

THE AIA AND THE FIRST-TO-FILE PROVISION: CONSEQUENCES AND CONSTITUTIONALITY

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I. INTRODUCTION

The Leahy-Smith America Invents Act (AIA)¹ was signed into law on September 16, 2011 and was the first major legislation to amend Title 35 of the United States Code since the Patent Act of 1952, which re-coded all existing U.S. patent law² and prior to that, the Patent Act of 1836, which created the patent examination system.³ In the nearly sixty years since the last reform, the AIA appears to be the Congressional response to overhaul and modernize an outdated patent system that was inadequate for handling current legal and economic conditions.⁴ The AIA was developed with a goal of accomplishing several motives: harmonizing American patent law with that of the world's major foreign patent offices; improving patent quality and providing a more efficient means to challenge weak patents; and reducing unwarranted litigation costs and inconsistent damage awards.⁵ The courts have also expressed the need to modernize, evidenced by a string of Supreme Court rulings—six in total since the beginning of the 109th Congress in 2005—reversing the Federal Circuit on patent-related matters and trending toward the strengthening of patent quality and the streamlining of any determinations of patent validity.⁶ This increased importance of reevaluating the patent system has been the tipping point, or impetus, in drafting this landmark legislation.

Prior to its enactment, the AIA took many forms, beginning with a version introduced on June 8, 2005 by Representative Lamar Smith of Texas which included the provision of transitioning the United States to the international standard of the first-inventor-to-file system.⁷ The push for reform continued in the 110th and 111th Congresses as lawmakers exchanged and debated several

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1. Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011).

2. Robert A. Armitage, *Leahy-Smith America Invents Act: Will It Be Nation's Most Significant Patent Act Since 1790?*, LEGAL BACKGROUNDER (Wash. Legal Found., Wash., D.C.), Sept. 23, 2011, at 1.

3. Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part I of II*, 21 FED. CIR. B.J. 435, 435 (2012).

4. JOHN W. SCHLICHER, PATENT LAW, LEGAL AND ECONOMIC PRINCIPLES § 4:32 (2d ed. 2011).

5. *Id.*

6. *Id.*

7. Matal, *supra* note 3, at 438.

alternatives of the bill until early in 2011, when the Senate and House finally voted upon and adopted separate versions.⁸ However, because of significant differences between the Senate and House versions, Congress only agreed upon a final version in early September 2011.⁹

Though the President needed many amendments and concessions for the final adaptation before he would eventually sign the AIA into law, it was a provision in the original 2005 version—the first-to-file system—that would spark much controversy and debate about the future of U.S. patent law. An explanation of the differences between the old first-to-invent system and the new first-to-file system would clarify the controversy. Prior to the AIA, the United States adhered to a first-to-invent system whereby patentability hinged on the issue of novelty. The push-and-pull of novelty stems from whether an “inventor acts before or after the prior art enters the field.”¹⁰ In other words, the U.S. Patent and Trademark Office (USPTO) issues a patent to the inventor only after showing that he created his invention prior to the disclosure of a prior art reference.¹¹ Under the current AIA, the governing issue becomes one of priority, whereby between two inventors having substantially the same invention, the inventor who first files an application with the USPTO wins the priority for that invention.¹² Because of this change in the law, the date on which the inventor files an application is determinative, rather than conducting a lengthy, factual inquiry to decide “which of two rival inventors actually *invented* first.”¹³

Stepping back, it is also important to investigate the policy considerations behind the transition from a first-to-invent to a first-to-file system to understand the driving force behind the change. Proponents of the first-to-file system essentially have argued under the theories of certainty,¹⁴ simplicity,¹⁵ and protection against foreign theft of inventions.¹⁶ Members of Congress, who

8. *Id.* at 444–45.

9. *Id.* at 446–47.

10. Robert P. Merges, *Priority and Novelty under the AIA*, 27 BERKELEY TECH. L.J. 1023, 1028 (2012).

11. “A prior art reference provides an enabling disclosure and thus anticipates a claimed invention if the reference describes the claimed invention in sufficient detail to enable a person of ordinary skill in the art to carry out the claimed invention.” MANUAL OF PATENT EXAMINING PROCEDURE (MPEP) § 2121 (9th ed. 2014) [hereinafter MPEP].

12. Merges, *supra* note 10, at 1028.

13. *Id.*

14. Matal, *supra* note 3, at 453 (“[A] patent’s filing date is objective and simple to determine, whereas an invention date ‘is often uncertain, and, when disputed, typically requires corroborating evidence as part of an adjudication’ . . .”) (internal citation omitted).

15. *Id.* (stating that the first-to-file system would (1) avoid expensive and burdensome interference proceedings, which often require detailed record-keeping of the inventive procedure; and (2) eliminate forced compliance of two different filing systems by harmonizing the systems).

16. 157 CONG. REC. S5319-03 (daily ed. Sept. 6, 2011) (statement of Sen. Jon Kyl) (noting that under the first-to-invent law, foreign applicants may rely on “activities . . . occur[ing] in a foreign country to establish a priority date” and that if such allegations were fraudulent, “the U.S. inventor would bear the burden of proving [such] . . . fraud had been perpetrated in [that] foreign

opposed the first-to-file provision, grounded their argument on the issue of fairness, by stating that only the invention's creator should reap its benefits, not necessarily the one who is first-to-file.¹⁷ In a first-to-file world, where lab notebooks are inconsequential and filing date is the sole determination of priority, copying would be much more difficult to prove,¹⁸ thereby leading to an incorrect grant of patent rights to the fraudulent inventor. This Congressional debate demonstrates some of the factors considered prior to the implementation of the first-to-file system, though, as outlined below, it remains a controversial subject in many different contexts, including its constitutionality and its effect on small businesses.

To demonstrate the weight of the transition, this Comment is divided into several parts, with each section discussing an important aspect of the first-to-file provision. Part II explains, in a broad sense, the reasons and theoretical bases for the patent system. The reasons and theoretical bases are important to understand the context and general scheme under which Congress devised the first-to-file provision.

Part III compares and contrasts the U.S. patent system with the foreign patent laws of several countries that are at different development stages in their patent law systems. The European patent system consists of sound and established patent law, and the European patent office is comparable to the USPTO in size and stature. The Chinese patent system also provides an interesting comparison, but for separate reasons, because China is an emerging nation with a nascent and recently reformed patent policy.¹⁹ Finally, Canada might offer the most accurate glimpse into the future of American patent law, because it only recently switched to the first-to-file system in 1989.²⁰ These comparisons provide an appropriate backdrop to understand how the United States compares with other nations from a development standpoint at the time of the first-to-file provision's implementation.

Part IV analyzes the AIA's consequences—including patent harmonization—and the positive and negative responses of government officials, the private sector, and public policy think tanks that defended and criticized the AIA's implementation. Part IV also includes an investigation of the AIA's impact on start-up companies and small businesses.

Finally, Part V addresses whether the first-to-file provision is constitutional under Article I, Section 8 of the U.S. Constitution²¹ and seeks to answer whether

country”).

17. Matal, *supra* note 3, at 459.

18. *Id.* at 456.

19. Wayne C. Jaeschke et al., *Comparison of Chinese and U.S. Patent Reform Legislation: Which, if Either, Got It Right?*, 11 J. MARSHALL REV. INTELL. PROP. L. 567, 569 (2012).

20. Robin Coster, *From First-to-Invent to First-to-File: The Canadian Experience*, TORYS 2 (Apr. 2002), <http://www.torys.com/Publications/Documents/Publication%20PDFs/ARTech-19T.pdf>.

21. U.S. CONST. art. I, § 8, cl. 8 (“To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . .”).

the Intellectual Property Clause limits patents to a first-to-invent system.

This Comment shows that the first-to-file system under U.S. patent law not only harmonizes the American patent system according to international standards, but also does so without harming small businesses or violating constitutional requirements.

II. THEORY OF PATENT LAW

The patent system has been traditionally designed to achieve two societal goals: to grant exclusive rights to an inventor for a fixed period of time so that he may exploit his invention for economic purposes²² and to spur technological innovation as a means to circumvent others' patent rights.²³ In many cases, these two motives merge into one as innovation is often the driving force behind economic growth of societies.²⁴ However, if patent rights are either too weak *or* strong, potential innovators would lack sufficient incentives to invest their resources and time to produce technological advancement, thereby stifling innovation.²⁵ The same argument can apply for barriers to entry into the patent market using the new first-to-file system, mandated by the AIA. If the first-to-file provision sets the threshold for *attaining* patent rights too high or low, then inventors would feel the same effects as when patent rights, *once granted*, are either too weak or strong. Because any patent reform's end goal should be to maximize innovation and thereby social welfare,²⁶ the first-to-file provision must be consistent with these ideals, and it is in this vein that this article investigates the AIA.

One line of reasoning exploits economic theory to explain these goals. The traditional economic rationale seeks to answer the question of why someone would undertake the hard work of creating something valuable—i.e. a novel process, device, etc.—if others simply engage in copying without permission from or compensation to the inventor.²⁷ To answer this question, economic theory states that the fundamental assumption of intellectual property is the need for powerful

22. See generally Robert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839 (1990) (describing generally how a patent holder might leverage his patent rights in a suit for patent infringement).

23. Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1576 (2003) ("Patent law is our primary policy tool to promote innovation . . ."). *But see* Eric E. Johnson, *Intellectual Property and the Incentive Fallacy*, 39 FLA. ST. U. L. REV. 623, 623 (2012) (arguing that the belief that external incentives such as patents are necessary to incentivize technological innovations is wrong because "natural and intrinsic motivations will cause technology and the arts to flourish even in the absence of externally supplied rewards").

24. Robert Cooter et al., *The Importance of Law in Promoting Innovation and Growth*, in RULES FOR GROWTH: PROMOTING INNOVATION AND GROWTH THROUGH LEGAL REFORM 1, 3 (2011) (describing innovation as one major factor in economic growth of societies).

25. Gregory N. Mandel, *Proxy Signals: Capturing Private Information for Public Benefit*, 90 WASH. U. L. REV. 1, 6 (2012).

26. *Id.* at 7.

27. Johnson, *supra* note 23, at 630.

external incentives. Because as long as individuals can copy intellectual goods, the creators of those goods are guaranteed only to get an efficient price—that is, the good’s monetary worth to a consumer is greater than or equal to its aggregate cost to a producer—in the sale of the first copy.²⁸ Greater market competition would theoretically drive the price down to zero.²⁹ Therefore, by granting exclusive rights to the inventor for a limited period of time, patent law allows the inventor to maintain certain price points, while forcing competitors to find cheaper, better, and faster alternatives.

An alternate and distinct theory to explain patent rights is in the context of John Locke’s labor theory for property rights in land—that people are entitled to own the product of their own labor.³⁰ The Lockean labor theory of property relies on four conditions to have a proper claim: the “labor” and “added value” conditions, which speak to an individual’s rights, and the “enough and as good” and “non-waste” conditions, designed to protect the public’s liberty interests.³¹ As explained by Professor Schaffner,

Locke’s property theory begins with a state of nature in which all goods are dedicated to the common. One important exception exists: every individual has the exclusive right to possess her own person. Locke hypothesizes that the labor exerted by an individual is an extension of the person and thus is the exclusive right of that person. Thus, by mixing one’s “labor” with a good from the common, one “adds value” to the good and one thus acquires ownership in that good. As a result, an individual has a justified interest in a good when he has added value to that good by exerting labor.³²

Therefore, the individual’s exertion of labor to add value to the good in a resourceful manner (the “non-waste” factor) while still leaving enough in the common for all others to use (the “enough and as good” factor) justifies the property interest.³³ If any of the four conditions are not met, then the good remains in the common, free for public consumption.³⁴

Locke’s labor theory was the predominant labor theory³⁵ during the development of the patent laws in the late eighteenth century and was a “likely basis upon which the federal patent laws were founded.”³⁶ The Lockean labor theory did provide a basis for federal patent laws, since the patent statute parallels Lockean property principles.³⁷ The patent laws satisfy Locke’s “labor” requirement

28. *Id.* at 633.

29. *Id.*

30. *Id.* at 637 n.31.

31. Joan E. Schaffner, *Patent Preemption Unlocked*, 1995 WIS. L. REV. 1081, 1087–88 (1995).

32. *Id.* at 1087.

33. *Id.* at 1088.

34. *Id.*

35. *Id.* at 1100–01.

36. *Id.* at 1103.

37. Schaffner, *supra* note 31, at 1089.

in two ways. First, only the *inventor* may obtain rights to exclude (“[w]hoever invents or discovers”³⁸), and second, patent-eligible subject matter is limited to articles of manufacture, machines, processes, and compositions of matter and does not include laws of nature, natural phenomena, or abstract ideas.³⁹ For an example of the latter, in *Mayo Collaborative Services v. Prometheus Labs, Inc.*,⁴⁰ the Supreme Court held that, in the case of processes, since laws of nature are not patentable, then neither are processes *reciting* a law of nature, unless a process has additional features that provide practical assurance that it is more than a drafting effort designed to monopolize the law of nature itself.⁴¹ According to *Mayo Collaborative*, the inventor needs to exert labor to add the additional features into a patentable subject class, since fundamental laws of nature themselves are not patentable. The “additional features” exception also exemplifies the second Lockean condition of “added value” which requires the invention to be “useful, enabled, and new relative to the state of the art . . . [such that] the invention be operable for its intended use and capable of satisfying some function of benefit to society.”⁴²

With respect to the condition that “enough and as good” be left for others by maintaining the “common,” patent law maintains the common by carving out exceptions to patent-eligible subject matter and by enforcing patent durations after which time the invention returns to the public.⁴³ Finally, patent law, by denying a patent grant to inventors who have kept their inventions a secret, satisfies the condition of “non-waste,” since secret inventions only force others “to duplicate the effort of the secret holder by inventing the same article without achieving any greater value than that achieved by the secret holder.”⁴⁴ Therefore, much like the economic theory, Locke’s labor theory provides an explanation of the two societal goals outlined above, by accounting for an individual’s exclusive right to an invention into which he exerted labor while also encouraging innovation by others by maintaining the common and preventing waste.

III. COMPARISON OF U.S. PATENT LAW WITH FOREIGN PATENT SYSTEMS

Scholars can compare patent systems from around the world in many different contexts depending on the motivation for the comparison. For example, in one study comparing the patent systems of Indonesia and Slovenia,⁴⁵ the authors used intellectual property law as a model to examine how each country’s cultural and

38. 35 U.S.C. § 101 (2011).

39. *Id.*

40. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012).

41. *Id.* at 1291.

42. Schaffner, *supra* note 31, at 1093.

43. *Id.* at 1094.

44. *Id.* at 1095.

45. See, e.g., K. Kalan, *Property Rights, Individual Rights, and the Viability of Patent Law Systems*, 71 U. COLO. L. REV. 1439 (2000) (using case studies of Indonesia and Slovenia to show how a State’s culture affects its system of property rights).

legal values impact their treatment of things.⁴⁶ This study determined that the geographic, cultural, and economic differences between nations may help to explain the “nascence, evolution, and implementation of [their] patent systems” as they relate to individuality and property rights.⁴⁷

In this Comment, I explain the economic impact of the first-to-file provision in the United States by looking at the European, Chinese, and Canadian patent systems, which have varying stages of economic growth. By understanding how their patent systems fit within the context of their economies, we might be better able to gauge how the AIA, and specifically the first-to-file clause, might affect, for example, small businesses in the U.S. economy.

The intake of utility patent applications for the European, Chinese, and U.S. patent offices represented over fifty percent of all filed applications for 2010. China had almost twenty-five percent growth from the previous year.⁴⁸ The United States, in comparison, only experienced 7.5% percent growth over the same time period.⁴⁹ These values are consistent with the average year-over-year growth shown by both countries over the last decade, with China growing at an average of 10.5% versus 1.6% for the United States.⁵⁰ Canada is much smaller than any of the other patent systems and continues to shrink in size, showing consecutive decreases in the number of filed applications over 2008-2010.⁵¹ Therefore, when comparing the United States against the European, Chinese, and Canadian patent systems, the basis for the comparison comprises a wide net of patent systems for countries having relatively stable patent filings (Europe), high growth economies (China), and smaller patent offices (Canada).

A. The European patent law system

European patent law guidelines mandate strict adherence with respect to first-to-file provisions. The AIA, though it does not contain those same mandates, does increase uniformity between the American and European patent systems. One main difference between the two patent law structures is that the U.S. system makes available a grace period, which gives an inventor one year from the date of his disclosure to file an application for patent without fear that any intervening third-party disclosure within that year will be used as prior art against the inventor's application.⁵² Under the European structure, there is no grace period.⁵³

46. *Id.* at 1440.

47. *Id.*

48. WIPO Econs. & Statistics Series, *2012 WIPO IP Facts and Figures*, WORLD INTELL. PROP. ORG. 17 (2012), http://www.wipo.int/freepublications/en/statistics/943/wipo_pub_943_2012.pdf.

49. *Id.*

50. *The Dating Game*, THE ECONOMIST (Dec. 27, 2011, 2:00 PM), http://www.economist.com/blogs/dailychart/2010/12/save_date.

51. WIPO Econs. & Statistics Series, *supra* note 48, at 17.

52. Thomas J. Kowalski, *A Tale of Two Patent Systems: United States and Europe*, VEDDER PRICE (Sept. 10, 2012), <http://www.vedderprice.com/files/Event/8ff082f8-d3c5-4f97->

The importance of this grace period has been well-documented and has several important implications for small entity inventors and research-oriented academic institutions.⁵⁴ Independent inventors often use the year prior to filing a non-provisional patent application to assess the commercialization potential of their invention or to receive financing to pay patent procurement fees.⁵⁵ This flexibility is also important for university researchers turned entrepreneurs who seek to commercialize their inventions after leaving the academic environment.⁵⁶ Without this safety net of a grace period, a culture of secrecy generates, which actually prevents the dissemination of information because inventors fear losing out on patent rights.⁵⁷ In comparing the U.S. and European patent systems, studies have shown that patent systems with a grace period reduce the amount of time between scientific publication and patenting.⁵⁸ Though grace periods are not a feature of European patent law, scholars have noted a need to carve out a structure similar to the U.S. system to disseminate information and to maintain an “Open Science” scientific community, especially among academic institutions, which are known to be early “diffusers of innovative knowledge.”⁵⁹

Because the AIA does not completely reform U.S. patent law to align with the European first-to-file system, at least in this sense, the grace period does stay true to the ideal of promoting innovation by encouraging inventors, who know that competitors will not compromise the integrity of their patent rights, to share their results. The grace period also aids the small inventor or research institution that may not have access to the ample financial resources or established ramp-up infrastructure often required for invention commercialization because one year is enough time to conduct an inquiry regarding the invention’s potential. For this reason, the results bear out the theory: U.S. universities and public research foundations file five times as many patent applications than their European counterparts, both of whom have comparable research budgets.⁶⁰

bb4-12d00beb4bee/Presentation/EventAttachment/278f96d4-bd16-4084-84cb-081ca67f5fe1/
Patentability%20and%20the%20EPO%20What%20You%20Need%20to%20Know%20and%20C
urrent%20Trends.pdf.

53. *Id.*

54. See, e.g., Margo A. Bagley, *The Need for Speed (and Grace): Issues in a First-Inventor-to-File World*, 23 BERKELEY TECH. L.J. 1035, 1051–54 (2008) (discussing the importance of a grace period to patents in academic research).

55. *Id.* at 1051.

56. *Id.*

57. *Id.* at 1051–54 (showing through empirical studies that academic scientists are uncertain about sharing information and are more likely to delay disclosures of their work until patent applications are filed).

58. *Id.* at 1054 (“For applications originally filed in the U.S. and then later filed in the EPO . . . the time lag between patent application filing and article publication increased by six to seven months.”).

59. Bagley, *supra* note 54, at 1055–57.

60. *Id.* at 1047.

B. The Chinese patent law system

The most recent Chinese patent law reform of 2008 symbolized an aggressive undertaking by the Chinese government that created analogous counterparts to the U.S. Code of Federal Regulations and U.S. Manual of Patent Examination Procedure (MPEP).⁶¹ One major difference between the American and Chinese patent laws is the foundation. U.S. patent law has its basis in the Constitution, which gives Congress the right to “promote the Progress of Science . . . by securing for limited Times to . . . Inventors the exclusive Right to their respective . . . Discoveries.”⁶² From the late eighteenth century until the AIA’s enactment in 2011, the United States adhered to the first-to-invent system.⁶³ The origination of the first-to-invent rule in the United States may at least partially have been pinned to the old England Statute of Monopolies.⁶⁴ However, even though the Statute of Monopolies had been the prevailing manner for granting patents in England for over 150 years by the time the Patent Act of 1790 was enacted,⁶⁵ there was no statute or common law legal precedent by which it was enforced.⁶⁶ The Intellectual Property Clause of the Constitution would crystallize the recognition of inventor’s rights,⁶⁷ which Congress would codify a year later in the Patent Act of 1790.

The Chinese patent system is relatively new and was first drafted in 1985⁶⁸ as a result of opening its economy on a global scale.⁶⁹ By the mid-1980s, so many countries were already using the first-to-file provision that when Canada converted to it in 1989—just a few years after China had developed its first patent statute—only the United States and the Philippines continued to grant patents using a first-to-invent system.⁷⁰ Global integration might be one reason why China immediately chose to adopt the first-to-file process. For the special case where applicants for the same invention filed on the same day, Chinese patent procedures differ from the

61. Jaeschke, *supra* note 19, at 570.

62. U.S. CONST. art. I, § 8, cl. 8.

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

64. Michael F. Martin, *The End of the First-to-Invent Rule: A Concise History of its Origin*, 49 INTELL. PROP. L. REV. 435, 444 (2009) (describing the Statute of Monopolies as a grant of a fourteen year monopoly for any letters, patents, and grants of privilege for new manufactures to the first and true inventor of such manufactures).

65. *Id.* at 448.

66. *Id.* at 445.

67. *Id.* at 453–56. Ironically, while the Patent Act of 1790 gave special importance to inventors, it never outlined procedures to determine priority, in case a dispute arose between inventors. In this sense, it was very much like the Statute of Monopolies. However, while the Statute of Monopolies handled disputes by denying both parties priority, the Patent Act of 1793 in the United States laid the groundwork for modern day interference proceedings. *Id.* at 445, 456–60.

68. Jaeschke, *supra* note 19, at 570.

69. Lei Fang, *Chinese Patent System and Its Enforcement*, SUTHERLAND 1, 2 (2005), <http://www.sutherland.com/files/Publication/7d59443f-8187-4680-b24a-34de34553642/Presentation/PublicationAttachment/ce106e5e-d8f4-496f-a09b-ce892161dafb/Chinese%20Patent.doc>.

70. Coster, *supra* note 20, at 2.

European standard, which might grant two patents independent of one another and neither of which may be used as prior art against the other.⁷¹ Chinese practice requires a cooperative agreement between the two applicants to determine independently sans governmental interference who will have priority.⁷² If the applicants do not reach an agreement, then either party may request intervention from a selected state authority to resolve the dispute while suspending examination of either application in the intermediate.⁷³

C. The Canadian patent law system

Unlike the debate generated in the United States, the Canadian transition to the first-to-file system was met with little fanfare and Canadians widely viewed the transition as a necessary move to harmonize Canada's patent system with other countries' systems.⁷⁴ In essence, however, Canadian practitioners had already been effectively operating on a first-to-file system even prior to the transition because most Canadian inventors would typically seek patent protection abroad.⁷⁵ At the time of the transition, Europe and Japan already utilized a first-to-file system, and in the United States, the patent laws effectively imposed the first-to-file system on foreign inventors because U.S. law did not allow foreign filing dates to establish dates of invention, if an interference proceeding arose.⁷⁶

Under the AIA, the removal of the Hilmer Doctrine eliminated this provision handicapping foreign inventors.⁷⁷ The Hilmer Doctrine stated that for U.S. patent applications having foreign priority dates, the application would only qualify as a section 102(e) prior art reference as of its filing date in the United States and not as of its priority date based on the foreign national application.⁷⁸ By eliminating the Hilmer Doctrine, U.S. applications, having foreign priority dates, would be available as prior art references as of the date filed in the foreign patent office. One possible effect of this change, at least with respect to the patent examination process, is that many more U.S. applications, previously excluded as not having antedating U.S. filing dates, would be applicable as prior art references.⁷⁹

71. Bagley, *supra* note 54, at 1041.

72. Fang, *supra* note 69, at 5.

73. *Id.*

74. Coster, *supra* note 20, at 2 (stating that the reason for this mild reaction was that Canadian patent practitioners were familiar with the first-to-file system from protecting their rights in other countries).

75. *Id.* at 9.

76. *Id.*

77. Kowalski, *supra* note 52.

78. Kate H. Murashige, *The Hilmer Doctrine, Self-Collision, Novelty and the Definition of Prior Art*, 26 J. MARSHALL L. REV. 549, 557 (1993).

79. As the availability of prior art references increases, it is likely that the patent examination process will slow down, thereby increasing the backlog of applications in the queue waiting to be examined. As result, the length of time it would take to get patent rights might also increase, thereby decreasing the patent term, which is defined as twenty years from the U.S. filing date. One positive that might occur is that, with increased competition from patent applications

Prior to the switch, Canadian practice was much like the American patent system in requiring “conflict proceedings” (equivalent of U.S. interferences) when two pending applications contained the same patentable invention, i.e. both applications had claims describing the same invention.⁸⁰ Conflict proceedings typically required the applicant to show “that the invention was reduced to a practical and definite shape either by a written or oral description of it that would enable a person skilled in the art to make it, or in the case of an apparatus, by the apparatus having been actually made.”⁸¹ This requirement entailed reliance on not only the application filing date, but also factual inquiries to determine dates of conception, description of the invention, and steps taken to perfect the invention up to the filing date.⁸²

The Canadian system for handling multiple applications having the same inventive features which are entitled to the same filing date, is similar to that of the European system, i.e. it grants multiple patents. But commentators have noted that this process potentially creates additional problems of assigning liability.⁸³ For instance, complications arise if a third-party infringes on patentable subject matter common to both inventive parties and one party chooses to sue the infringer, only to have the court hold the claims invalid.⁸⁴ In this scenario, principles of offensive non-mutual issue preclusion would not bind the second inventive party to the judgment in the first litigation, however, one can imagine the burden placed on the court systems if this wait-and-see-approach was frequently adopted.

So what does the Canadian experience promise for the American future? Though discussion of patent harmonization and the effects of first-to-file on small entity inventors until later, a short summary is appropriate to understand what changes may be expected. Among the potential costs associated with the transition are that a first-to-file system creates a race to the patent office, which is an obvious advantage for larger companies having greater financial resources, and that the rush to file will encourage poorly drafted and premature applications with thinly-researched, ill-conceived inventions that have little chance of success in the marketplace.⁸⁵ Potential benefits include reduced transaction costs for the inventor in different jurisdictions as a result of worldwide conformity in patent systems and drastically reduced interference litigation, which consequently would lower patent procurement costs and increase predictability for the inventor.⁸⁶

originating abroad, U.S. inventors will be more mindful in commencing patent procurement by filing early.

80. Coster, *supra* note 20, at 7.

81. ROGER T. HUGHES & JOHN HOWARD WOODLEY, HUGHES AND WOODLEY ON PATENTS 617 (1984).

82. Coster, *supra* note 20, at 8. “Perfecting” an invention is a term of art that describes the process of translating an invention from its conception to a reduction to practice.

83. See Robert A. Wilkes, *The Canadian Viewpoint: A New Perspective Bridging the First-to-Invent and First-to-File Worlds*, 18 AIPLA Q.J. 18, 41 (1990).

84. *Id.*

85. Coster, *supra* note 20, at 10.

86. *Id.* at 10–11.

IV. CONSEQUENCES OF THE AIA

Given that property rights undoubtedly played a part in early American patent statute formation,⁸⁷ a fundamental difference, based on property rights, lies between proponents of the first-to-file system and those championing the first-to-invent system. In *Pierson v. Post*,⁸⁸ which dealt with a hunter's claim to property rights in wild game, the court debated whether some rights should vest in the hunter who was merely in pursuit of the animal.⁸⁹ Eventually, however, the court decided that only those who exhibit control over the animal may acquire property rights.⁹⁰ Essentially, the court adhered to the principle of "first in time, first in right." Patent rights play out in a similar fashion in that they award first in time rights to the first inventor.⁹¹ The difference, and really the critical aspect in the debate between first-to-file and first-to-invent backers, is how the system distinguishes the first inventor from others who seek to claim the same invention. This Section will attempt to clarify the distinctions and use this clarification as a basis for discussions of patent harmonization and effects on small entity inventors.

A. The debate between first-to-file and first-to-invent

Ever since Congress signed the AIA into law, and indeed, even well beforehand,⁹² there has been much debate on the merits of the new first-to-file provision. One of the primary arguments against the old first-to-invent system is that the invention date is usually a very ambiguous and uncertain line of demarcation for attaining patent rights.⁹³ Often, invention date ambiguity is intentional, as claims—the legal description of the invention as opposed to the specification, which is a more detailed and comprehensive disclosure in a patent application of the subject matter—are deliberately written in sufficiently broad and vague language that does not provide clear notice to the public of the scope of patent rights.⁹⁴ While the effect does serve to "preserve sufficient maneuverability for future litigation,"⁹⁵ it does not further the purpose behind the intent of the first-to-invent clause, which was to encourage technological innovation as a way of

87. Schaffner, *supra* note 31, at 1103.

88. *Pierson v. Post*, 3 Cai. 175 (N.Y. Sup. Ct. 1805).

89. *Id.* at 177.

90. *Id.* at 179.

91. Dennis D. Crouch, *Is Novelty Obsolete? Chronicling the Irrelevance of the Invention Date in U.S. Patent Law*, 16 MICH. TELECOMM. & TECH. L. REV. 53, 54 (2009).

92. See, e.g., Robert A. Armitage, *Reform Of The Law On Interference: A New Role For An Ancient Institution In The Context Of A First-To-File System*, 64 J. PAT. & TRADEMARK OFF. SOC'Y 663 (1982) (discussing an alternate proposal for statutory amendments created by the APLA Interference Committee).

93. Crouch, *supra* note 91, at 61 n.28.

94. JAMES BESSEN & MICHAEL J. MEURER, *PATENT FAILURE: HOW JUDGES, BUREAUCRATS, AND LAWYERS PUT INNOVATORS AT RISK* 46 (2008).

95. Thomas Chen, Note, *Patent Claim Construction: An Appeal for Chevron Deference*, 94 VA. L. REV. 1, 1177–78 (2008).

circumventing the patent rights of others.⁹⁶ The goal of patent rights should not be to further solely the inventor's interest at the expense of his competitors. Also, granting patents for inventions where the waters are so muddy with respect to its invention date stifles innovation because the threat of a costly and time-consuming litigation process for a "fuzzy" patent hinders technological development. Further complicating matters is that the USPTO—the governing body which regulates grants of patent rights—does not require disclosures of invention date, conception, or reduction to practice,⁹⁷ presumably because as a practical matter, patent examiners view the filing date as the date of invention, unless the inventor provides evidence otherwise.⁹⁸ Proponents of the new first-to-file system argue that tying patent rights to an application's filing date is a simple and effective way to clarify the procurement process because it incentivizes competitors to file sooner to establish a bright-line notice that would continue until the invention falls into the public domain.⁹⁹

Private industry—particularly large corporations with ample financial resources—have welcomed the change, stating that the new provision will promote transparency, objectiveness, predictability, and stability.¹⁰⁰ However, it is not surprising that large corporations would react this way, given that their financial clout allows them to inundate the USPTO with applications and that the previous first-to-invent system forced their hand into costly litigation. Even with the invention date governing priority, the USPTO still examined applications and granted patents on, essentially, a first-to-file basis.¹⁰¹ The courts, however, forced litigants battling in priority wars to provide evidence of the invention date, even though in many cases, inventors were unable to pinpoint their legally determinative date of invention.¹⁰² From large corporations' perspective, the objectiveness of a filing date would enhance predictability by eliminating fact-intensive discovery processes and thereby focusing on legal standards, rather than factual inquiries.¹⁰³ Large companies are some of the select actors in the patent community capable of bearing the brunt of the financial burden, and the official change to the first-to-file system would eliminate the uncertainty of litigation, especially given the complexities of a jury trial.¹⁰⁴

96. Burk & Lemley, *supra* note 23, at 1576–77.

97. Crouch, *supra* note 91, at 61.

98. This raises an interesting question in that because patent examiners are in effect relying on application filing date as a target date when searching for prior art, will the jump from this *pseudo*-first-to-file system to an actual first-to-file system really have an effect on patent examination. See Griffith v. Kanamaru, 816 F.2d 624, 626 (Fed. Cir. 1987) (discussing the reasonable diligence standard in establishing a prior invention date by showing an earlier date of conception and subsequent reduction to practice).

99. Crouch, *supra* note 91, at 61–62.

100. Armitage, *supra* note 2, at 2.

101. Griffith, 816 F.2d at 626–27.

102. Crouch, *supra* note 91, at 62.

103. Armitage, *supra* note 2.

104. See Nilay Patel, *Apple vs. Samsung: Inside a Jury's Nightmare*, THE VERGE (Aug. 23,

Detractors of the first-to-file provision argue the exact counterpoint: the first-to-file system will *create* “massive uncertainty” while achieving “trivial predictability.”¹⁰⁵ One thought is that because filing date is determinative of priority, rushed filings for all but the largest companies would result in sparsely detailed disclosures.¹⁰⁶ As a result, because disclosures are the driving force behind the breadth of patent scope, first-to-file would effectively strip inventors of sufficiently broad patent protection.¹⁰⁷ While there is a harmony between both sides of the debate—that broadly defined patents will gradually decrease—there is disagreement on what effect this reduction in broad disclosures will have: a respite from the complexities of litigation¹⁰⁸ or the stifling of commercialization for important technological advances.¹⁰⁹

Reverting back to the societal goals of the patent system, there needs to be a balance between the inventor’s interest in commercializing his exclusive rights to the invention and the public’s interest in technological advancement by way of innovation. The law cannot give preference to one societal goal at the expense of the other, because each goal is part of an important checks and balances arrangement that maintains patent system integrity. Here, broad patent scope so greatly harms the public’s interest of technological innovation that commercialization by the inventor does not justify the means. This harm can be shown by looking at the recent patent dispute between Apple Computer and Samsung Electronics where a jury awarded Apple more than \$1 billion in damages for Samsung’s infringement of three utility patents and four design patents.¹¹⁰ The court asked the jury to evaluate countless and highly technical documents regarding not only the patents themselves, but also financial spreadsheets detailing sales and profits. Both sets of documents varied greatly depending on whether Apple or Samsung prepared them.¹¹¹ As one commentator summarized the jury

2012, 10:31 AM), <http://www.theverge.com/2012/8/23/3260463/apple-samsung-jury-verdict-form-nightmare>. This article underscores the risk involved with litigation—the jury having to read and understand the patent claims and determining damages. Both are seemingly arbitrary tasks given the probability that no jury member has an engineering or legal background to understand the importance of each patentable feature or how the weight of the verdict may have a crippling effect on the loser of the trial.

105. F. Scott Kieff, *File First, Invent Later?: The America Invents Act Turns the Patent System into a Lottery*, DEFINING IDEAS (June 13, 2011), <http://www.hoover.org/publications/defining-ideas/article/82096> (arguing that the AIA’s “quick fix” to the relatively minor number of interferences ultimately cause more problems than good).

106. *Id.*

107. *Id.*

108. *See* Patel, *supra* note 104 (detailing the overwhelmingly complex issues for a jury in a recent case between Apple and Samsung).

109. *See* Kieff, *supra* note 105 (arguing that a coordinated effort of certain large companies supported this change to increase their standing and decrease competition from smaller companies).

110. Nick Wingfield, *Jury Gives Apple Decisive Victory In A Patents Case*, N.Y. TIMES, Aug. 25, 2012, http://www.nytimes.com/2012/08/25/technology/jury-reaches-decision-in-apple-samsung-patent-trial.html?_r=0.

111. Patel, *supra* note 104.

deliberation in this case:

It's more likely to come down to gut-feel approximations. If the jury fully buys into Apple's narrative that Samsung was in the business of copying, musters up the strength to connect enough of the dots between infringement and damages, and doesn't invalidate any of the patents, it's certainly possible to arrive at an amount approaching Apple's request of over \$2.5 billion.

On the other hand, if Samsung has convinced the jury that it engaged in good old fashioned American competition, or if they accept Samsung's damages numbers, or if they have decided to invalidate any of Apple's patents, that multi-billion dollar damage award could move significantly southward. It's like a high stakes game of Jenga: a small decision by the jury could drastically change the final number, or it could have no real effect at all.¹¹²

This infringement case highlights the high-stakes risk involved with going to trial and asking a jury without any real technological background to reach a billion-dollar verdict. Here, the risk came at the cost of technological innovation for Samsung. To put the damages number into perspective, the \$1 billion represents almost 10% of Samsung's research and development budget for 2012¹¹³ and a huge dent into reinvestment for novel innovations. This litigation is an excellent case study on evaluating the need for balance between inventor commercialization and innovative advancement. Let us consider the premise that novelty is at least partially correlated with financial investment into research and development. This assertion is undeniably buoyed by looking to IBM, which annually invests over \$6 billion in research and as of 2011 had led the annual list of patent recipients for a nineteenth consecutive year. If we accept this premise, then Apple's patents may be considered unduly broad, given that they allocate among the lowest sum totals of financial resources to technical research among large technology companies—about \$2.4 billion in 2010.¹¹⁴ Samsung, in comparison, matched IBM's \$6 billion figure by a 2009 account and doubled its estimates to \$11.9 billion for 2012.¹¹⁵ As a result, for 2011, Samsung ranked second—behind IBM—for patents procured by assignee with almost 5,000 issuances, which was more than seven times that of Apple.¹¹⁶

The question arises as to why Apple is rewarded: providing true innovation or using its financial clout to obtain a few overly broad claims. Is innovation being encouraged as competitors strive to “invent around” exclusive rights to invention or does litigation beget more litigation? Sadly, this is not the first time Apple has

112. *Id.*

113. Jason Mick, *Samsung to Invest ~\$42B USD in 2012 – Mostly on Chipmaking, OLED TVs*, DAILYTECH (Jan. 17, 2012, 8:34 PM), <http://www.dailytech.com/Samsung+to+Invest+42B+USD+in+2012++Mostly+on+Chipmaking+OLED+TVs/article23796.htm>.

114. *Id.*

115. *Id.*

116. *IFI CLAIMS® 2011 Top 50 US Patent Assignees*, IFI CLAIMS, http://ificlaims.com/index.php?page=misc_Top_50_2011 (last visited Mar. 6, 2014).

been accused of using overly broad patent claims to gain legal traction against its competitors¹¹⁷ and most probably will not be the last.¹¹⁸ Because courts allow juries, who have questionable understanding of the pertinent subject matter, to determine suits and recoveries for patents with unreasonably broad scope, the money which might have been used as a reinvestment into technical creativity is being siphoned to cover legal expenses.

B. Patent Harmonization

Another major goal of the AIA—aside from creating litigation certainty by curbing grants of overly broad patent claims—was to harmonize the U.S. patent system with its foreign counterparts. In essence, changing to a first-to-file system signifies a switch from a U.S.-centric to a more global-centric patent system that fosters business innovation in a global economy.¹¹⁹ Proponents argue that while there have been prior successes of developing an international patent system,¹²⁰ the significance of aligning the U.S. patent system with the international community through the AIA could have lasting effects in “boost[ing] trade and open[ing] markets.”¹²¹ Eventually, this change may lead to a single, worldwide patent application for establishing priority.¹²²

Patent harmonization would reduce the costs to U.S. inventors of obtaining and defending international patents because of better worldwide enforcement efforts and simplified international procedures.¹²³ Presumably, having to adhere to only one set of substantive and procedural rules would greatly simplify enforcement in different jurisdictions. This argument for harmonization assumes,

117. See Steve Lohr, *Apple-Samsung Case Shows Smartphone as Legal Magnet*, N.Y. TIMES, Aug. 25, 2012, http://www.nytimes.com/2012/08/26/technology/apple-samsung-case-shows-smartphone-as-lawsuit-magnet.html?_r=0 (citing a case between Apple and Motorola handled by Judge Richard Posner which was dismissed by the Seventh Circuit).

118. *Id.* (describing the potential lawsuits between Apple and other users of Google's Android smartphone operating system including: Google, Microsoft, Nokia, HTC, and Motorola).

119. David J. Kappos, *Patent Law Harmonization: The Time Is Now*, 3 LANDSLIDE 16, 18 (2011).

120. *Id.* at 17 (highlighting previous agreements of the Patent Cooperation Treaty, the World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights, and the Patent Law Treaty).

121. *Id.* at 18.

122. Max Stul Oppenheimer, *Harmonization Through Condemnation: Is New London the Key to World Patent Harmony?*, 40 VAND. J. TRANSNAT'L L. 445, 464 (2007) (citing Sean T. Carnathan, *Patent Priority Disputes—A Proposed Re-Definition of “First-to-Invent,”* 49 ALA. L. REV. 755, 794 (1998)) (“[B]y bringing the U.S. system into harmonization with the rest of the world, the United States would [] garner concessions from the World Intellectual Property Organization (WIPO) when negotiating other aspects of international intellectual property law”). Despite the many benefits of patent harmonization, this proposal appears to be the furthest from actually occurring because, as Oppenheimer later mentions, each member country of WIPO has different standards of patentability—for example, what constitutes patentable subject matter. *Id.* at 467.

123. Vito J. DeBari, Comment, *International Harmonization of Patent Law: A Proposed Solution to the United States' First-to-file Debate*, 16 FORDHAM INT'L L.J. 687, 710 (1993).

of course, that “a judgment of validity in one country might be given either *res judicata* or collateral estoppel effect in other countries. Such a judgment might be given at least a strong presumption of validity.”¹²⁴ Thus, the first-to-file provision creates certainty both domestically and abroad.

A third argument favoring the switch to a first-to-file system is that even under the old first-to-invent system, designed to provide an avenue for contesting inventorship, disputes were rare. In fact, the numbers are staggering considering that “[m]ore than 99.9% of the patent applications that are [] filed in the United States raise no dispute as to the identity of the inventor.”¹²⁵ USPTO statistics support this assertion. The number of filed utility patent applications since 1998 has approximately doubled to surge to over 500,000 in 2011.¹²⁶ Meanwhile, interference proceedings have averaged eighty-six declared cases year-over-year in that same time period.¹²⁷ Therefore, because the first-to-invent system requires inventors to divulge their invention date only when an interference is declared and contested,¹²⁸ and there are so few interference proceedings relative to the number of patent filings, it would appear that date of invention is relevant in name only.

Opponents argue that the rush to secure a priority date would result in a large influx of patent applications having a lower standard of quality¹²⁹ and with limited experimental data or support.¹³⁰ As a result, there would be a corresponding “detrimental effect on future scientific development.”¹³¹ However, while this assertion is definitely a potential side effect of the first-to-file system, it is questionable whether there would be any discernible difference in the quality of the patents *granted* due to the already built-in safeguard of the enablement requirement under the first paragraph of section 112.¹³² This provision is especially

124. Charles R.B. Macedo, *First-to-File: Is American Adoption of the International Standard in Patent Law Worth the Price?*, 1988 COLUM. BUS. L. REV. 543, 581–82 (1988).

125. DeBari, *supra* note 123, at 707.

126. *U.S. Patent Statistics, Calendar Years 1963-2011*, USPTO, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.pdf (last visited Nov. 10, 2012).

127. *See BPAI Statistics – Process Production Reports*, USPTO, <http://www.uspto.gov/ip/boards/bpai/stats/process/index.jsp> (last visited Nov. 10, 2012). Average was tabulated by determining the number of interference cases declared in each fiscal year over the years 1998-2011 using individual process production reports.

128. Oppenheimer, *supra* note 122, at 466 n.107.

129. Macedo, *supra* note 124, at 573 n.155 (comparing the experience in Japan, which also relies on a first-to-file patent system, where disclosures applications are nothing more than “scraps of papers written by the inventors and submitted for a priority date” with the “American practice [that] has provisions which provide applicants with ample time”).

130. Oppenheimer, *supra* note 122, at 469 n.120 (citing MAURICE H. KLITZMANN, PATENT INTERFERENCE LAW AND PRAC. XXIV (1984)).

131. Macedo, *supra* note 124, at 573.

132. 35 U.S.C. §§ 101, 112(a). The pertinent portion of section 101 requires the invention to be *useful* while the relevant section of 112(a) requires that the specification contain “a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same.”

important and remains intact under the AIA; its purpose is “to ensure that the invention is communicated to the interested public in a meaningful way.”¹³³ Insufficient enabling disclosure could render a claim invalid.¹³⁴ Though not usually litigated, the courts have examined the issue of enablement as recently as 2000 and have reiterated that “[t]o satisfy the enablement requirement of § 112, ¶ 1, a patent application must adequately disclose the claimed invention so as to enable a person skilled in the art to practice the invention at the time the application was filed without undue experimentation.”¹³⁵ Thus, applications having insufficient detail would be unable to satisfy the burdens imposed by section 112 and would theoretically never make it past the point of examination, let alone pass to issuance. The case study of Canada supports this conclusion because Canada did not have a significant change in patent quality due to the 1989 Canadian law change from the first-to-invent to a first-to-file.¹³⁶

C. *First-to-File Impact on Small Entity Inventors*

The second, and more important, argument is how the first-to-file provision will affect start-up companies and small businesses. At the heart of the debate between those who favor the first-to-file provision and those who oppose it is the effect it will have on the garage inventor. Aside from the romantic notions that small businesses eventually will develop into the next General Electric, Hewlett-Packard, or Apple Computer,¹³⁷ small businesses are important for what they represent about the economy and employment. The U.S. Small Business Administration estimates that small businesses—defined as having 500 or fewer employees—account for forty-three percent of all high-technology employment.¹³⁸ More importantly, patents obtained by small tech firms tend to outperform their larger firm counterparts in a number of innovation indicators including patent originality, patent generality, and citation impact.¹³⁹ Reports have also shown that smaller tech companies tend to specialize in high-growth industries, such as biotechnology, pharmaceuticals, information technology, and semiconductors.

133. MPEP, *supra* note 11, § 2164.

134. *Id.*

135. In re Schwartz, 232 F.3d 862, 863 (Fed. Cir. 2000). Factors to consider in determining “undue experimentation” include: the breadth of the claims, the nature of the invention, the state of the prior art, the level of one of ordinary skill, the level of predictability in the art, the amount of direction provided by the inventor, the existence of working examples, and the quantity of experimentation needed to make or use the invention based on the content of the disclosure. In re Wands, 858 F.2d 731, 737 (Fed. Cir. 1988).

136. David S. Abrams & R. Polk Wagner, *Poisoning the Next Apple? The America Invents Act and Individual Inventors*, 65 STAN. L. REV. 517, 562 (2013).

137. *Id.* at 518–19.

138. *Frequently Asked Questions About Small Business*, U.S. SMALL BUS. ASS'N OFFICE OF ADVOCACY 1 (Sept. 2012), available at <http://www.sba.gov/sites/default/files/FINAL%20FAQ%202012%20Sept%202012%20web.pdf>.

139. Anthony Breitzman & Diana Hicks, *An Analysis of Small Business Patents by Industry and Firm Size*, U.S. SMALL BUS. ASS'N, at i (Nov. 2008), <http://archive.sba.gov/advo/research/rs335tot.pdf>.

Unsurprisingly, they are more likely than larger tech companies to *develop* emerging technologies.¹⁴⁰ Furthermore, a study, focused specifically on biotechnology start-ups, determined that the breadth of patent protection may significantly influence a company's economic valuation.¹⁴¹ In other words, while broad patent scope is important to companies of all sizes, especially with respect to litigation, it appears that breadth is particularly crucial for smaller companies considering that they file far fewer applications than their larger company counterparts.¹⁴² Therefore, an individual application constitutes a larger portion of a smaller company's patent portfolio.

This small business consideration, then, sets the table for the discussion worth having: whether the first-to-file provision is a positive or negative change for small entities. Certainly, both sides would accept the premise that small businesses play an integral role in the American economy and that it is important to protect their interests under U.S. patent laws as a means to encourage disclosure of their technical ingenuity and for the betterment of public knowledge.

The answer to the effects of the first-to-file system begins with an analysis once again of the Canadian patent system. Canada was among the last countries to officially switch to a first-to-file system in 1989, at the time leaving only the United States and the Philippines as jurisdictions adhering to first-to-invent.¹⁴³ A study, charting the number of patent grants from 1984 to mid-1989 and from after the conversion to 1994, showed that Canada reported a sharp decrease in the average number of grants per month, from approximately 1700 to less than 1000, indicating a decline in innovative activity.¹⁴⁴ The real test, however, is in determining whether the decline in innovative activity correlates with a corresponding decrease in grants from inventions attributed to small entity inventors. Looking at individual inventors specifically, this data shows that prior to 1989 small entity inventors received 10.7% of all patent grants versus 7.8% in the years subsequent—a decline of 25%.¹⁴⁵

While this decline in patent grants to small entity inventors was a statistically

140. *Id.*

141. Joshua Lerner, *The Importance of Patent Scope: An Empirical Analysis*, 25 RAND J. ECON. 319, 319–20 (1994).

142. Breitzman & Hicks, *supra* note 139, at iii–iv (demonstrating the disparity by comparing IBM, a company having over 395,000 employees and almost 35,000 patents for the period between 1997 and 2008, with the average small firm, having an average of 143 employees).

143. Coster, *supra* note 20, at 2.

144. Abrams & Wagner, *supra* note 136, at 544–45.

145. *Id.* at 546–47. U.S. patent grants for individual inventors over the same time period decreased from 17.4% of all patent grants to 16.5%, a decrease of about 5%. *Id.* However, the control in this experiment was that between 1984 and 1994, the United States was still a first-to-invent nation. The continuity of its status as a first-to-invent jurisdiction reflects the marginal, if even statistically relevant, drop-off by less than 1%. In other words, in those ten years, there was no major impetus that would explain a large drop-off or rise in the number of patent grants to individual inventors and the data bears this conclusion. Canada *does* have an explanation to justify its decrease of 25%—the change from a first-to-invent to a first-to-file system.

significant response to the Canadian change from a first-to-invent to first-to-file system,¹⁴⁶ it remains unclear whether the decrease in patent grants is due to a corresponding decrease in innovation among small inventors.¹⁴⁷ One theory is that smaller inventors have fewer resources to allocate to patents.¹⁴⁸ In this sense, larger applicants laying claim to the same invention as a smaller entity might use their financial and legal clout to expedite their filing, thereby giving them priority. However, this concern might be moot in the United States given that the new, post-AIA system will retain the disclosure grace period, a component lacking in the Canadian system as it switched to first-to-file.¹⁴⁹ As a result, individuals and smaller firms have an incentive to disclose their inventions publicly without fear that someone will steal their idea.¹⁵⁰

Furthermore, because the AIA eliminates “conception,” “possession,” and diligence in reducing to practice—only the *filing* date, i.e. constructive reduction to practice, is relevant—provisional applications under the first-to-file system are more advantageous than those under the first-to-invent system because small entities can use the disclosure grace period to attract necessary financing.¹⁵¹ Under the first-to-invent system, inventors lose the conception priority date if they use the twelve-month disclosure period towards securing financing for the conceived invention, but do not work diligently towards reducing the invention to practice.¹⁵²

In addition, the AIA created a new class of entity—the micro-entity—which entitles the smallest entities, including individual inventors and early-stage start-up companies, to pay one-quarter the usual fees associated with patent prosecution,¹⁵³

146. *Id.* at 551.

147. *Id.* at 560, 563.

148. *Id.* at 560.

149. Harv. L. Rev. Ass'n, *Patent Law—Patentable Subject Matter—Leahy-Smith America Invents Act Revises U.S. Patent Law Regime.— Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (To be Codified in Scattered Sections of 35 U.S.C.)*, 125 HARV. L. REV. 1290, 1295 (2012).

150. *Id.*

151. DeBari, *supra* note 123, at 712. A provisional application is a patent application which establishes a filing dated of a presumably subsequent *non-provisional* application, the non-provisional being required to be filed within twelve months of the provisional. To establish a filing date, the provisional application is required to contain a written description and any necessary drawings, but no claims. 35 U.S.C. § 111(b) (2011). Therefore, the provisional is not subject to a formal examination inquiry. MPEP, *supra* note 11, § 601.

152. MPEP, *supra* note 11, § 601(c)(2)(iii).

153. William Ahmann & Tenaya Rodewald, *Patent Reform: The Impact on Start-Ups*, 24 INTEL. PROP. & TECH. L.J. 3, 8–9 (2012). Under section 10(g) of the AIA, micro-entities are defined as those applicants who: (1) qualify as a small entity; (2) have not been named as an inventor on more than four previously filed patent applications; (3) did not, in the calendar year preceding the calendar year in which the applicable fee is paid, have a gross income exceeding three times the median household income; and (4) have not assigned, granted, or conveyed (and are not obligated to do so) a license or other ownership interest in the application concerned to an entity that, in the calendar year preceding the calendar year in which the applicable fee is paid, had a gross income exceeding three times the median household income. Changes To Implement Micro-Entity Status for Paying Patent Fees, 77 Fed. Reg. 75019, 75019 (Dec. 19, 2012) (to be

thereby reducing the financial burden. Prior to the change, applicants paid at least one-half of the patent procurement fees.

In practicality, this “rush to the patent office” theory does not truly change the best practice of early patent filing. Under the old patent filing system, interference proceedings were used to determine which of the conflicting inventors was the first to invent, however even in these situations, “[a]t least 75 percent of all interferences . . . [were] decided in favor of the first to file.”¹⁵⁴ Given the skewed statistics favoring the senior party, interferences under the pre-AIA system provided adequate notice to both parties about the likely outcome and stressed early filing in much the same manner as the new system formalizes.

Another theory is that the decline in patent grants does not correlate completely with innovation because small entities may have chosen alternative means to protect their intellectual property, i.e. through trade secrets and first-mover advantage.¹⁵⁵ Because of their lack of resources or due to the nature of their innovation, these alternative means may be less financially burdensome than the patent application process while still providing a sufficient means of protection. Trade secrets offer two advantages over patent protection, especially if the inventor views the first-to-file rule as unfairly tilted in favor of well-financed companies or that it increasingly creates a lotto system for patent procurement.¹⁵⁶ First, trade secrets protect small entities against large corporations and foreign inventors from copying the invention once it is published.¹⁵⁷ Also, inventors can retain financial flexibility by allocating capital into research and development and keeping minor improvements as trade secrets rather than using that capital to patent the minor improvements to previous inventions.¹⁵⁸

A third interpretation is that smaller entities may be acquired by, or merge with larger companies such that the smaller company’s assets—including the

codified at 37 C.F.R. pt. 1).

154. *Id.* at 2. In an interference proceeding, the party who filed first is commonly referred to as the “senior party.” *Id.*

155. Abrams & Wagner, *supra* note 136, at 559–62. Trade secrets are any information, including a formula, pattern, compilation, program, device, method, technique or process, that: (1) derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use; and (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy. UNIF. TRADE SECRETS ACT § 1 (1985). Furthermore, a first-mover firm is one that initially occupies a significant portion of a market segment and is able to gain control of resources that followers may not be able to capture. First-mover advantages may result from: (1) technological leadership, (2) preemption of assets, and (3) buyer switching costs. Marvin B. Lieberman & David B. Montgomery, First-Mover Advantages 2 (Oct. 1987) (Strategic Mgmt. Program at Stan. Bus. Sch., Research Paper No. 969), *available at* <https://gsbapps.stanford.edu/researchpapers/library/rp969.pdf>.

156. Abrams & Wagner, *supra* note 136, at 560.

157. Anneliese M. Seifert, *Will the United States Take the Plunge into Global Patent Law Harmonization? A Discussion of the United States' Past, Present, and Future Harmonization Efforts*, 6 MARQ. INTEL. PROP. L. REV. 173, 191 (2002).

158. *Id.* at 192.

patent portfolio—are assigned to the larger parent company. In other words, under a first-to-file regime, any previously filed applications, initially assigned to the small entity, would be the parent company's inventions after the acquisition.¹⁵⁹ The push for mergers and acquisitions is especially prevalent in the technology industry, where larger companies are flush with capital and the pace of innovation is ever increasing.¹⁶⁰ With billions in available cash reserves, companies such as Google, Microsoft, Cisco Systems, and Apple were poised to surpass the \$200 billion mark in volume sales dedicated to mergers and acquisitions.¹⁶¹ The high degree of spending provides an indication that large companies are relying on the smaller and innovative niche companies as a means to buy growth in a targeted area of the industry and essentially the value that a smaller entity brings to the purchasing company lies in the strength of its patents. For example, in response to forecasts of emerging growth in the internet data storage, mobile, and cloud technologies, computing giant Hewlett-Packard secured a deal to purchase Autonomy Corporation for \$10.3 billion, business-management software leader SAP AG agreed to buy SuccessFactors Inc. for \$3.4 billion, and Microsoft took over Skype Technologies for \$8.5 billion.¹⁶² These examples show that the decrease in patent grants to small entities may not be due to a corresponding decrease in innovation, but rather, because larger companies are acquiring smaller inventors to fill holes in their patent portfolio in a target technology. Patents and their financial valuations are now driving mergers and acquisitions.¹⁶³

There are multiple explanations for the decrease in patent grants to small entities: smaller inventors have fewer resources to allocate to patents; small entities may have chosen alternative means to protect their intellectual property; small entities are subject to mergers and acquisitions by larger companies. Nonetheless, there is still no definitive answer that the first-to-file provision would necessarily harm innovation to small businesses and start-up ventures.

V. CONSTITUTIONALITY OF THE FIRST-TO-FILE PROVISION

The constitutionality of the first-to-file provision addresses a second key aspect in the discussion of the transition. Though this Comment has, until this point, discussed what the effects might be in the switch from the first-to-invent to the first-to-file system by using the patent law of other countries as a guide, the question still remains as to whether the provision passes constitutional muster. The constitutionality question appears to be more than merely an academic one,

159. See Abrams & Wagner, *supra* note 136, at 560 (discussing how individual investors are joining firms).

160. Serena Saitto, *Big Year for Tech Mergers*, BUSINESSWEEK (Feb. 6, 2012), <http://www.businessweek.com/technology/big-year-for-tech-mergers-02062012.html>.

161. *Id.*

162. *Id.*

163. Evelyn M. Rusli, *Quest for Patents Brings New Focus in Tech Deals*, N.Y. TIMES (Aug. 16, 2011, 9:31 PM), <http://dealbook.nytimes.com/2011/08/16/quest-for-patents-brings-new-focus-in-tech-deals/>.

because the first challenge to the first-to-file provision is already in the courts.¹⁶⁴ An understanding of this issue begins with looking at the possible interpretive limits of the Intellectual Property Clause,¹⁶⁵ followed by investigating any other parts of the Constitution that Congress may rely on to uphold the first-to-file provision. This background will provide a clear picture when finally looking at the case study of *Madstad Eng'g v. U.S. Patent & Trademark Office*,¹⁶⁶ a recent constitutional challenge to the first-to-file system.

A. Interpretation of the Intellectual Property Clause

The Intellectual Property Clause¹⁶⁷ is the focal point of the debate regarding the first-to-file provision's constitutionality. Under the constitutional analysis, we seek answers to two questions: (1) whether the Intellectual Property Clause allows the first-to-file provision explicitly, and if not, (2) does the Intellectual Property Clause explicitly forbid the first-to-file provision?¹⁶⁸ If it allows first-to-file, then no further analysis is required because Congress may lean on language in the Constitution as authorization for the change. "If the Intellectual Property Clause forbids first-to-file, then either a coequal source of power must be found or the Constitution must be amended."¹⁶⁹ However, if the Intellectual Property Clause neither explicitly allows nor dismisses it, then Congress must utilize another portion of the Constitution as justification for the switch.¹⁷⁰

The question of constitutionality under the Intellectual Property Clause hinges on understanding whether the term "inventor" actually denotes the first-to-invent. For example, if interpreted as "*the* inventor" instead of "*an* inventor," then patent rights of exclusivity must be reserved to the inventor *who was the first to invent*.¹⁷¹ As a result, this consequence would bar Congress from attempting to redefine "inventor" as one who first files a patent application,¹⁷² thereby implicitly forbidding the first-to-file provision under the Intellectual Property Clause. However, if given latitude to broadly interpret the term "inventor," then Congress

164. *Madstad Eng'g v. USPTO*, 2013 U.S. Dist. LEXIS 90270, at *1 (M.D. Fla. May 8, 2013).

165. U.S. CONST. art. I, § 8, cl. 8.

166. *Madstad Eng'g*, 2013 U.S. Dist. LEXIS 90270.

167. U.S. CONST. art. I, § 8, cl. 8.

168. Oppenheimer, *supra* note 122, at 471.

169. *Id.* Scholars have suggested that the Treaty Power, found in Art. II and stating that the President has the "[p]ower, by and with the Advice and Consent of the Senate, to make Treaties, provided two thirds of the Senators present concur," might be used by the Executive and supported by the Legislative to circumvent the Intellectual Property Clause. Timothy R. Holbrook, *The Treaty Power and the Patent Clause: Are There Limits on the United States' Ability to Harmonize?*, 22 CARDOZO ARTS & ENT. L.J. 1, 3–4 (2004).

170. See Oppenheimer, *supra* note 122, at 482 (stating that the Commerce Clause might be an alternate source of power to establish a first-to-file patent system).

171. Holbrook, *supra* note 169, at 6 (emphasis added).

172. Jane C. Ginsburg, *No "Sweat?" Copyright and Other Protection of Works of Information After Feist v. Rural Telephone*, 92 COLUM. L. REV. 338, 376 n.180 (1992).

may attempt to define it as first-to-file so long as their legislation “best effectuates the constitutional aim.”¹⁷³ This interpretive consideration is important because it determines whether the clause sets the inner or outer limits of federal power.¹⁷⁴

In general, the Supreme Court has afforded Congress non-constrictive authority to broadly interpret the Patent Clause,¹⁷⁵ going so far as to say that “Congress is better situated than is the Court not only to make the policy determination of what constitutes the progress of knowledge but to judge what means best achieve that goal.”¹⁷⁶ Thus, patent legislation which furthers this purpose must be considered constitutional. In the seminal case, *Graham v. John Deere Co. of Kan. City*,¹⁷⁷ the Court stated:

Within the scope established by the Constitution, Congress may set out conditions and tests for patentability [and that i]t is the duty of the Commissioner of Patents and of the courts in the administration of the patent system to give effect to the constitutional standard by appropriate application, in each case, of the statutory scheme of the Congress.¹⁷⁸

Note, that the *Graham* Court did not provide any specific guidance on the means by which the “constitutional standard” must be achieved. Rather, *Graham* left the details to Congress on how to “promote the Progress of . . . useful Arts” and thereby took a sufficiently broad approach to the definition of “inventor” and left open the possibility of the first-to-file provision. Going back even further, the *McClurg* Court took an even firmer stance on the powers of Congress when it stated that “the powers of Congress to legislate upon the subject of patents is plenary by the terms of the Constitution, and as there are no restraints on its exercise, there can be no limitation of their right to modify them at their pleasure.”¹⁷⁹ Because of this deference to the legislature, the judiciary has traditionally hesitated to define “inventor.”¹⁸⁰ The judiciary, however, does provide litigants, in the post-AIA era, guidance on how courts should proceed when handling any constitutional challenges. Scholars concur that given the interpretation whereby “inventor” is only meant to represent the “true inventor”

173. *Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 6 (1966).

174. Oppenheimer, *supra* note 122, at 471.

175. Holbrook, *supra* note 169, at 7.

176. Ginsburg, *supra* note 172, at 378 (“[W]hile the Court may ultimately determine what the constitutional language means, its review should defer to Congress’ evaluation of what activities make one an ‘inventor’ . . . because it is by giving content to these terms that Congress effectuates the constitutional policy of promoting knowledge.”).

177. *Graham*, 383 U.S. at 1.

178. *Id.* at 6. The *Graham* Court laid out its interpretation of the Intellectual Property Clause by identifying the limitation imposed by its language. Congress shall not: overreach the restraints imposed by the stated constitutional purpose; enlarge the patent monopoly without regard to the innovation, advancement, or social benefit gained thereby; authorize the issuance of patents whose effects remove existent knowledge from the public domain, or restrict free access to materials already available. This is the *standard* expressed in the Constitution, and it may not be ignored. *Id.* at 6–7.

179. *McClurg v. Kingsland*, 42 U.S. 202, 206 (1843).

180. Holbrook, *supra* note 169, at 8.

and not the more narrow “first and true inventor,” the first-to-file system would likely survive a constitutional challenge.¹⁸¹

There is, however, a strong opposing view, rooted in historical perspective, which believes that the language of the Patent Clause constrains Congress’s legislative power.¹⁸² In fact, early judicial precedent and statute seem to agree that patent rights must be reserved only to the first and true inventor and therefore, this suggests that “there is no previously recognized constitutional basis for interpreting [the Patent Clause] as enabling a first-to-file patent system in the United States.”¹⁸³ Moreover, because American patent law is based on the old English Statutes of Monopolies,¹⁸⁴ which restricted patents only to the “true and first inventor or inventors” of “new manufactures,”¹⁸⁵ even though the Patent Clause makes no explicit mention of the first and true inventor, this concept was undoubtedly part of the contemporary lexicology of the term “inventor” by 1787, when the Patent Clause was first proposed.¹⁸⁶

In a deeper analysis of historical perspective, Professors Heald and Sherry argue against the constitutionality of a first-to-file system under the Intellectual Property Clause by describing principles which might have guided the authors of the Clause.¹⁸⁷ Each principle highlights the framers intent to use the Intellectual Property Clause to absolutely constrain Congress’s legislative power. The most pertinent principle supporting the first-to-invent system is the Authorship Principle, which states that Congress may only initially grant exclusive rights to those who provide the public with the *new creation*.¹⁸⁸ In other words, “[w]hen Congress grants exclusive rights, it must be buying the American public a new creation.”¹⁸⁹ The Authorship Principle supports the idea of first-to-invent because

181. Macedo, *supra* note 124, at 566.

182. Oppenheimer, *supra* note 122, at 481–84.

183. *Id.* at 481; *see also id.* at 477 n. 169–71 (providing examples of judicial decisions and language from the original Patent Act of 1790 which favor the rights of the first and true inventor).

184. Macedo, *supra* note 124, at 561–62.

185. Statute of Monopolies of 1623, 1923, 21 Jac. 1, c. 3, § 6 (Eng.).

186. Macedo, *supra* note 124, at 562–63.

187. Paul J. Heald & Suzanna Sherry, *Implied Limits on the Legislative Power: The Intellectual Property Clause as an Absolute Constraint on Congress*, 2000 U. ILL. L. REV. 1119, 1195–96 (2000).

188. *Id.* at 1164–65. The Authorship Principle, pertaining to copyrights, is analogous to the Inventorship Principle, with two exceptions. The Inventorship Principle contemplates loose notions of inventorship when providing protection to “those who are the first to isolate a natural substance in such a way that ‘it [becomes] . . . a new thing commercially and therapeutically,’” even though “products of nature” or mere “discoveries” themselves are not patentable. Patent law until recently excluded evidence of foreign inventive activity in priority contests over new inventions, thereby favoring American inventors who might not have been the first to conceive a particular invention. *Id.*

189. *Id.* at 1164. The phrase “buying the American public a new creation” ties into another principle stated by the authors: the Quid Pro Quo Principle, which states that in exchange for a grant of exclusive rights, inventor must give the public something it did not have before, i.e. something new. *Id.* at 1162.

only the first and true inventor can be responsible for some *new* advance in the useful arts. Therefore, under this principle, if another inventor is the first-to-file, but the second to invent, even though his disclosure first brings the creation to the public, he still fails to provide the public with the new creation and should not be given patent rights.¹⁹⁰

Though opponents of this historical argument point to the lack of an interference procedure in the original Patent Act of 1790¹⁹¹ as an example of Congress giving the Patent Office dominion to grant patents to inventors who were not the first and true inventors,¹⁹² it appears that this omission was an oversight rather than a deliberate grant of authority. The issue of priority stems from a 1791 dispute concerning four separate inventors all laying claim to an invention contemplating steam navigation.¹⁹³ Prior to the implementation of the 1793 Patent Act, which incorporated the earliest interference proceedings,¹⁹⁴ a “Patent Board” of examiners handled priority disputes. In response to this particular dispute, one these examiners—Attorney General Edmund Randolph—suggested awarding priority to the first applicant.¹⁹⁵ When the Board as a whole rejected this suggestion it “effectively forced itself to consider evidence of the date of invention and, thereby, to adopt a first-to-invent rule.”¹⁹⁶

As is shown by this analysis, multiple conclusions can be drawn based on how the term “inventor” should be interpreted—with original meaning forming the basis for proponents of the first-to-file patent system.¹⁹⁷ But regardless, it appears that because of the Court’s unwillingness to thrust its own definition of “inventor” into the discussion, a long precedent of deference to the legislature will likely overcome a constitutional challenge under the Intellectual Property Clause.

190. *But see* Gayler v. Wilder, 51 U.S. (10 How.) 477 (1850) (stating that if a prior invention has not been made available to the public, then it is like it has never been discovered); Macedo, *supra* note 124, at 577 (stating that tradition has led Americans to assume that the first-to-invent system is most fair even though there is no evidence to believe that it more fair than the first-to-file system).

191. *See generally* Patent Act of 1790, ch. 7, §§ 1–7, 1 Stat. 109 (illustrating how the Act does not contain an interference procedure).

192. Macedo, *supra* note 124, at 563.

193. Martin, *supra* note 64, at 456.

194. *Id.* at 459–60.

195. *Id.* at 457.

196. *Id.* at 458. In an interesting conclusion to the matter, all four inventors accepted lesser patents by narrowing the scope of their claims to only the specific embodiments each had themselves reduced to practice. *Id.*

197. *See* Jack M. Balkin, *Framework Originalism and the Living Constitution*, 103 NW. U. L. REV. 549, 552 (2009) (defining “original meaning” as the semantic content of the words in the clause, i.e. preserving the original meaning of words to uphold the Constitution’s legal meaning over time, as required by the rule of law). Originalism, the author argues, “set[s] up a basic structure for government, making politics possible, and creating a framework for future constitutional construction” while living constitutionalism is a theory of constitutional construction that explains why and to what extent constitutional change is democratically possible. *Id.* at 549–50.

B. Alternatives to the Intellectual Property Clause

In the event that the Intellectual Property Clause is not insufficient to uphold the first-to-file provision in a constitutional challenge, Congress may point to other portions of the Constitution to lean on for the necessary power: the Treaty Power and the Commerce Clause.

1. The Treaty Power

The use of the Treaty Power¹⁹⁸ as an alternative to the Intellectual Property Clause for enforcing the first-to-file provision rests on the premise that harmonization of the American patent system is authorized not by the U.S. federal government, but rather an international agreement creating supranational patent rights.¹⁹⁹ The reason for this bilateral approach to law creation is that treaties involve benefits and costs to the participating parties, meaning that policy considerations from both countries must be contemplated.²⁰⁰ Using treaties as a pretense, if patent harmonization was a subject in a proposed treaty between the United States and foreign nations, the executive would have jurisdiction to implement the treaty upon receipt of a supermajority of the Senate and without intervention from the states.²⁰¹ Furthermore, once a treaty is established, it is extremely difficult to find unconstitutional a provision contained therein,²⁰² especially since the Supreme Court clearly places foreign treaties and subsequent U.S. statutes made pursuant to treaties at a high priority.²⁰³

One example of this approach in an intellectual property context, albeit unrelated to patents, is in the recent case of *United States v. Moghadam*,²⁰⁴ which charged the defendant with violating a U.S. statute²⁰⁵ made pursuant to the Trade-

198. Holbrook, *supra* note 169, at 3.

199. *Id.* at 4.

200. *See id.* at 37 (stating that the United States generally considers the quid pro quo rationale as the driving force behind their patent policy legislation while other countries have much broader policy considerations including trade and the potential use of intellectual property as a barrier to free trade).

201. *Id.* at 29 (citing U.S. CONST. art. I, § 10, cl. 3 (“No state shall, without the consent of Congress, . . . enter into any agreement or compact . . . with a foreign power”)).

202. LOUIS HENKIN, FOREIGN AFFAIRS AND THE UNITED STATES CONSTITUTION 185 (Oxford Univ. Press, 2d ed. 1996) (“No provision in any treaty has been held unconstitutional by the Supreme Court”); *see also* Audrey I. Benison, *International Criminal Tribunals: Is There a Substantive Limitation on the Treaty Power?*, 37 STAN. J. INT’L L. 75, 75 (2001) (“In over one hundred years of ruling on the constitutionality of treaties the Supreme Court has maintained a . . . silence as to the proper scope of the treaty power.”).

203. *Mo. v. Holland*, 252 U.S. 416, 432–33 (1920) (“If the treaty is valid, there can be no dispute about the validity of the [subsequent U.S.] statute . . . as a necessary and proper means to execute the powers of the Government Acts of Congress are the supreme law of the land only when made in pursuance of the Constitution, while treaties are declared to be so when made under the authority of the United States.”).

204. 175 F.3d 1269 (11th Cir. 1999), *cert. denied*, 529 U.S. 1036 (2000).

205. 18 U.S.C. § 2319A.

Related Aspects of Intellectual Property Rights treaty.²⁰⁶ The statute, which criminalizes unauthorized recording or distribution of a live musical performance for financial gain, originates under the umbrella of the Intellectual Property Clause despite the fact that the Intellectual Property Clause is limited to “writings” in regard to copyrights.²⁰⁷ The Eleventh Circuit held that while the statute was not *directly* supported under the Intellectual Property Clause, nothing in the Copyright Clause was inconsistent with the directive in the statute.²⁰⁸ Furthermore, Congress did have authority under the Commerce Clause (discussion below).²⁰⁹ What this example demonstrates is the wide latitude the federal courts assign to treaties and that, should a treaty incorporate the first-to-file provision into domestic law, one might expect that the courts would look to other portions of the Constitution before definitively determining the provision’s constitutionality.

Further complicating issues is the question of whether the Treaty Power²¹⁰ is subject to substantive limitations. The expressed language of the Constitution does not appear to place any subject matter limitations on the Executive’s authority to negotiate treaties, except for senatorial consent.²¹¹ In fact, the only apparent limitation of the Treaty Power is that it cannot contravene any affirmative prohibition of the Constitution.²¹² The Intellectual Property Clause does not prevent a first-to-file provision.

2. The Commerce Power

Another section of the Constitution that some suggest as an alternative to the Patent Clause to support the first-to-file provision is the Commerce Clause.²¹³ However, as Professor Max Stul Oppenheimer suggests, the use of the Commerce Clause to evade the limitations, albeit slight, of the Intellectual Property Clause is unlikely for both practical and theoretical reasons if examined through the lens of trademarks.²¹⁴ For example, because the Commerce Clause empowers Congress to regulate interstate commerce, it follows that the Lanham Act has the power to regulate interstate trademarks under the authority of the Commerce Clause.²¹⁵ But

206. Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 108 Stat. 4809, 1869 U.N.T.S. 299.

207. Oppenheimer, *supra* note 122, at 486.

208. *Id.* at 486–87.

209. *Id.* at 486.

210. U.S. CONST. art. II, § 2, cl. 2.

211. Benison, *supra* note 202, at 75 (“[T]he Constitution nowhere identifies what the proper subject of a treaty might be.”).

212. *Id.* at 76.

213. Oppenheimer, *supra* note 122, at 482–83. The Commerce Clause gives Congress the power “[t]o regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes.” U.S. CONST. art. I, § 8, cl. 3.

214. Oppenheimer, *supra* note 122, at 482–83.

215. *Id.* at 482. Federal trademark law is protected by the Lanham Act. 15 U.S.C. §§ 1051–1127 (1946).

because state law also protects trademarks, and trademark actions may be brought in state court,²¹⁶ the Lanham Act cannot act as the *sole* statutory authority in the field, but rather, as a regulatory body under which state trademark law may operate. Therefore, were the regulatory power of the Commerce Clause to be applied analogously to the patent field, it might “leave open the possibility of state patents.”²¹⁷ Obviously, a state-run patent system would be contrary to the powers enumerated in the Constitution that give Congress exclusive authority to grant patents²¹⁸ and therefore not practically implementable.

State grants of patents led to problems under the Articles of Confederation.²¹⁹ Under the Articles of Confederation, a patentee holding a state patent had two options when seeking enforcement in multiple states where infringement had occurred: (1) petition the foreign state where the infringement had occurred for a patent or (2) seek patent protection in only one state but request a prohibition on importation of infringing products and permit confiscation of those already within state lines.²²⁰ The first option was expensive and time consuming, while the second option was weaker and more uncertain.²²¹ Therefore, from both a practical and policy perspective, the Commerce Clause would not work in contravening the limitations to Congress in the Intellectual Property Clause.²²²

C. Case Study: *Madstad Engineering v. USPTO*²²³

Madstad Engineering v. USPTO is the first challenge to the constitutionality of the first-to-file provision. The plaintiff, Madstad Engineering, a classic small entity company employing eight people, seeks an injunction to block the implementation of the first-to-file provision.²²⁴ The company’s founder was a garage inventor, Mark Stadnyk, who developed a novel adjustable windshield system for motorcycles that allowed a rider to avoid wind turbulence at high speeds.²²⁵ The plaintiffs argue that although the first-to-file provision will not be formally implemented until March 2013, the anticipation has already resulted in tangible injury due to increased costs and the “burden of maintaining heightened

216. LYDIA PALLAS LOREN & JOSEPH SCOTT MILLER, *INTELLECTUAL PROPERTY LAW: CASES & MATERIALS* 544 (3d ed. 2012).

217. Oppenheimer, *supra* note 122, at 482.

218. U.S. CONST. art. I, § 8, cl. 8.

219. Martin, *supra* note 64, at 451.

220. *Id.*

221. *Id.*

222. Theodore H. Davis, Jr., *Copying in the Shadow of the Constitution: The Rational Limits of Trade Dress Protection*, 80 MINN. L. REV. 595, 640 (1996) (“Congress cannot override constitutional limitations on its own authority merely by invoking the Commerce Clause.”). *But see* Buckley v. Valeo, 424 U.S. 1, 132 (1976) (“Congress has plenary authority in all areas in which it has substantive legislative jurisdiction, so long as the exercise of that authority does not offend some other constitutional restriction.”) (internal citations omitted).

223. Madstad Eng’g, 2013 U.S. Dist. LEXIS 90270.

224. *Id.* at *1.

225. Steve Lohr, *An Inventor Weighs in on Patents*, N.Y. TIMES, Aug. 27, 2012, at B1.

secrecy around potential inventions until a patent application is filed.”²²⁶ The plaintiffs continue by arguing that the first-to-file approach will discourage innovation among individual inventors, start-ups, and small businesses because they lack the resources to compete with large corporations, which can afford the expenses of multiple applications, maintenance fees, and attracting new sponsors and researchers.²²⁷ Finally, the plaintiffs argue that because the AIA eliminates § 102(f) of the former patent statute,²²⁸ inventorship is not a requirement under § 102 and therefore, “there is no effective statutory requirement that the applicant be an ‘inventor’ for [the] patent to be valid.”²²⁹

Unfortunately, the plaintiff’s complaint is not expected to pass muster to obtain the requested injunction for several reasons. With respect to the argument that the first-to-file system will discourage innovation among small entities, if the Canadian patent law is any guidance, there is no concrete evidence that a decrease in patent grants to small entities post-first-to-file implementation is resultant from a decrease in innovation.²³⁰ Furthermore, the concerns regarding the financial disparity between large corporations and small entities is also unfounded given the AIA’s retention of a disclosure grace period and revamped fee structure. The grace period would not only incentivize early disclosure,²³¹ but also allow ample time to secure additional funding.²³² In addition, the reduced fees associated with newly created micro-entities would further reduce the financial burden.²³³

With respect to the constitutional argument, the plaintiff is once again incorrect in asserting that the AIA lacks statutory provisions requiring inventorship. In their response to the plaintiff’s complaint, the USPTO points to § 101 of the AIA as evidence of restricting the grant of patents to inventors.²³⁴ Section 101 mandates that the named inventor actually invent the claimed subject matter.²³⁵ Therefore, the deletion of § 102(f) does not materially change the requirement of inventorship, especially since “[b]oth the Supreme Court and the Federal Circuit have concluded that § 101—which the AIA retains—is a condition

226. Madstad Eng'g, 2013 U.S. Dist. LEXIS 90270 at *6.

227. Complaint, *supra* note 165, at 2–3.

228. 35 U.S.C. § 102(f) (1952) (“A person shall be entitled to a patent unless . . . he did not himself invent the subject matter sought to be patented.”).

229. Complaint, *supra* note 165, at 5.

230. Abrams & Wagner, *supra* note 136, at 522.

231. Harv. L. Rev. Ass’n, *supra* note 149, at 1295.

232. DeBari, *supra* note 123, at 712.

233. Ahmann & Rodewald, *supra* note 153, at 3.

234. Dennis Crouch, *With 102(f) Eliminated, Is Inventorship Now Codified in 35 U.S.C. 101? Maybe, but not Restrictions on Patenting Obvious Variants of Derived Information*, PATENTLYO (Oct. 4, 2012), <http://www.patentlyo.com/patent/2012/10/with-102f-eliminated-is-inventorship-now-codified-in-35-usc-101.html> [hereinafter Crouch, *102(f) Eliminated*] (quoting the USPTO in their response to the petitioner’s complaint to the Court).

235. 35 U.S.C. § 101 (1952) (“Whoever *invents* or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, *may obtain a patent therefor*, subject to the conditions and requirements of this title.”) (emphasis added).

for patentability and can be used as a defense in an action involving patent infringement and validity.”²³⁶ Not only have the courts approved the USPTO’s argument, but legislative experts on patent reform and Congressional decision-makers have seconded it.²³⁷

So then, how might this challenge realistically play out? Many academics agree that the plaintiff faces long odds for obtaining a favorable ruling,²³⁸ with the effort characterized as “quixotic.”²³⁹ However, being the first challenge to the constitutionality of the first-to-file provision, *Madstad* should set the tone for what future litigants might expect.

IV. CONCLUSION

The AIA, which is the largest Congressional undertaking to modernize the American patent system in the last sixty years,²⁴⁰ has been met with much controversy as a result of its first-to-file provision, which makes determinative a patent application’s filing date, thereby negating any fact finding into which of two competing applicants invented first.²⁴¹ This Comment addressed two major issues. First, using other foreign patent offices as an example, this Comment investigated the possible effects of the first-to-file provision on patent harmonization and small businesses. Second, it considered the constitutionality of the first-to-file provision to understand how the courts might decide any future challenges.

Proponents argue that under the first-to-file system, U.S. patent law will benefit from conforming to international precedent without harming small businesses. One major argument for patent harmonization is that it provides American inventors with certainty in regards to costs and enforcement since only one set of simplified substantive and procedural rules would apply—first-to-file.²⁴² In addition, it is unlikely that the first-to-file provision would have any substantial effect on incorrect assignment of inventorship since disputes of such matters are

236. Crouch, *102(f) Eliminated*, *supra* note 234.

237. 157 CONG. REC. S1496 (daily ed. Mar. 9, 2011) (statement of Sen. Hatch) (“[T]he provisions of subsection 101 limiting patenting to inventors, prevent others from obtaining a patent on the inventor’s creation.”); Matal, *supra* note 3, at 451–52 (“Some may think that, because § 102(f) has been repealed, there is no longer any legal requirement that a patent for an invention be obtained by the inventor. Not so. Both the Constitution and § 101 still specify that a patent may only be obtained by the person who engages in the act of inventing. Indeed, even commentary on the 1952 Patent Act noted, with respect to § 102(f), ‘[t]hat this paragraph is perhaps unnecessary since under § 101 it is ‘[w]hoever invents . . .’ who may obtain a patent and later sections provide that the inventor must apply for the patent and execute an oath of inventorship”’) (internal citations omitted).

238. Lohr, *supra* note 225.

239. Dennis Crouch, *Constitutional Challenge to the First-to-Invent Rule*, PATENTLYO (Aug. 27, 2012), <http://www.patentlyo.com/patent/2012/08/constitutional-challenge-to-the-first-to-invent-rule.html>.

240. SCHLICHER, *supra* note 4.

241. Merges, *supra* note 10, at 5.

242. Macedo, *supra* note 124, at 581.

rare²⁴³ or that there would be any significant deterioration in patent quality.²⁴⁴ Moreover, with respect to small businesses, if transitioning to the first-to-file system in Canada serves as an example, the financial clout of larger firms does not conclusively explain the decrease in patent applications filed by small entities after the switch. Rather, the decrease may be attributed to alternate means of intellectual property protection²⁴⁵ or buyouts by larger companies.²⁴⁶ In addition, the AIA itself has certain built-in protections such as a grace period for filing and a reduced micro-entity fee structure to guard against undercutting the small inventor.²⁴⁷ Finally, a challenge to the constitutionality of the first-to-file clause is unlikely to alter the provision because the Supreme Court has generally granted Congress wide latitude in interpreting the Patent Clause.²⁴⁸ However, even in the event that the Patent Clause does not allow the first-to-file provision, it appears that it may alternatively be enforceable under other sections of the Constitution, such as the Treaty Power²⁴⁹ (as explained above, the Commerce Power may not be relied upon to overcome the limitations of the Patent Clause²⁵⁰).

Therefore, the first-to-file system under the revised U.S. patent law of the AIA is a positive step forward in harmonizing the American patent system with international standards. It accomplishes this harmonization while maintaining the integrity of small business innovation and remaining in line with constitutional requirements.

243. DeBari, *supra* note 123, at 707.

244. Abrams & Wagner, *supra* note 136, at 522.

245. *Id.* at 560.

246. *Id.* at 560–61.

247. Harv. L. Rev. Ass'n, *supra* note 149, at 1295; Ahmann & Rodewald, *supra* note 153, at 3.

248. Oppenheimer, *supra* note 122, at 480.

249. Holbrook, *supra* note 169, at 3–4.

250. Davis, *supra* note 222, at 640.