will choose anywhere from two to six jurisdictions for foreign filing (and sometimes more).").

112 UpCounsel, *supra* note 106.

113 *See* Meir Pugatch & David Torstensson, U.S. Chamber of Com., International IP Index 6–7 (11th ed. 2023).

114 *See* Avery Koop, *Visualized: Which Countries Are Dominating Space?*, Visual Capitalist (July 8, 2022), https://www.visualcapitalist.com/visualized-which-countries-are-dominating-space/ [https://perma.cc/TQ95-TU44] (showing that as of July 2022, Russia had launched 3,611 objects, India had launched 127, and the United States had launched 5,534).

115 *See supra* Section II.A.

the potential loophole.[116] Often, the goal of such proposed treaties would be to create a unified international patent system in which filing in one nation would provide protection worldwide, or at least in the countries that are party to the Registration Convention.[117] This suggestion does seemingly have legitimate support behind it; the World Intellectual Property Organization ("WIPO"), which oversees international intellectual property standards and cooperation, has recognized the issue of extraterritoriality of space inventions for several decades.[118] In 1997, WIPO published a series of questions concerning the territoriality of intellectual property made or used in space.[119] And in 2004, WIPO recognized the possibility of treating outer space and its objects under a universal, uniform legal code as a solution to "many of the practical difficulties that arise from the commercial application of space technologies."[120]

Although scholars and WIPO agree that this solution would theoretically prevent infringers from escaping liability, issues involving enacting and enforcing international agreements make it impracticable. Countries may be disincentivized from entering effective agreements, as the repercussions of failing to uphold their end of the bargain often outweigh the benefits gained from the other side of the bargain.[121] Historically, the major spacefaring nations have displayed an unwillingness to relinquish autonomy to global organizations that would be able to establish and govern outer space as a unified, international territory.[122] And to complicate the issue further, developing countries may be

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116 *See, e.g.*, Davidson & Sicard, *supra* note 11 ("Without an international agreement, complete patent protection remains elusive. . . . Commentators and scholars have suggested the United Nations close this loophole by developing an international agreement on intellectual property protection in Outer Space.").

117 *See* Matthew J. Kleiman, *Patent Rights and Flags of Convenience in Outer Space*, 23 AIR & SPACE LAW., no. 3, 2011, at 4, 6 ("The ideal solution to the flag-of-convenience problem, at least as it relates to effective patent protection, is to create a new multinational patent jurisdiction for filing and enforcing patents in outer space."); Stevens & Hopfinger, *supra* note 102 ("[A] cooperation treaty mirroring the Patent Cooperation Treaty could include all countries that are party to the Registration Convention, allowing for a more efficient patent application process.").

118 INT'L BUREAU, WIPO, MEETING OF CONSULTANTS ON INVENTIONS MADE OR USED IN OUTER SPACE annex I, at 1 (1997), https://www.wipo.int/documents/d/patents/docs-en-topics-outer-space-meeting-of-consultatnts_inventions_space_1997.pdf [https://perma.cc/Q87M-7E2X].

119 *Id.* annex 1, at 2–3.

120 INT'L BUREAU, WIPO, INTELLECTUAL PROPERTY AND SPACE ACTIVITIES 22 (2004), https://www.wipo.int/documents/d/patents/docs-en-topics-outer-space-ip_space_wipo-contribution_oecd_2004.pdf [https://perma.cc/9BN2-D2N5].

121 *See* Andrew T. Guzman, *The Design of International Agreements*, 16 EUR. J. INT'L L. 579, 581–82 (2005); Katerina Linos & Tom Pegram, *The Language of Compromise in International Agreements*, 70 INT'L ORG. 587, 592 (2016) ("In the absence of a global police force, states comply with international agreements only when they expect concessions to be reciprocated and rewarded with future cooperation.").

122 FRANCIS LYALL & PAUL B. LARSEN, SPACE LAW 560–61 (2009).

unlikely to join intellectual property agreements because developing countries are typically unwilling to negotiate away access to technology that the developed world already has.[123] Although developed countries, such as the United States, would want to protect their own industries' patents, a developing country without a significant space technology industry may lack incentive to sign a treaty because it would oversee very few patents, if any, that would gain from the treaty. Rather, because an attempt to exploit 35 U.S.C. § 105 would require a foreign nation's government to register the space object, a country that sees value in allowing and investing in infringing space technology may be unlikely to agree simultaneously to limit its own advancement by signing a treaty that closes that opportunity.

Even if all relevant countries agree to a treaty that closes the alleged loophole, enforcing it poses further challenges. Enforcement measures such as sanctions are often inconsistently applied and only lead to meaningful change slowly, if at all.[124] Statistically, the more members a treaty has, the more difficult it is to enforce.[125] A treaty composed of at least the countries that are party to the Registration Convention, therefore, would pose significant enforcement problems.

This Note's proposed interpretation of 35 U.S.C. § 105 circumvents the issues associated with treaties. First, it does not require the cooperation of other countries, including developing countries that are seeking to expand their own technology industries. And second, patentees would be able to successfully sue for infringement on their own, a better alternative than having to rely on the threat of sanctions, which may not accomplish their goals and leaves them with no personal cause of action if the treaty is nonetheless violated.

3. Low Likelihood of a Statutory Amendment

A final solution that has been proposed by scholars is to rewrite 35 U.S.C. § 105 entirely to guarantee that there is no loophole.[126] The

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123 *See* Robert C. Bird & Subhash C. Jain, *The Continuing Challenge of Global Intellectual Property Rights*, *in* THE GLOBAL CHALLENGE OF INTELLECTUAL PROPERTY RIGHTS 3, 11 (Robert C. Bird & Subhash C. Jain eds., 2008) ("Developing countries may argue that intellectual property rights raise prices and profits for one country or company at the expense of the well-being of a developing nation.").

124 Frederic L. Kirgis, *Enforcing International Law*, ASIL INSIGHTS (Jan. 22, 1996), https://www.asil.org/insights/volume/1/issue/1/enforcing-international-law [https://perma.cc/ECG7-VDRC].

125 Steven J. Hoffman et al., *International Treaties Have Mostly Failed to Produce Their Intended Effects*, 119 PROC. NAT'L ACAD. SCIS., Aug. 1, 2022, at 3–4, https://www.pnas.org/doi/epdf/10.1073/pnas.2122854119 [https://perma.cc/5W95-NYZH].

126 *See* Ro et al., *supra* note 8, at 231 ("Congress should consider amending 35 U.S.C. § 105 by modifying Exception 2 to require U.S. courts to follow extraterritorial principles when evaluating whether the United States has jurisdiction for a claim of patent infringement occurring on a 'foreign-flagged' spacecraft.").

Supreme Court's increasing use of textualism and adherence to ordinary meaning in interpreting statutes suggest that encoding any change in the statute is a more guaranteed solution than convincing the courts to adopt an interpretation that might run contrary to the plain meaning.[127] However, the well-recorded rise in congressional stalemate and decrease in legislative activity make this option less reliable, as solving legislative problems is pushed off to the indeterminate future.[128] Moreover, because the statute can already be read in a manner that is in accordance with the stated goals of Congress and the patent system, there is no explicit need to pass new legislation.

C. Potential Objections to the Proposed Solution

1. Reading Against the Plain Meaning

One concern with the proposed solution is that courts might not be willing to interpret the statute against its commonly understood meaning.[129] Indeed, the Supreme Court commonly directs that the ordinary meaning of the text is the first step in statutory interpretation.[130] Moreover, the modern trend of interpretation heavily relies on the plain meaning of the statute.[131]

Although convincing the courts to read against the plain meaning of the statute is a considerable hurdle to the proposed solution, there is reason to believe courts would do so. Historically, in cases involving patent law, courts have determined that the appropriate reading of the law—and what Congress intended in multiple statutes—is the reading that retains the values of the patent system.[132] The doctrine of equiv-

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127 *See* James J. Brudney & Lawrence Baum, *Oasis or Mirage: The Supreme Court's Thirst for Dictionaries in the Rehnquist and Roberts Eras*, 55 WM. & MARY L. REV. 483, 486 (2013). This Note assumes that the plain meaning of the statute is the commonly proposed interpretation that creates the loophole—which is supported by the various articles explaining the statute. *See, e.g.*, Ro et al., *supra* note 8, at 206; Davidson & Sicard, *supra* note 11.

128 *See generally* Sarah Binder, *The Dysfunctional Congress*, 18 ANN. REV. POL. SCI. 85 (2015) (analyzing the cause, trend, and effects of modern congressional gridlock); Joseph Ax & Jason Lange, *Insight: Moderates Fleeing U.S. House, Setting Stage for More Washington Gridlock*, REUTERS (Sept. 14, 2022, 5:13 PM), https://www.reuters.com/world/us/moderates-fleeing-us-house-setting-stage-more-washington-gridlock-2022-09-14/ [https://perma.cc/NY3H-8637] (suggesting that gridlock will continue to worsen in the coming years).

129 *See supra* note 127 and accompanying text.

130 *See, e.g.*, Moskal v. United States, 498 U.S. 103, 108 (1990) ("'In determining the scope of a statute, [courts] look first to its language,' giving the 'words used' their 'ordinary meaning.'" (citations omitted) (first quoting United States v. Turkette, 452 U.S. 576, 580 (1981); and then quoting Richards v. United States, 369 U.S. 1, 9 (1962))).

131 *See* Brudney & Baum, *supra* note 127, at 486.

132 *See infra* Sections II.C.1.a–.c.

alents, public use doctrine, and rule of attributed infringement each exemplify this principle.[133]

a. Doctrine of Equivalents

In *Graver Tank & Manufacturing Co. v. Linde Air Products Co.*,[134] the Supreme Court officially adopted the "doctrine of equivalents" to guarantee that a strict interpretation of the patent laws would not limit acts of infringement to literal infringement.[135] Describing the purpose of the patent system, the Court commented,

> to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. . . . It would deprive him of the benefit of his invention and would foster concealment rather than disclosure of inventions, which is one of the primary purposes of the patent system.[136]

The dissenting justices, on the other hand, explained that the plain meaning of the statute defining infringement[137] prevented any expansion of claim language to include equivalents, stating that "petitioners had a right to act on the belief that this Court would follow the plain mandates of Congress that a patent's precise claims mark its monopoly boundaries."[138] Despite the Court's awareness of the plain meaning of the infringement statute, it interpreted the statute in line with "the primary purposes of the patent system," demonstrating the Court's willingness to go beyond the text of patent statutes.[139]

b. Public Use Doctrine

Similarly, to encourage early disclosure of inventions, the judiciary has provided a pragmatic interpretation of what constitutes a "public use" of an invention sufficient to bar its patentability. Traditionally, if an invention has been used in public, it can serve as a bar to patenting the invention,[140] even if the public was never aware of the invention.[141] This rule, simply put, prevents someone from attempting to patent an invention and remove it from the public sphere after society at large

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133 *See infra* Sections II.C.1.a–.c.

134 339 U.S. 605 (1950).

135 *Id.* at 612.

136 *Id.* at 607.

137 35 U.S.C. § 271.

138 *Graver Tank*, 339 U.S. at 617 (Black, J., dissenting).

139 *Id.* at 607.

140 *See* 35 U.S.C. § 102(a)(1).

141 *See, e.g.*, Egbert v. Lippmann, 104 U.S. 333, 338 (1881).

has already grown accustomed to its availability.[142] The judiciary's focus on the values of the patent system over a strict definition of what constitutes a "public use" is on display with a juxtaposition of two cases: *Metallizing Engineering Co. v. Kenyon Bearing & Auto Parts Co.*[143] and *W.L. Gore & Associates v. Garlock, Inc.*[144]

In *Metallizing*, the Second Circuit dealt with a suit in which an inventor patented a process for conditioning a metal surface, which eventually resulted in a product that was sold to the public while the process itself remained secret to the public.[145] The inventor began selling the product over a year before filing their patented method, which would trigger a public use bar to patentability if the court found that the inventor's actions qualified as a public use.[146] The court ruled that this was, in fact, a public use because the effects of the process were sold in the market.[147] The patent was thus found invalid.[148]

Thirty-seven years later, the Federal Circuit presided over a nearly identical fact pattern in *Gore*: Once again, the inventor manufactured their product with a secret process and sold the product publicly with much success.[149] After several years, a competitor independently invented the method of making the product and filed a patent for the method.[150] The original inventor was sued for infringing the new patent and, in response, argued that *Metallizing* established the rule that the product being in public meant that the process of making it was in public as well, barring a later patent.[151] The only difference in *Gore* was a matter of *who* filed the patent; in *Metallizing*, the patentee was the party who had kept the invention a secret,[152] whereas in *Gore*, the patentee was not the party who had kept the invention a secret.[153] Functionally, the inventions in both cases had been in the public to the exact same degrees as each other.[154] The Federal Circuit, however, held that the patent in *Gore* was valid.[155] The court reasoned that the party who filed the

142 *See* Cont'l Plastic Containers v. Owens Brockway Plastic Prods., Inc., 141 F.3d 1073, 1079 (Fed. Cir. 1998).

143 153 F.2d 516 (2d Cir. 1946).

144 721 F.2d 1540 (Fed. Cir. 1983).

145 *See Metallizing Eng'g Co.*, 153 F.2d at 517.

146 *See id.* at 517–18.

147 *See id.* at 520.

148 *See id.*

149 *See W.L. Gore & Assocs.*, 721 F.2d at 1544–46.

150 *See id.*

151 *See id.* at 1550.

152 *See Metallizing Eng'g Co.*, 153 F.2d at 517.

153 *See W.L. Gore & Assocs.*, 721 F.2d at 1544–46.

154 *See Metallizing Eng'g Co.*, 153 F.2d at 518 ("[T]he use [of the invention] was not public, but secret . . . ."); *W.L. Gore & Assocs.*, 721 F.2d at 1550 (describing "the processes claimed in [the patent]" as "having been secret, not public").

155 *See W.L. Gore & Assocs.*, 721 F.2d at 1550.

patent was a material fact that distinguished *Gore* from *Metallizing*.[156] The court clarified its rationale, stating,

> Early public disclosure is a linchpin of the patent system. As between a prior inventor who benefits from a process by selling its product but suppresses, conceals, or otherwise keeps the process from the public, and a later inventor who promptly files a patent application from which the public will gain a disclosure of the process, the law favors the latter. The district court therefore erred as a matter of law in applying the statute . . . .[157]

The Federal Circuit's reasoning here suggests that upholding the goals of the patent system is a valuable consideration in interpreting patent statutes and can support overturning the district court's statutory interpretation of what constitutes a "public use,"[158] even though doing so creates a secondary and opposite meaning for the term with respect to an identical use in *Metallizing*.[159]

c. Attributed Infringement

More recently, in *Akamai Technologies, Inc. v. Limelight Networks, Inc.*,[160] the Federal Circuit expanded on the Supreme Court's holding that "a method patent is not directly infringed . . . unless a single actor can be held responsible for the performance of all steps of the patent."[161] In the Federal Circuit's en banc opinion, the court recognized that it would harm patentees if an infringer could carry out all but a few steps of a patented method and require their customers to finish the method.[162] The patentee would be left with no singular party that technically infringed their patent as defined by 35 U.S.C. § 271(a).[163] As a solution, the court eventually ruled that "liability under § 271(a) can also be found when an alleged infringer conditions participation in an activity or receipt of a benefit upon performance of a step or steps of a patented method."[164] In doing so, the Federal Circuit directly expanded the scope of the patentee's rights to avoid a loophole.[165] Like *Graver Tank* and *Gore*, *Akamai* represents a case in which the judiciary interpreted the patent statutes broadly to maintain the efficacy of the system

156 *See id.*

157 *Id.* (citation omitted).

158 *See id.*

159 *See Metallizing Eng'g Co.*, 153 F.2d at 517–18.

160 797 F.3d 1020 (Fed. Cir. 2015) (en banc).

161 Limelight Networks, Inc. v. Akamai Techs., Inc., 572 U.S. 915, 924 (2014).

162 *See Akamai Techs., Inc.*, 797 F.3d at 1023.

163 *See id.*

164 *Id.*

165 *See id.*

and close loopholes that negatively affect inventors.[166] An interpretation of 35 U.S.C. § 105 that does not necessarily follow the plain language of the statute but better aligns with the goals of the patent system would be consistent with this approach taken by the courts and could therefore be adopted.

2. *Recent Instances of Limiting Patentees' Rights*

Because the suggested interpretation of 35 U.S.C. § 105 would expand the rights of patentees, it is important to note that the Supreme Court has a recent trend of ruling in favor of defendants in patent cases.[167] In the past two decades, the Court has twice interpreted patent-related statutes in favor of accused infringers, limiting the rights of patentees,[168] which some scholars believe is a trend that is likely to continue.[169] These decisions, however, do not appear to be because of the position of the parties, but rather have explicitly been in line with the overall goals of the patent system.

In the first case, *eBay Inc. v. MercExchange, L.L.C.*,[170] the Court's decision in favor of the alleged infringer was in line with the social and economic goals of the patent system because it prevented the plaintiff, a nonpracticing entity, from entirely removing a technological advancement from the public market.[171] Justice Kennedy stated this rationale clearly in his concurrence, writing, "An industry has developed in which firms use patents not as a basis for producing and selling goods . . . . [In these cases,] an injunction may not serve the public interest."[172] Similarly, in *Alice Corp. v. CLS Bank International*, the Court expanded the limitations on patent eligibility, seeking to fulfill the goal of allowing new technology to develop and reach the public market.[173] The Court explained, "we must distinguish between patents that claim the 'buildin[g] block[s]' of human ingenuity and those that integrate

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166 *See id.*; W.L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 1550 (Fed. Cir. 1983); Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 605 (1950).

167 *See* Peter O. Huang, *Recent Supreme Court Patent Decisions: The Trend to Limit the Power of Patent Holders*, 10 J. App. Prac. & Process 393, 393 (2009) (describing a series of Supreme Court decisions between 2006 and 2008 that each limited the power of patent holders and discussing the high probability of the trend continuing).

168 *See* eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388, 394 (2006) (holding that a permanent injunction is not an automatic remedy for infringement despite a patent representing the right to exclude others from practicing the patented invention); Alice Corp. v. CLS Bank Int'l, 573 U.S. 208, 216–18 (2014) (explaining the judicially created exceptions to what types of inventions are patent eligible under 35 U.S.C. § 101).

169 *See* Huang, *supra* note 167, at 400.

170 547 U.S. 388 (2006).

171 *Id.* at 394.

172 *See id.* at 396–97 (Kennedy, J., concurring).

173 *See Alice*, 573 U.S. at 217.

the building blocks into something more . . . . The former 'would risk disproportionately tying up the use of the underlying' ideas . . . ."[174] *Alice* particularly exemplifies the Court's effort to maintain the overarching goals of the patent system amidst a rapidly evolving technological field—in this case, computer programs.[175]

Despite the recent trend to rule against patentees, the driving factor behind the Supreme Court's decisions has been to achieve the goals of the patent system. Thus, the argument that the courts would continue a trend not in favor of patentees and choose not to expand patent rights in this instance is not a major concern.

Conclusion

As the space technology industry continues to rapidly progress, the application of patent law must keep pace to ensure that innovation within the industry does not stall. The modern-day space race to corner the market is already in progress, with significant investment from private companies.[176] If courts recognize the possible loophole arising from 35 U.S.C. § 105, the industry will likely see either a shift toward trade secrets, which will slow innovation, or a significant abandonment of the industry altogether.[177] The common interpretation that causes the loophole, however, violates the intent of Congress, and an alternative reading of the statute is not only valid but also congruous with Congress's stated goals.[178] Although practitioners and scholars have recommended other solutions such as expanded patent prosecution, treaties, and legislation, each of these solutions faces barriers that the alternative interpretation does not.[179] Moreover, the judiciary's precedent interpreting the patent laws such that they conform to the overarching goals of the patent system supports the likelihood of the adoption of this Note's proposed interpretation.[180]

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174 *See id.* (first and second alterations in original) (citation omitted) (quoting Mayo Collaborative Servs. v. Prometheus Lab'ys, Inc., 566 U.S. 66, 72, 89 (2012)).

175 *See generally id.* (addressing patent claims regarding a computer system and program code).

176 *See* Kreps et al., *supra* note 6.

177 *See supra* Section I.A.

178 *See supra* Section II.A.

179 *See supra* Section II.B.

180 *See supra* Section II.C.