
AFTER *CHRISTIANSON*: FEDERAL JURISDICTION OVER INVENTORSHIP DISPUTES ABOUT PATENT APPLICATIONS

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*Federal courts of appeals are split over whether district courts have subject matter jurisdiction over inventorship disputes about patent applications. The Federal Circuit and Fifth and Sixth Circuits agree that the patent statute provides a private right of action for correcting the inventorship of issued patents but not of pending applications. The Federal Circuit and its regional sister courts disagree, however, about whether an inventorship dispute about a patent application satisfies 28 U.S.C. § 1338 under *Christianson v. Colt Industries and its progeny*. The dispute is nontrivial because, unlike a dismissal for failure to state a claim, a dismissal for lack of subject-matter jurisdiction permits a district court to remand an inventorship dispute to state court. And, because this is a jurisdictional dispute, Federal Circuit precedent is not controlling where it disagrees with its regional sister courts. After examining a case study about inventorship disputes and patent applications, this Note reviews law on inventorship disputes, the law on “arising under” jurisdiction, and the circuit split. It then analyzes that split, and, ultimately, it concludes that the Federal Circuit was essentially correct that inventorship disputes about patent applications arise under the patent statute, but should be dismissed for failure to state a claim upon which relief can be granted. This Note recommends that the Supreme Court should overrule the Fifth and Sixth Circuits and that courts should replace the evidentiary standard for inventorship disputes about patents—clear-and-convincing evidence—with a preponderance standard. Changing the evidentiary standard would comport with the America Invents Act’s revisions to inventorship correction and provide a safety valve for inventorship disputes over patent applications for which a diligent, good-faith plaintiff lacks a remedy and must wait until the USPTO issues the patent to obtain relief.*

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I. INTRODUCTION

A. A Case Study: DuPont v. Okuley

Edible oil is big business. From potato chips to rotisserie chicken to mayonnaise to sandwich bread, Americans individually use about fifty-five pounds of plant-based edible oils per year. In the mid-1990s, the United States annually consumed 660,000 tons of corn oil worth \$350 million and 6.5 million tons of soybean oil worth \$3.5 billion.¹ During that period, American farmers annually spent \$6 billion on seeds, of which corn and soy accounted for \$2 billion.² One of the two largest domestic seed producers by market share (corn, soy) was DuPont/Pioneer (44.9%, 22%).³ In 1999, E.I. Du Pont de Nemours & Co. (“DuPont”) acquired Pioneer Hi-Bred International Inc. (“Pioneer”) for \$7.7 billion, establish-

1. EPA, ECONOMIC IMPACT ANALYSIS FOR THE FINAL VEGETABLE OIL PROCESSING NESHAP: FINAL REPORT 2-5, 2-7 (2001) (stating 1995 statistics for domestic consumption in short tons and for price in cents per pound of vegetable oil). These figures do not include solids remaining from oil production that are also valuable commodities. *See id.* at 2-6.

2. ERS, USDA, AGRIC. INFO. BULL. NO. 786, THE SEED INDUSTRY IN U.S. AGRICULTURE: AN EXPLORATION OF DATA AND INFORMATION ON CROP SEED MARKETS, REGULATION, INDUSTRY STRUCTURE, AND RESEARCH AND DEVELOPMENT 7, 10 (2004).

3. *Id.* at 31, 37. The other dominant player was Monsanto/DeKalb/Asgrow (8.6%, 34%). *Id.* These market-share statistics use available data from 1994 to provide a rough comparison with the market revenue for these crop seeds. *Id.* The seed producers’ corporate names represent market consolidations that happened after 1994 (e.g., DuPont acquired a minority stake in Pioneer in 1997 and became the sole owner of Pioneer Hi-Bred International in 1999). *Id.* at 33-34; *see infra* text accompanying note 4. The inventorship litigation that culminated in the Sixth Circuit’s 2003 opinion *E.I. Du Pont de Nemours & Co. v. Okuley* began with events in 1991. *See infra* text accompanying notes 7-37.

ing it as the “dominant power in the rapidly growing crop-biotech industry.”⁴ DuPont’s “scientists . . . probably had the most success at genetically altering the nutritional attributes of crops,” and DuPont gained “the world’s biggest proprietary seed bank” and “global seed sales force” by buying Pioneer.⁵ With earnings of \$4.7 billion on \$45 billion revenue, DuPont said biotechnology would likely drive one-third of its future earnings across its divisions.⁶

One of DuPont’s successes came from the work of a molecular biologist named John Joseph Okuley, who discovered the Fatty Acid Desaturase 2 (“FAD2”) gene and fought DuPont for the patent rights.⁷ In November, 1991, Okuley became a post-doctoral researcher in the lab of John Browse, a biochemist at Washington State University (“WSU”).⁸ Browse studied fatty acid synthesis using *Arabidopsis thaliana*, a small, flowering plant related to mustard.⁹ Browse’s lab and WSU were parties to a collaboration agreement with DuPont: the company would provide genetically tagged *Arabidopsis* strains to study; the lab would identify and copy genes that encode the enzyme desaturase and create polyunsaturated fatty acids in oil seeds; and the lab would assign its patent rights to DuPont.¹⁰ The goal was to eventually develop safe seed crops with superior ratios of desirable to undesirable fats that would be commercially successful.¹¹

Okuley’s breakthrough built on the lab’s successes and failures. Browse cloned the FAD3 gene, and DuPont submitted a patent application for it in 1991.¹² When Okuley joined the lab, lab member Jonathan Lightner told him about a promising *Arabidopsis* strain that had frustrated lab members looking for the FAD2 gene.¹³ Within a year, Okuley transferred to The Ohio State University (“OSU”), and Browse obtained permission from DuPont for Okuley to continue working on the plant

4. Steven Lipin et al., *DuPont Agrees to Purchase of Seed Firm for \$7.7 Billion*, WALL ST. J. (Mar. 15, 1999, 5:45 PM), <http://www.wsj.com/articles/SB921268716949898331>. Two years earlier, DuPont acquired a 20% stake in Pioneer for \$1.7 billion and created an agricultural biotechnology research partnership. *DuPont to Invest \$1.7 Billion in Pioneer Hi-Bred*, N.Y. TIMES (Aug. 8, 1997), <http://www.nytimes.com/1997/08/08/business/dupont-to-invest-1.7-billion-in-pioneer-hi-bred.html>.

5. Lipin et al., *supra* note 4.

6. E.I. Du Pont de Nemours & Co., Annual Report (Form 10-K) Ex. 13-1 (Mar. 23, 1998).

7. E.I. Du Pont de Nemours & Co. v. Okuley, No. C2-97-1205, 2000 WL 1911430, at *1–7 (S.D. Ohio Dec. 21, 2000), *aff’d*, 344 F.3d 578 (6th Cir. 2003).

8. *Id.* at *1–3.

9. *Id.* at *1–2; John Okuley et al., *Arabidopsis FAD2 Gene Encodes the Enzyme That Is Essential for Polyunsaturated Lipid Synthesis*, 6 PLANT CELL 147, 149 (1994) [hereinafter *FAD2 Gene*]. *Arabidopsis* is related to mustard, and its properties, including a “relatively small nuclear genome,” make it suitable for plant biotechnology research. Arabidopsis Genome Initiative, *Analysis of the Genome Sequence of the Flowering Plant Arabidopsis Thaliana*, 408 NATURE 796, 796, 802 (2000).

10. Okuley, 2000 WL 1911430, at *1–2; see *FAD2 Gene*, *supra* note 9, at 147.

11. *FAD2 Gene*, *supra* note 9, at 155; Emily Waltz, *Food Firms Test Fry Pioneer’s Trans Fat-Free Soybean Oil*, 28 NATURE BIOTECH. 769, 769–70 (2010).

12. Okuley, 2000 WL 1911430, at *2; Fatty Acid Desaturase Genes from Plants, U.S. Patent Application Serial No. 07/804,259 (filed Dec. 4, 1991); U.S. Patent No. 5,952,544 (filed Aug. 26, 1994) (issued Sept. 14, 1999) (claiming priority, as a continuation, to the ‘259 application).

13. Okuley, 2000 WL 1911430, at *3.

material.¹⁴ Okuley isolated and cloned the FAD2 gene in August, 1992 and notified Browse; Okuley confirmed Browse's discovery by partially sequencing the gene in September.¹⁵

DuPont verified Okuley's work and moved to protect and expand their intellectual-property rights. In October, the company sequenced the FAD2 gene fully for *Arabidopsis* and newly for soy and canola.¹⁶ On November 17, 1992, DuPont filed U.S. Patent Application Serial No. 07/977,339.¹⁷ At first, the application named two DuPont scientists as inventors: Jonathan Lightner and Narendra Yadav.¹⁸ After some quarrelling with DuPont's legal team, DuPont amended the application in 1993, replacing Yadav with Okuley.¹⁹ Lightner and Okuley assigned their rights to the '339 application to DuPont in May, 1993.²⁰ In October, 1993, DuPont filed Patent Cooperation Treaty ("PCT") Application No. PCT/US93/09987²¹ as a step toward worldwide patent protection.²² The PCT application named Lightner and Okuley as inventors and newly applied the FAD2 research to corn and castor.²³

Things began to unravel when the named inventors had to execute new assignments due to the addition of new patentable subject matter,

14. *Id.* at *3-4.

15. *Id.* at *4.

16. *Id.*

17. U.S. Patent Application Serial No. 07/977,339 (filed Nov. 17, 1992) [hereinafter '339 As Filed Application], <https://register.epo.org/application?number=EP93924360&tab=doclist> (select "26.05.1994 Priority Document").

18. *Okuley*, 2000 WL 1911430, at *4.

19. *Id.* at *4 & n.3 ("On June 23, 1993, Bruce Morrissey filed an amendment to the original patent application adding Okuley's name and deleting Yadav's name.").

20. See U.S. PAT. & TRADEMARK OFFICE, PATENT ASSIGNMENT, ABSTRACT OF TITLES FOR U.S. PATENT NO. 07/977,339, <http://portal.uspto.gov/pair/PublicPair> (search "Application Number" 07/977,339; then select "Assignments" tab) (listing the Assignment of Assignors Interest from Jonathan Edward Lightner to E.I. Du Pont de Nemours and Company in Reel/Frame 006573/0036); U.S. PAT. & TRADEMARK OFFICE, PATENT ASSIGNMENT ABSTRACT OF TITLE FOR U.S. PATENT NO. 07/977,339, <http://portal.uspto.gov/pair/PublicPair> (search "Application Number" 07/977,339; then select "Assignments" tab) (listing the Assignment of Assignors Interest from John Joseph Okuley to E.I. Du Pont de Nemours and Company in Reel/Frame 006570/0988).

21. *Okuley*, 2000 WL 1911430, at *5. The district court used DuPont's patent-prosecution docket number 1043A to identify the initial continuation-in-part application. *Id.* This corresponds to DuPont's application under the Patent Cooperation Treaty ("PCT"). PCT Application Serial No. PCT/US1993/009987, at [111] (filed Oct. 15, 1993) [hereinafter '987 PCT Application] ("REFERENCE/DOCKET NUMBER: BB-1043-A.").

22. PCT applications "provide a single set of standards and procedures for the filing of patent applications on the same invention in any of the over ninety PCT member countries." Revision of Patent Cooperation Treaty Application Procedure, 63 Fed. Reg. 66040, 66041 (Dec. 1, 1998) (to be codified at 37 C.F.R. pt. 1). PCT applications, however, do not displace the "theories and laws of patentability . . . and examination practices [that] vary from country to country." *AIA Eng'g Ltd. v. Magotteaux Int'l S/A*, 657 F.3d 1264, 1279 (Fed. Cir. 2011) (quoting *Heidelberger Druckmaschinen AG v. Hontscho Commercial Prods., Inc.*, 21 F.3d 1068, 1072 n.2 (Fed. Cir. 1994)). They also do not represent enforceable patent rights apart from the national phase applications prosecuted in each country. Rajiv Patel, *FAQ on International Patent Strategy and Execution*, FENWICK & WEST 4 (2009), https://www.fenwick.com/FenwickDocuments/2009-02-05_FAQ_international_patent.pdf.

23. *Okuley*, 2000 WL 1911430, at *5.

corn and castor, in the PCT application.²⁴ “Lightner promptly executed his,” but “Okuley did not.”²⁵ Okuley instead amended the assignment DuPont sent him, unbeknownst to DuPont, to say DuPont would provide consideration via a reasonable royalty to him and to omit his duty to assign any derivative patent applications to DuPont.²⁶

DuPont learned that Okuley modified the PCT application’s assignment in 1994. The company asked Okuley to assign his rights to U.S. Application Serial No. 08/262,401, derived from the PCT application; and Okuley asked for royalties pursuant to the prior assignment.²⁷ Their minds did not meet.

On November 3, 1997, DuPont sued in the Southern District of Ohio for a declaratory judgment that Okuley retained no right to the invention and for his specific performance to assign his rights to DuPont given his obligations under his first assignment to DuPont, his contract with WSU, and common law.²⁸

Okuley counterclaimed that his first assignment was invalid, DuPont had no interest in the invention because WSU’s contract with Okuley did not apply to his work at OSU, that WSU forfeited any ownership interest, and that he was the sole inventor of the ‘339 and ‘401 U.S. applications, the ‘987 PCT application, and U.S. Application Serial No. 09/133,962 that was filed in 1998 and matured into U.S. Patent No. 6,372,965 in 2002.²⁹

24. *Id.* at *5 & n.5. The ‘987 PCT application claimed priority as a continuation-in-part (CIP) to the ‘339 U.S. application. ‘987 PCT Application, at [60] (“Related by Continuation US 07/977,339 (CIP).”). An assignment of a parent application is ineffective for a child application that claims priority to the parent as a CIP. U.S. PAT. & TRADEMARK OFFICE, MPEP § 306 (9th ed. Rev. 7, Oct. 2015). Among other uses, a CIP application expands the scope of an invention beyond the parent application’s disclosure without the original patent becoming “prior art against” the “common subject matter” in the parent and CIP child. *Santarus, Inc. v. Par Pharm., Inc.*, 694 F.3d 1344, 1360–62 (Fed. Cir. 2012) (Newman, J., dissenting) (citations omitted). The *Santarus* court, however, treated the parent application as prior art against the CIP child because the appellant waived the argument on appeal. *Id.* at 1352 (majority opinion).

25. *Okuley*, 2000 WL 1911430, at *5.

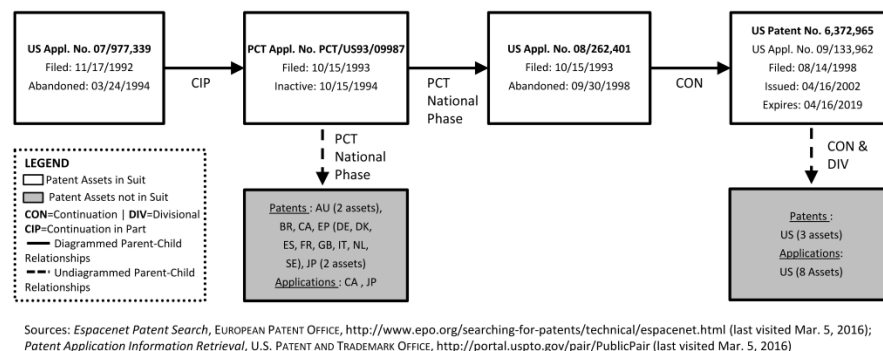
26. *Id.* at *6; *see also*, U.S. PAT. & TRADEMARK OFFICE, PATENT ASSIGNMENT ABSTRACT OF TITLE FOR U.S. PATENT NO. 08/262,401, <http://portal.uspto.gov/pair/PublicPair> (search “Application Number” 08/262,401; then select “Assignments” tab) (listing John J. Okuley as a named inventor but no assignment from him to DuPont for the U.S. national phase application).

27. *Okuley*, 2000 WL 1911430, at *6.

28. *Id.*

29. *Id.* at *7. The district court examined Okuley’s claim to the original application (1043) and its children with patent prosecution docket numbers 1043A, 1043B, and 1043D. *Id.* at *5–7. These correspond to the ‘339, ‘401, and ‘962 U.S. applications and ‘987 PCT application. *See also* Petition for Writ of Certiorari, *Okuley v. E.I. Du Pont de Nemours & Co.*, 541 U.S. 1027 (2004) (No. 03-1208), 2004 WL 349907, at *5, *4 n.1, *13 n.3. *But see* Brief in Opposition, *Okuley v. E.I. Du Pont de Nemours & Co.*, 541 U.S. 1027 (2004) (No. 03-1208), 2004 WL 632793, at *10 n.4.

FIGURE 1: PATENT FAMILY IN *E.I. DU PONT V. OKULEY*: GENES FOR MICROSOMAL DELTA-12 FATTY ACID DESATURASES AND RELATED ENZYMES FROM PLANTS (LIGHTNER, OKULEY)



On cross motions for summary judgment, the court granted DuPont's motion and denied Okuley's motion.³⁰ The Sixth Circuit affirmed and the Supreme Court denied *certiorari*.³¹

Despite losing in court, Okuley's story has a happy ending. He retired from a short but meaningful career as a molecular biologist to become a member of the Ohio bar and a patent lawyer.³² Moreover, his invention of the cDNA coding³³ for FAD2 in *Arabidopsis* and other plants was eventually recognized as pioneering. The '987 application received over 250 'forward citations'³⁴ in patents and patent applications filed by

30. *Okuley*, 2000 WL 1911430, at *27.

31. *E.I. Du Pont de Nemours & Co. v. Okuley*, 344 F.3d 578 (6th Cir. 2003), *cert. denied*, 541 U.S. 1027 (2004).

32. *John J. Okuley, Ph.D.*, OKULEYSMITH LLC, <http://okuleysmith.com/attorneys/john-j-okuley-phd.html> (last visited April 4, 2017).

33. The Supreme Court recently held, in *Ass'n for Molecular Pathology v. Myriad Genetics*, 133 S. Ct. 2107, 2115–19 (2013), that unmodified DNA is a "product of nature" and not patent eligible under 35 U.S.C. § 101 (2012). The Court, however, held that cDNA (complementary DNA) is patent eligible because the scientist "unquestionably creates something new" by removing "non-coding regions" from the DNA strand. *Id.* at 2119. Thus, the FAD2 patents claim cDNA and chimeric genes are still valid respecting patentable subject matter. *See, e.g.*, U.S. Patent No. 6,372,965 cols. 103–104 (filed Aug. 14, 1998).

34. When patent publications (*e.g.*, patents and patent applications) discuss relevant art or technology, they commonly cite other patents publications. These citations are called "forward citations" despite being retrospective. Third-party patents and applications are those which lack the same inventors or assignees as the cited patent publication. *See* Colleen V. Chien, *Predicting Patent Litigation*, 90 TEX. L. REV. 283, 308 (2011–2012). Some scholars argue, however, that self-citations are a significant predictor of litigation and patent value because, for example, self-citations may indicate which assets in a patent portfolio a company decides are commercially valuable and worth developing further. John R. Allison et al., *Valuable Patents*, 92 GEO. L.J. 435, 454 (2004); Bronwyn H. Hall et al., *Market Value and Patent Citations*, 36 RAND J. ECON. 16, 31–33 (2005). Use of forward citations as a proxy for patent value is widespread but not without critics. On one hand, a high forward citation count is a "statistically significant" predictor that patents have "market value," "are more likely to be litigated," or the invention is "more likely to be commercialized." Chien, *supra*, at 317, 326; Hall et al., *supra*, at 35; Aaron S. Kesselheim & Jerry Avorn, *Using Patent Data to Assess the Value of Pharmaceutical Innovation*, 37 J.L. MED. & ETHICS 176, 177 (2009). Within a patent portfolio, a cluster of substantially higher-cited patents is likely to be more valuable than the remaining less-cited patents though citations are

third-parties (BASF, Monsanto, Abbott, Cargill, Agrigenetics, and Calgene, ranging from 20 to 55 citations each) after the publication of the '987 application; the '965 patent received over 120 forward citations.³⁵ DuPont obtained patent protection based on their PCT application in Australia, Brazil, Canada, Japan, Germany, Denmark, Spain, France, Great Britain, Italy, the Netherlands, and Sweden.³⁶ The PCT application resulted in thirteen U.S. applications, of which four U.S. patents issued including the '965 patent.³⁷

B. *Okuley's Aftermath*

This Note examines the circuit split *DuPont v. Okuley* prompted between the Federal Circuit and the Fifth and Sixth Circuits at the intersection of patent law and civil procedure. The question raised is whether district courts have subject matter jurisdiction over inventorship disputes about patent applications. After sketching the background to this split and analyzing the merits, this Note makes two principal recommendations. First, the Supreme Court should resolve this jurisdictional split by holding that inventorship disputes about patent applications arise under federal patent law, even though the law provides no cause of action. Sec-

"imprecise identifiers" respecting particular patents. Jonathan H. Ashtor, *Redefining "Valuable Patents": Analysis of the Enforcement Value of U.S. Patents*, 18 STAN. TECH. L. REV. 497, 521-22 (2015). On the other hand, high-forward citations may not produce "reliable results" respecting value; they may signal "substitutions" for an invention, and older patents tend to have higher counts than newer patents. David S. Abrams et al., *Patent Value and Citations: Creative Destruction or Strategic Disruption?* 28 (Univ. of Penn. Law Sch., Inst. for Law & Econ., Research Paper No. 13-23, 2014); Ashtor, *supra*, at 505; Alan C. Marco, *Patent Protection, Creative Destruction, and Generic Entry in Pharmaceuticals: Evidence from Patent and Pricing Data* 7 (Vassar College, Dept. of Econ. Working Paper No. 83, 2005), <http://ssrn.com/abstract=945007>.

35. US6372965 B1, GOOGLE, <https://www.google.com/patents/US6372965?dq=6372965&hl#forward-citations> (last visited April 4, 2017); WO1994011516 A1, GOOGLE, <http://www.google.com/patents/WO1994011516A1?cl=3Den#forward-citations> (last visited April 4, 2017).

36. Austl. Patent No. 54075/94 (filed Oct. 15, 1993); Austl. Patent No. 731298 (filed Oct. 15, 1993); Braz. Patent No. PI1101149 (filed Oct. 15, 1993); Can. Patent No. 2149223 (filed Oct. 15, 1993); Eur. Patent No. 0 668 919 (filed Oct. 15, 1993) (obtaining rights in Ger., Den., Spain, Fr., Gr. Brit., It., Neth. & Swed.); Japan Patent No. 3818540 (filed Oct. 15, 1993); Japan Patent No. 4308829 (filed Oct. 15, 1993). These non-U.S. patents have all expired (twenty years from the PCT filing date or Oct. 15, 2013). Due to peculiarities in U.S. law, the four U.S. patents have an earliest effective filing date ("EFD") before June 8, 1995, and will expire between 2019 and 2023 (about seventeen years from their respective issue dates). See *How Do I Figure Out If a US Patent Is Still In Force?*, BROWN & MICHAELS, <http://www.bpmlegal.com/howtoterm.html> (last visited April 4, 2017).

37. U.S. Patent No. 6,372,965 (filed Aug. 14, 1998) (issued Apr. 16, 2002); U.S. Patent No. 6,872,872 (filed Oct. 26, 2000) (issued Mar. 29, 2005); U.S. Patent No. 6,919,466 (filed Apr. 3, 2002) (issued July 19, 2005); U.S. Patent No. 7,105,721 (filed Mar. 28, 2002) (issued Sept. 12, 2006). These patents issued from continuation or divisional applications claiming priority to the PCT national phase application U.S. Application Serial No. 08/262,401 (filed Oct. 15, 1993) and have an EFD of Oct. 15, 1993. The other nine continuation or divisional applications claiming priority to the '401 application are: U.S. Patent Application Serial No. 10/115,364 (filed Apr. 3, 2002); U.S. Patent Application Serial No. 10/115,365 (filed Apr. 3, 2002); U.S. Patent Application Serial No. 11/926,792 (filed Oct. 29, 2007); U.S. Patent Application Serial No. 11/953,108 (filed Dec. 10, 2007); U.S. Patent Application Serial No. 12/508,202 (filed July 23, 2009); U.S. Patent Application Serial No. 12/894,935 (filed Sept. 30, 2010); U.S. Patent Application Serial No. 13/241,879 (filed Sept. 23, 2011); U.S. Patent Application Serial No. 13/241,903 (filed Sept. 23, 2011).

ond, the courts should replace the longstanding evidentiary standard for inventorship disputes about patents—clear and convincing evidence—with a preponderance standard. This comports with the America Invents Act’s revisions to inventorship correction and provides a safety valve for inventorship disputes about patent applications for which a diligent, good faith plaintiff lacks a remedy.

In *Okuley*, the Sixth Circuit affirmed the district court’s secondary holding that the district court “lacked jurisdiction to review the inventorship of an unissued patent [F]ederal courts have not been granted jurisdiction to settle all questions of law.”³⁸ There were two grounds. First, the inventorship correction statutes, 35 U.S.C. §§ 116 & 256, authorize the U.S. Patent & Trademark Office (“USPTO”), but not the district courts, to correct inventorship errors in pending applications.³⁹ Second, citing the Supreme Court in *Christianson v. Colt Industries Operating Corp.*, the Sixth Circuit affirmed that because DuPont’s complaint against Okuley “sounded in contract, not [in] patent law,” that it did not “arise under” the federal patent jurisdiction statute as 28 U.S.C. § 1338 requires.⁴⁰

The Federal Circuit, in *HIF Bio, Inc. v. Yung Shin Pharmaceuticals Industries Co., Ltd.* and the Fifth Circuit in *Camsoft Data Systems, Inc. v. Southern Electric Supply Inc.* agreed that neither § 116 nor § 256 provide a cause of action whereby a court may correct the inventorship of pending applications.⁴¹ They split, however, on whether the Sixth Circuit was correct that an express or implied cause of action was necessary for the court to have subject-matter jurisdiction.⁴² The *HIF Bio* court held that the district court had subject matter jurisdiction, but dismissed the case for failure to state a claim.⁴³ In contrast, the *Camsoft* court dismissed its case for lack of subject matter jurisdiction.⁴⁴

The Federal Circuit’s “exclusive jurisdiction” over appeals “arising under” the patent statute does not resolve the circuit split,⁴⁵ for each circuit court has “inherent power to determine its own jurisdiction” without reference to its sister courts, and the circuits split on whether inventorship disputes about patent applications arise under the patent statute.⁴⁶

38. *E.I. Du Pont de Nemours & Co. v. Oakley*, 344 F.3d 578, 584 (6th Cir. 2013).

39. *Id.* at 583–84.

40. *Okuley*, 344 F.3d at 581–82 (citing *Christianson v. Colt Indus. Operating Corp.*, 486 U.S. 800 (1988)).

41. *Camsoft Data Sys., Inc. v. S. Elecs. Supply, Inc.*, 756 F.3d 327, 334 (5th Cir. 2014); *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co., Ltd.*, 600 F.3d 1347, 1354 (Fed. Cir. 2010); see *Okuley*, 344 F.3d at 583–84.

42. *Camsoft*, 756 F.3d at 336; *HIF Bio*, 600 F.3d at 1354.

43. *HIF Bio*, 600 F.3d at 1354 (dismissing the matter under FED. R. CIV. P. 12(b)(6)).

44. *Camsoft*, 756 F.3d at 336 (dismissing the matter under FED. R. CIV. P. 12(b)(1)).

45. 28 U.S.C. § 1295(a)(1) (2012).

46. *Scherbatskoy v. Halliburton Co.*, 125 F.3d 288, 290–91 (5th Cir. 1997); accord *NeuroRepair, Inc. v. The Nath Law Group*, 781 F.3d 1340, 1342 (Fed. Cir. 2015) (citing *C.R. Bard, Inc. v. Schwartz*, 716 F.2d 874, 878 (Fed. Cir. 1983)).

Hence, federal courts in Louisiana, Mississippi, Texas, Kentucky, Michigan, Ohio, and Tennessee are subject to inconsistent case law on inventorship disputes about patent applications.⁴⁷ For instance, whether to dismiss a case pursuant to Rule 12(b)(1) or 12(b)(6) of the *Federal Rules of Civil Procedure* is a problem for cases removed from state court to district courts in the Fifth and Sixth Circuits. Dismissal for a failure to state a claim (Rule 12(b)(6)) may bar remanding a case or claim to state court, as the *Camsoft* court permitted but the *HIF Bio* court did not, because federal district courts have no discretion to remand to state courts a claim involving a federal question.⁴⁸ Moreover, if federal courts may remand inventorship disputes about patent applications to state courts, then this raises problems of less uniform and knowledgeable development and application of patent law, contrary to congressional intent.⁴⁹ If, however, federal courts may not remand such disputes to state courts but must dismiss them for failure to state a claim, then inventors may “lack a [satisfactory] remedy” for a legally cognizable problem of inventorship errors in patent applications.⁵⁰ Any resolution to the circuit split will need to address these and other problematic outcomes.

This Note resolves the dispute, arguing that the Federal Circuit is essentially correct and that district courts have subject-matter jurisdiction over inventorship disputes about patent applications. Part II provides background on patent law respecting inventorship disputes. Part III provides background on civil procedure respecting patent jurisdiction. Part IV analyzes the circuit split. Part V contends that the three circuit courts’ concise analyses truncate the inquiry that *Christianson* and *Gunn* mandate and blur the distinction between “whether jurisdiction exists” and “whether the complaint states a cause of action.”⁵¹

47. Some courts have followed the Federal Circuit’s opinion in *HIF Bio* and held that remand to state courts is improper for inventorship disputes about patent applications. MD Matrix Health, L.L.C. v. Kasle, No. 4:12-CV-00476, 2012 WL 6161941, at *2–4 (E.D. Tex. Nov. 5, 2012) (Mazzant, Mag.), report and recommendation adopted, No. 4:12CV476, 2012 WL 6161840 (E.D. Tex. Dec. 10, 2012); Halpern v. PeriTec Biosciences, Ltd., No. 1:11CV2055, 2011 WL 5873112, at *2 (N.D. Ohio Nov. 21, 2011); see Saint-Gobain Ceramics & Plastics, Inc. v. Wang, No. CIV. A. 07-40129-FDS, 2008 WL 2756873, at *3–4, 7 (D. Mass. June 27, 2008) (citing the Federal Circuit’s *dicta* in a decision prior to *HIF Bio* that “there is no private right of action under § 116,” collecting authorities on both sides of that debate, and dismissing an inventorship dispute about pending applications for failure to state a claim).

48. *HIF Bio*, 600 F.3d at 1357. See also *Baker v. Kingsley*, 387 F.3d 649, 656–57 (7th Cir. 2004); *Gaming Corp. of Am. v. Dorsey & Whitney*, 88 F.3d 536, 542 (8th Cir. 1996) (citing *In re City of Mobile*, 75 F.3d 605, 607 (11th Cir. 1996)); *Borough of W. Mifflin v. Lancaster*, 45 F.3d 780, 787 (3rd Cir. 1995); *Burks v. Amerada Hess Corp.*, 8 F.3d 301, 304 (5th Cir. 1993) *abrogated on other grounds* by *Giles v. NYLCare Health Plans, Inc.*, 172 F.3d 332, 338 (5th Cir. 1999).

49. See *Univ. of Colo. Found., Inc. v. Am. Cyanamid Co.*, 196 F.3d 1366, 1372 (Fed. Cir. 1999); *Bard*, 716 F.2d at 878; *Brown v. Brown*, No. CV 13–03318 SI, 2013 WL 5947032, at *7 (N.D. Cal. Nov. 5, 2013).

50. See *E.I. Du Pont de Nemours & Co. v. Okuley*, No. C2-97-1205, 2000 WL 1911430, at *11 (S.D. Ohio Dec. 21, 2000), *aff’d*, 344 F.3d 578 (6th Cir. 2003).

51. *Mont-Dakota Utils. Co. v. Nw. Pub. Serv. Co.*, 341 U.S. 246, 249 (1951); *accord* *Arbaugh v. Y & H Corp.*, 546 U.S. 500, 503 (2006); see *Grable & Sons Metal Prods., Inc. v. Darue Eng’g & Mfg.*, 545 U.S. 308, 317 (2005) (“*Merrell Dow* cannot be read whole as overturning decades of precedent . . .

Part VI recommends that the Supreme Court overrule *Okuley* and *Camsoft* respecting subject-matter jurisdiction over patent applications. This Note also recommends that the judiciary, from the district courts up, should overrule the longstanding evidentiary standard of clear and convincing evidence for inventorship disputes about patents. The reasoning is that the America Invents Act (“AIA”) has eliminated inventorship errors as a defense to patent validity. Invalidity has always been the most convincing reason for the heightened standard, and relaxing the standard would avoid prejudicing good-faith claims of inventors who are unable to act in time to dispute an application’s inventorship in the USPTO.

Part VII concludes that the Supreme Court may decline to resolve this split, in part, because of the opportunity cost of addressing more important legal disputes. Thus, this Note argues that while implementing both recommendations would be a complete solution, implementing the change of standard of proof is an adequate solution as long as other federal courts of appeals adopt the *HIF Bio* court’s approach.

II. PATENT LAW: INVENTORSHIP DISPUTES

To orient this Note’s analysis of inventorship disputes, this Part provides background on five patent subjects: (A) patents and patent applications; (B) inventorship; (C) correctional statutes; (D) restraints on inventorship disputes; and (E) inventorship disputes’ infrequency.

A. Patents and Patent Applications

The patent system rewards inventors with property rights if their inventions meet requirements designed to incentivize innovation. The federal government grants U.S. patent holders the right to exclude others from making, selling, or using an invention in the United States, or importing an invention into the United States.⁵² After the USPTO grants a patent application, the federal government issues a patent with a twenty-year term that runs from the date of its filing.⁵³ The claimed invention must satisfy several statutory requirements: novelty, utility, and nonobviousness; patentable subject matter; and enabling disclosure.⁵⁴ An invention may be a fundamental or an incremental improvement over existing technology.⁵⁵ Congress intends these requirements to satisfy its constitutional mandate and several utilitarian goals: promoting innovation and

and converting a federal cause of action from a sufficient condition for federal question jurisdiction into a necessary one.”).

52. 35 U.S.C. § 271(a) (2012); see 1 DONALD S. CHISUM, CHISUM ON PATENTS § OV-1 (online ed. 2016).

53. 35 U.S.C. § 154(a)(2). Patents with an EFD (defined at 35 U.S.C. § 100(i)) before June 8, 1995, have a patent term calculated either twenty years from the EFD or seventeen years from issue. *Id.* § 154(c)(1); 5-16 DONALD S. CHISUM, CHISUM ON PATENTS §§ 16.01, 16.04 (2016).

54. 35 U.S.C. §§ 101–03, 112.

55. *Id.* § 101.

public disclosure of inventions; respecting the public's legitimate reliance interests; and permitting unencumbered use of basic technological building blocks for further innovation.⁵⁶

A patent application is a set of documents filed with the USPTO that initiates a series of exchanges with the government necessary to obtain a patent.⁵⁷ A complete application includes a specification, any necessary diagrams, an inventor's oath or declaration, and the filing fee.⁵⁸ The specification contains a "written description" of the invention and how it is made or used that "enable[s] any person skilled in the art . . . to make and use" the invention.⁵⁹ It concludes with at least one patent claim whose language "delimits" the invention's "subject matter," *i.e.*, it "defines the scope of the patentee's right[]" to exclude.⁶⁰ Until recently, each inventor had to execute an oath or declaration under penalty of perjury for each application that states: the individual's contact details, that he or she made or authorized the patent application, and that the individual "believes himself or herself to be the original inventor or an original joint inventor of a claimed invention in the application."⁶¹ The AIA simplifies this process. An inventor only needs to authorize the application and confirm her inventorship once for an application and any child applications, and the inventor may provide these statements in her original assignment.⁶² Subsequently, the assignee has the authority to apply for patents without further oaths or declarations.⁶³

Upon receipt, the USPTO assigns the application a serial number and enters the filing date.⁶⁴ The patent examiner then initiates exchanges with the applicant's prosecution counsel about whether the application

56. U.S. CONST. art. I, § 8, cl. 8 ("The Congress shall have [p]ower . . . [t]o promote the [p]rogress of [s]cience and useful [a]rts, by securing for limited [t]imes to [a]uthors and [i]nventors the exclusive [r]ight to their respective [w]ritings and [d]iscoveries."); Alan Devlin, *The Misunderstood Function of Disclosure in Patent Law*, 23 HARV. J.L. & TECH. 401, 412–24 (2010); Peter Lee, *The Evolution of Intellectual Infrastructure*, 83 WASH. L. REV. 39, 53–54, 64–68 (2008).

57. 35 U.S.C. § 111.

58. *Id.* § 111(a)(2)–(3); *see also* 37 C.F.R. § 1.53(b) (2015).

59. 35 U.S.C. § 112(a).

60. *Id.* § 112(b); *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996); *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996).

61. 35 U.S.C. § 115(a)–(b), (i).

62. *Id.* § 115; Robert A. Armitage, *Understanding the America Invents Act and Its Implications for Patenting*, 40 AIPLA Q.J. 1, 12, 100–07 (2012); Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part I of II*, 21 FED. CIR. B.J. 435, 492 (2012).

63. Armitage, *supra* note 62, at 94–96, 99; Matal, *supra* note 62, at 492; *see* 35 U.S.C. § 118.

64. 37 C.F.R. § 1.53(a)–(b) (2015); *see also* 35 U.S.C. § 111(a)(4). The USPTO accepts receipt by mail, facsimile, electronic filing, or hand delivery, and the filing date may vary accordingly. 37 C.F.R. § 1.6.

meets the statutory requirements.⁶⁵ If the examiner allows at least one claim⁶⁶ and the applicant pays the issue fee, then a patent will be issued.⁶⁷

65. *Id.* § 1.104; see Michael D. Frakes & Melissa F. Wasserman, *Is the Time Allocated to Review Patent Applications Inducing Examiners to Grant Invalid Patents?: Evidence from Micro-Level Application Data*, REV. ECON. & STAT. (forthcoming), <http://ssrn.com/abstract=2467262> (describing the examination process).

66. 35 U.S.C. § 112 (“The specification shall conclude with one or more claims”); 37 C.F.R. § 1.311.

67. 35 U.S.C. § 151; 37 C.F.R. §§ 1.311, 1.314.

B. *Inventorship*

The patent application process requires an individual “inventor or a joint inventor . . . [to] execute an oath or declaration” that each such individual “believes himself or herself to be the original inventor or an original joint inventor of a claimed invention in the application.”⁶⁸ Inventorship errors fall mainly into two types: nonjoinder (omitted inventors) and misjoinder (spurious inventors).⁶⁹ This Section outlines six concepts necessary to analyze those errors: 1) inventorship; 2) joint inventorship; 3) the inventorship-ownership distinction; 4) the priority contest-originality contest distinction; 5) the effect of inventorship errors on patent value, and 6) inventorship analysis and claim construction.

1. *Inventorship Basics*

Inventorship requires “conception” or “the formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice.”⁷⁰ “Conception is complete only when” the inventor’s idea 1) “include[s] every feature of the claimed invention” and 2) would enable a person of “ordinary skill” in the art to reproduce the invention “without extensive . . . experimentation.”⁷¹ The inventor must be able to articulate “a particular solution to the problem at hand, not just a general goal or research plan he hopes to pursue.”⁷² Uncorroborated testimony from an alleged inventor is insufficient to prove conception, and a court under a “rule of reason,” must consider all relevant evidence: third-party testimony, the inventor’s contemporaneous documents, such as research logs, and circumstantial evidence.⁷³

2. *Joint Inventorship*

Joint inventorship requires a person to “collaborat[e]” with another person to create a “complete and operative invention.”⁷⁴ Joint inventors

68. 35 U.S.C. § 115(a), (b)(2).

69. See *id.* §§ 116(c), 256(b). The language of misjoinder and nonjoinder of inventors appears in section 256 of the Patent Act of 1952, but the 1982 amendments replaced that language with less technical equivalents. 35 U.S.C. § 256 (historical and revision notes) (2012); see also P.J. Federico, *Commentary on the New Patent Act*, 75 J. PAT. & TRADEMARK OFF. SOC’Y 161, 211 (1993).

70. *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227–28 (Fed. Cir. 1994) (quoting *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986)).

71. *Id.* at 1228, 1229–30.

72. *Id.* at 1228.

73. *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1461, 1464 (Fed. Cir. 1998) (listing circumstantial factors, such as the alleged inventor’s training, a business proposal, period of collaboration, unremunerated work, etc.); see, e.g., *Reese v. Hurst*, 661 F.2d 1222, 1240–42 (C.C.P.A. 1981) (holding that a research notebook is contemporaneous documentary evidence corroborating conception, and not just uncorroborated testimony, if its pages are witnessed or circumstantial evidence shows the notebook is contemporaneous); see also *Price v. Symsek*, 988 F.2d 1187, 1195 n.3 (Fed. Cir. 1993) (listing factors for evaluating an alleged inventor’s credibility and degree of corroboration).

74. *Garrett Corp. v. United States*, 422 F.2d 874, 881 (Ct. Cl. 1970).

need not work in physical proximity or concurrently, contribute equally to an invention, or contribute to the same claims in a patent.⁷⁵ A joint inventor's contribution to the mental act of conception, however, must be "not insignificant in quality, when that contribution is measured against the dimension of the full invention."⁷⁶ Joint inventorship does not include ancillary activities, suggesting a research goal (*e.g.*, when Lightner told Okuley about the promising *Arabidopsis* strain),⁷⁷ reducing the invention to practice (*e.g.*, if Okuley hypothetically had given clear, detailed instruction enabling an undergraduate student to be the first person to clone the FAD2 *Arabidopsis* gene),⁷⁸ or "perfecting" an invention (*e.g.*, when DuPont completed sequencing Okuley's partial FAD2 gene sequence for *Arabidopsis*).⁷⁹ As a joint venture's partners may not contribute to the conception of an invention, a joint venture does not entail joint inventorship (though a joint venture may involve express or implied rights to joint ownership).⁸⁰

3. *The Priority Contest-Originality Contest Distinction*

The most widely known feature of the AIA—its shift from a first-to-invent ("FTI") to a first-inventor-to-file ("FITS") system⁸¹—does not affect the originality contests discussed in this subsection but rather priority contests.⁸² Priority contests identify which inventor i) conceived of the invention first and ii) is eligible for a patent when several "independent inventors" filed separate applications claiming the same subject matter.⁸³ Applications with effective filing dates ("EFDs") on or after March 16, 2013, are subject to FITS rules that end priority contests, but priority contests will continue for applications filed prior to that date.⁸⁴ Originality contests determine who is the true inventor where a first party allegedly 1) learned about a partial or complete invention from a second party or 2) collaborated with the second party.⁸⁵

75. 35 U.S.C. § 116(a) (2012); *Ethicon*, 135 F.3d at 1460.

76. *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997).

77. *Garrett*, 422 F.2d at 881.

78. *Ethicon*, 135 F.3d at 1460; *see also* *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1233 (Fed. Cir. 1994) (Lourie, J., concurring in part and dissenting in part) (stating actual or constructive reduction to practice—physically making the invention or filing a patent application, respectively—does not corroborate conception because "[c]orroboration . . . is evidentiary proof that the mental act of invention occurred on a certain date" and "not a demonstration that the conceived invention works"). *But see id.* at 1228–30 (majority opinion) (citing *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1206 (Fed. Cir. 1991)) (stating that conception sometimes requires actual reduction to practice such as in unpredictable fields like chemistry where conception requires knowing the chemical structure and how to make it).

79. *Trovan, Ltd. v. Sokymat SA, Irori*, 299 F.3d 1292, 1302 (Fed. Cir. 2002).

80. *Doukas v. Ballard*, 825 F. Supp. 2d 377, 382 n.4 (E.D.N.Y. 2011).

81. *See* Changes to Implement the First Inventor to File Provisions of the Leahy-Smith America Invents Act, 78 Fed. Reg. 11024 (Feb. 14, 2013) (to be codified at 37 C.F.R. pt. 1).

82. *Sewall v. Walters*, 21 F.3d 411, 415 (Fed. Cir. 1994).

83. *See Applegate v. Scherer*, 332 F.2d 571, 573 n.1 (C.C.P.A. 1964).

84. *See Matal, supra* note 62, at 499–500.

85. *See Applegate*, 332 F.2d at 573 n.1.

4. *The Inventorship-Ownership Distinction*

Inventorship and ownership of patent assets are distinct but related concepts. Inventors are the presumptive owners of a patent application or a resulting patent.⁸⁶ Patents “have the attributes of personal property” such that a patent owner may reassign “all or part” of her “right, title, and interest in” the application or patent.⁸⁷ If several persons are joint inventors of a single invention, then each person has an independent right to assign her patent rights.⁸⁸

5. *Inventorship Disputes and Patent Value*

While unresolved inventorship disputes need not invalidate the bundle of rights granted under a patent, they cloud those rights for two or three reasons. First, a joint inventor who retains her patent rights may veto her co-owners’ lawsuit against infringers under the doctrine of standing or required joinder.⁸⁹ Second, a co-inventor may practice the invention or license or assign her rights without her co-owner’s consent.⁹⁰

Third, inventorship errors may implicate inequitable conduct that renders a patent unenforceable (though the AIA made such claims largely inoperative). While patent applicants owe an “uncompromising . . . duty of candor and good faith” to the USPTO, a patentee’s “deceptive failure” to tell the USPTO who are the true inventors during patent prosecution no longer risks a patent being unenforceable for inequitable conduct⁹¹ or invalid for deceptive nonjoinder.⁹² The AIA deleted “decep-

86. 37 C.F.R. § 3.73(a) (2015).

87. 35 U.S.C. § 261 (2012); 37 C.F.R. §§ 3.1, 3.73(b). Assignees perfect their assigned patent right by recording the assignment within three months with the Patent and Trademark Office. 35 U.S.C. § 261.

88. 35 U.S.C. § 262.

89. *STC.UNM v. Intel Corp.*, 754 F.3d 940, 943–47 (Fed. Cir. 2014), *cert. denied*, 135 S. Ct. 1700 (2015) (holding that the substantive right not to grant a license under 35 U.S.C. § 262 “trumps” the procedural rule of involuntary joinder of necessary parties under FED. R. CIV. P. 19); *STC.UNM v. Intel Corp.*, 767 F.3d 1351, 1352 (Fed. Cir. 2014) (mem.) (denying rehearing and rehearing *en banc*); *see also* *SourceOne Global Partners, LLC v. KGK Synergize, Inc.*, No. 08 C 7403, 2009 WL 1916380, at *3–5 (N.D. Ill. 2009) (Schenkier, Mag.) (collecting authorities).

90. 35 U.S.C. § 262; *Israel Bio-Eng’g Project v. Amgen, Inc.*, 475 F.3d 1256, 1268 (Fed. Cir. 2007); *Schering Corp. v. Roussel-UCLAF SA*, 104 F.3d 341, 344 (Fed. Cir. 1997).

91. *See, e.g., PerSeptive Biosystems, Inc. v. Pharmacia Biotech, Inc.*, 225 F.3d 1315, 1321–23 (Fed. Cir. 2000) (citations omitted) (internal quotation marks omitted) (stating that misrepresenting inventorship renders a patent unenforceable for inequitable conduct if the court finds the patent applicant submitted (1) “intentional falsehoods and omissions” to the USPTO that were (2) material insofar as a “substantial likelihood” exists that “a reasonable examiner would consider it important” to allowing the patent to issue); *Halliburton Co. v. Schlumberger Tech. Corp.*, 925 F.2d 1435, 1439 (Fed. Cir. 1991) (citations omitted) (stating that in inequitable conduct’s two-prong—intentionality and materiality—analysis, strength in one prong may offset weakness in the other).

92. *See, e.g., Pannu v. Iolab Corp.*, 155 F.3d 1344, 1350–51 (Fed. Cir. 1998) (stating that under 35 U.S.C. § 102(f) (pre-AIA), a patent is invalid for deceptive nonjoinder if the court finds 1) “clear and convincing proof that the alleged unnamed inventor was in fact coinventor” and 2) the patent’s assignee cannot correct inventorship under 35 U.S.C. § 256 (pre-AIA) because the nonjoinder involved deceptive intent by the nonjoined inventor).

tive intent[]”⁹³ from the patent statute as a bar⁹⁴ to correcting a patent or patent application for inventorship errors or errors on the oath or declaration form, and the relevant sections bar findings of invalidity based on such corrections.⁹⁵ The deletions became effective at the AIA’s enactment on September 16, 2012.⁹⁶ The remaining risk is from litigation misconduct where parties knowingly misrepresent facts about inventorship to the court.⁹⁷

The purpose of the AIA’s “deceptive intent[]” deletions and related reforms is to focus “invalidity defense[s] . . . [on] the four core issues of sufficient *differentiation, disclosure, definiteness, and concreteness*” and to make “*publicly available* information alone drive[] most patentability determinations.”⁹⁸

6. *Inventorship Analysis and Claim Construction*

Evaluating inventorship is a “highly technical,” two-part inquiry that requires “claim-by-claim” analysis and attention to federal case law and statutes.⁹⁹ First, the court or USPTO looks at the claim’s language to determine the invention’s boundaries that each claim delimits; and second, it compares each alleged inventor’s allegedly inventive activities with those boundaries to establish to which claims, if any, the person contributed.¹⁰⁰ This inquiry implicates the patent statute directly, including: claim interpretation under 35 U.S.C. § 112, originality of conception under § 101 (and § 102(f) for litigation filed before the AIA’s effective date of September, 16, 2012) joint inventorship under § 116, and court orders to correct the named inventors on patents under § 256.¹⁰¹

93. Leahy-Smith America Invents Act, Pub. L. No. 112-29, §§ 20(a)(3)(B), (f)(1)(B), (l), 125 Stat. 284, 333–34 (2011).

94. *Stark v. Advanced Magnetics, Inc.*, 119 F.3d 1551, 1554–56 (Fed. Cir. 1997) (holding that under the pre-AIA patent statute, deceptive intent bars only nonjoinder corrections and not misjoinder corrections).

95. Armitage, *supra* note 62, at 12–13, 108–09; see 35 U.S.C. §§ 115(h)(3), 256, 257(c) (2012); Joe Matal, *A Guide to the Legislative History of the America Invents Act: Part II of II*, 21 FED. CIR. B.J. 539, 549–50, 642–44 (2012) [hereinafter Matal, *Part II*].

96. U.S.C. § 20(l), 125 Stat. 284, 335.

97. Armitage notes that, while the AIA bars defenses of patent invalidity or unenforceability for inequitable conduct based on deceptive misjoinder or nonjoinder, the AIA does not bar unenforceability for litigation misconduct. Armitage, *supra* note 62, at 129–30; see, e.g., *Applied Materials, Inc. v. Multimetrix, LLC*, No. C 06-07372 MHP, 2009 WL 1457979, at *3–4 (N.D. Cal. May 26, 2009) (finding that defendants’ perjury and fraud upon the court on issues including inventorship constituted inequitable conduct and litigation misconduct).

98. Armitage, *supra* note 62, at 13 (emphasis added).

99. *Trovan, Ltd. v. Sokymat SA, Irori*, 299 F.3d 1292, 1302 (Fed. Cir. 2002); *Gen. Motors Corp. v. Toyota Motor Co.*, 667 F.2d 504, 507 (6th Cir. 1981).

100. *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1360 (citing *Trovan*, 299 F.3d at 1302).

101. *MCV, Inc. v. King-Sceley Thermos Co.*, 870 F.2d 1568, 1570–71 (Fed. Cir. 1989) (“[T]he dispositive issue on the merits would be the definition of the invention . . . This implicates at least several provisions of the Patent Act: section 116 for joint inventorship; section 112 for claim interpretation; and section 102(f) for originality of conception.”); *id.* at 1570 (stating that § 256 authorizes courts to correct misjoinder and nonjoinder of inventors); see also Dennis Crouch, *With 102(f) Eliminated, Is*

The inquiry is “highly technical,” particularly due to claim construction’s “special doctrines relating to the proper form and scope of claims that have been developed by the courts and the Patent Office.”¹⁰² The court must determine (1) who would be a person of ordinary skill in the art (2) at the time of the invention’s conception (*e.g.*, a person of ordinary skill in agricultural biotechnology in 1992 would have held a Ph.D. in molecular biology or biochemistry) and how she would have understood the claim’s language.¹⁰³ (3) This “ordinary meaning” inquiry (3.1) first examines intrinsic evidence: each claim’s terms, the specification’s remainder that describes the invention and often defines its terms, and the correspondence between the patent examiner and prosecution counsel comprising the prosecution history.¹⁰⁴ Intrinsic evidence is important because innovation may outrun conventional terminology, and “patent law [consequently] allows the inventor to be his own lexicographer.”¹⁰⁵ The inquiry (3.2) examines extrinsic evidence, including dictionaries and treatises, expert testimony, and prior art not discussed in the prosecution history.¹⁰⁶ The court must (4) interpret this evidence in light of patent law doctrines,¹⁰⁷ such as prosecution history estoppel,¹⁰⁸ claim differentiation,¹⁰⁹ preservation of claim validity,¹¹⁰ and claim indefiniteness.¹¹¹

After briefing and a hearing, the court (5) issues a claim-construction ruling.¹¹² That “ruling is critical” to evaluating “most of the substantive matters of patent law” in a typical patent case: infringement; validity respecting novelty, nonobviousness, and enablement; and unenforceability for inequitable conduct.¹¹³

Inventorship Now Codified in 35 U.S.C. 101?, PATENTLYO (Oct. 4, 2012), <http://patentlyo.com/patent/2012/10/with-102f-eliminated-is-inventorship-now-codified-in-35-usc-101.html>.

102. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 388–89 (1996) (internal quotation marks omitted) (quoting William Redin Woodward, *Definiteness and Particularity in Patent Claims*, 46 MICH. L. REV. 755, 765 (1948)).

103. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (*en banc*).

104. *Id.* at 1314–18.

105. *Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565, 1569 (Fed. Cir. 1983) (quoting *Autogiro Co. of Am. v. United States*, 384 F.2d 391, 397 (Ct. Cl. 1967)).

106. *Phillips*, 415 F.3d at 1317–19.

107. See generally PETER S. MENELL ET AL., FED. JUDICIAL CTR., PATENT CASE MANAGEMENT JUDICIAL GUIDE 5–45 to –76 (2009).

108. *Phillips*, 415 F.3d at 1317 (“The purpose of consulting the prosecution history in construing a claim is to exclude any interpretation that was disclaimed [to overcome the patent examiner’s objections] during prosecution.”).

109. *Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1369 (Fed. Cir. 2007) (“[D]ifferent words or phrases used in separate claims are presumed to indicate that the claims have different meanings and scope.”).

110. *Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999) (“[C]laims should be [so] construed,” if possible, as “to sustain their validity.”).

111. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (Fed. Cir. 2014) (“[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.”).

112. MENELL ET AL., *supra* note 107, at 5–22 to –27.

113. *Id.* at 5–26; see also Jay P. Kesan & Gwendolyn G. Ball, *How Are Patent Cases Resolved? An Empirical Examination of the Adjudication and Settlement of Patent Disputes*, 84 WASH. U. L. REV. 237, 300 (2006) (“[C]laim construction [is] a threshold legal issue in patent litigation.”); Vincent P.

For example, the Federal Circuit, in *Trovan, Ltd. v. Sokymat SA, Irori*, reversed the district court respecting an inventorship contest, holding that the court failed to “conduct an independent claim construction analysis”; this failure “blurr[ed]” distinct elements in the patent’s claims, created “an erroneous legal backdrop,” and resulted in “fact-finding . . . [that was] inconclusive.”¹¹⁴ The Federal Circuit performed the claim construction, looking at the claim language and intrinsic evidence, and remanded the case to determine who first conceived of the claim element.¹¹⁵ On remand, the district court held that the allegedly nonjoined inventor was a co-inventor, ordered the USPTO to correct the patent’s named inventors, and dismissed the underlying patent-infringement lawsuit because the nonjoined co-inventor was not party to the suit.¹¹⁶

C. Inventorship Correction Statutes

The patent statute and USPTO regulations limit the forums where parties may litigate¹¹⁷ the inventorship of pending patent applications to the USPTO.¹¹⁸ This Section discusses statutes controlling: 1) correction of inventorship errors in applications, 2) correction of inventorship errors in patents, 3) the statutes’ asymmetry respecting the forums available to litigants in inventorship contests, and 4) interference and derivation proceedings.

Kovalick, Markman *Hearings and Their Critical Role in U.S. Patent Litigation*, LEXOLOGY (Oct. 30, 2009), <http://www.lexology.com/library/detail.aspx?g=bf1cd4fd-3ec8-4f4a-8071-527912f63d88> (“[T]he Markman hearing in U.S. patent litigation has become a critical procedure, second only to the trial itself.”).

114. 299 F.3d 1292, 1304, 1307 & n.1 (Fed. Cir. 2002).

115. *Id.* at 1305–06 (the disputed term “supported by the wire leads” in “claims 5 and 9 [of the patent-in-suit] require that the wire leads provide at least some support for the silicon substrate but not necessarily the sole support”); *id.* at 1310 (remanding the case to determine who “first conceived” of the “wire support feature”).

116. *Trovan, Ltd. v. Soyomat SA, Irori*, No. CV 97-4585 MRP (C.D. Cal. Apr. 10, 2003), ECF No. 363; *Trovan, Ltd. v. Soyomat SA, Irori*, No. CV 97-4585 MRP, slip op. (C.D. Cal. Apr. 9, 2003), ECF No. 362.

117. The patent statute also contains multiple provisions that enable the uncontested correction of inventorship errors: 35 U.S.C. §§ 115(a), (f), (h)(1), (3) (2012) (authorizing the USPTO to correct inventorship errors in an application without rendering a “patent invalid or unenforceable” as long as the corrected document is filed “no later than the date on which the issue fee is paid”); *id.* § 257(a), (c)(1), (c)(2)(A) (authorizing the USPTO “to correct information believed to be relevant to the patent” in a “supplemental examination” without rendering the patent “unenforceable” as long as the request predates such defenses from patent litigation and the examination ends before an action pursuant to 19 U.S.C. § 1337 (section 337 action) is brought that raises such defenses); *Medrad, Inc. v. Tyco Healthcare Grp. LP*, 466 F.3d 1047, 1052–53 (Fed. Cir. 2006) (holding that 35 U.S.C. § 251 authorizes the USPTO to reissue patents for an applicant “claiming more or less than he had a right to claim in the patent” includes inventorship errors); 37 C.F.R. § 1.48 (2015) (stating the requirements for requesting correction of inventorship of patent applications pursuant to 35 U.S.C. § 116); *id.* § 1.324 (2015) (stating the requirements for requesting correction of inventorship of patents pursuant to 35 U.S.C. § 256).

118. *See* 35 U.S.C. §§ 116, 256; 37 C.F.R. §§ 1.48, 1.324.

1. *Correction of Errors in Application, 35 U.S.C. § 116(c)*

35 U.S.C. § 116(c) authorizes the Director of the USPTO to correct inventorship errors in pending applications.¹¹⁹ The corresponding regulation, 37 C.F.R. § 1.48, states that the director may exercise this authority if: 1) an erroneously named or omitted inventor and any other applicants agree to the correction and submit appropriate documents; or 2) an erroneously named or omitted inventor or any other applicants disagree and an aggrieved party institutes an *inter partes* “interference” or “derivation” proceeding before the USPTO.¹²⁰

2. *Correction of Named Inventor, 35 U.S.C. § 256*

35 U.S.C. § 256 authorizes either the director to correct inventorship errors in issued patents or the courts to order such corrections.¹²¹ The corresponding regulation, 37 C.F.R. § 1.324, states that the director may issue a correction if: 1) an erroneously named or omitted inventor and any other applicants agree to the correction and submit appropriate documents; or 2) an erroneously named or omitted inventor or any other applicants disagree, one prevails in federal district court, and the court orders the director to issue a correction.¹²² As stated above, under the AIA, misjoinder and nonjoinder are eligible for correction regardless of deceptive intent for actions filed September 16, 2012.¹²³

3. *Asymmetry of §§ 116 and 256*

Today, which authorities may correct inventorship errors in patent applications and in issued patents is settled law: the USPTO can adjudicate errors respecting applications and patents, whereas the courts may only adjudicate patents. In the past, some district courts held that § 116 provided a cause of action for courts to adjudicate inventorship disputes about patent applications.¹²⁴ The Sixth Circuit in *Okuley*, the Federal Circuit in *HIF Bio*, and the Fifth Circuit in *Camsoft*, however, ruled unanimously that no cause of action exists under §116 for courts to order corrections of patent applications.¹²⁵

119. 35 U.S.C. § 116(c).

120. 37 C.F.R. § 1.48; see *Derivation Proceedings Will Co-exist with Interference Proceedings Under the AIA*, BRINKS GILSON & LIONE (Mar. 12, 2013) [hereinafter *Derivation Proceedings*], <http://www.brinksgilson.com/derivation-proceedings-will-co-exist-interference-proceedings-under-aia>; Eldora L. Ellison & Robert Greene Sterne, *Use of Interferences to Challenge Patents Before the USPTO*, NAT'L L. REV. (July 8, 2010), <http://www.natlawreview.com/article/use-interferences-to-challenge-patents-uspto>.

121. 35 U.S.C. § 256(a), (b).

122. 37 C.F.R. § 1.324(a).

123. See *supra* Subsection II.B.5.

124. See, e.g., *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co., Ltd.*, 600 F.3d 1347, 1353–54 (Fed. Cir. 2010) (collecting cases).

125. *Camsoft Data Sys. v. S. Elec. Supply, Inc.*, 756 F.3d 327, 336 (5th Cir. 2014); *E.I. Du Pont de Nemours & Co. v. Okuley*, 344 F.3d 578, 581–82 (6th Cir. 2013); *HIF Bio*, 600 F.3d at 1353.

4. *Interferences and Derivation Proceedings, 35 U.S.C. §§ 135, 141, 146*

An interference proceeding is a *priority contest* before the USPTO that determines which inventor first conceived of the invention and is eligible for a patent.¹²⁶ It is available for applications with EFDs on or before March 15, 2013.¹²⁷ Applications with EFDs on or after March 16, 2013, are subject to FITF rules that end priority contests—as long as the patent applicant did not derive her invention from another inventor and she applied first, the applicant is eligible for a patent.¹²⁸ The AIA converted *originality contests*, which were handled earlier as a subclass of interferences, into derivation proceedings.¹²⁹

Interference and derivation proceedings have some similar features. A pending application or new application with the proper EFD may “provoke an interference” in several ways.¹³⁰ 1) A party’s existing patent application¹³¹ claims the same subject matter¹³² as an opponent’s unexpired patent or pending application;¹³³ 2) a party “add[s] or amend[s]” a claim to interfere with her opponent’s application or patent;¹³⁴ or 3) a party files a continuation or reissue application that interferes with (and often copies) at least one claim from the opponent’s application or patent.¹³⁵ Similarly, a derivation proceeding’s petitioner must possess a pending application, and the application may copy claims from the opponent’s application or patent.¹³⁶ Interference and derivation proceedings both must be filed no more than one year after the opponent’s patent issues or the patent application was published.¹³⁷

A derivation proceeding and an interference differ importantly in that derivations frontload the merits and each occurs before distinct panels. First, copying an opponent’s claim does not satisfy the notice requirement of derivation proceeding without also presenting evidence of derivation; in contrast, an interference’s initial phase determines the “scope of the dispute,” and the second phase evaluates evidence for in-

126. *Henckle Corp. v. Procter & Gamble Co.*, Patent Interference No. 105,174, 2008 WL 5783337, at *17 (B.P.A.I. Mar. 28, 2008), *aff’d*, 560 F.3d 1286 (Fed. Cir. 2009) (stating the requirements for prevailing in an interference); *Ellison & Sterne*, *supra* note 120; *see also* 37 C.F.R. §§ 41.200–08.

127. *Derivation Proceedings*, *supra* note 120; *see also* 37 C.F.R. § 41.200.

128. *Derivation Proceedings*, *supra* note 120; *see also* 37 C.F.R. §§ 42.400–405.

129. *Applegate v. Scherer*, 332 F.2d 571, 573 n.1 (C.C.P.A. 1964); *Derivation Proceedings*, *supra* note 120. *See* 37 C.F.R. §§ 42.400–405.

130. 37 C.F.R. § 41.202(a)(5), (c).

131. MPEP § 2304.04(a) (9th ed. Rev. 7, Oct. 2015).

132. 37 C.F.R. § 41.203(a); MPEP § 2301.03.

133. 35 U.S.C. § 135(a) (2006); 37 C.F.R. § 41.202(a)(1).

134. 37 C.F.R. § 41.202(a)(5).

135. *Id.* § 41.202; MPEP §§ 2304, .02(d); *Derivation Proceedings*, *supra* note 120; Lara C. Kelley & Barbara Clarke McCurdy, *Why Patent Interference Proceedings Are Worth It*, N.J.L.J. (Sept. 23, 2004), <http://www.finnegan.com/resources/articles/articlesdetail.aspx?news=5b6f0b73-4fd8-495b-a639-cf20dbb4850f>.

136. *Derivation Proceedings*, *supra* note 120.

137. 35 U.S.C. § 135(a)(2) (2012); 35 U.S.C. § 135(b) (2006).

ventorship.¹³⁸ Second, the Board of Patent Appeals and Interferences hears interferences, and the Patent Trial and Appeal Board hears derivations.¹³⁹

Parties unhappy with the outcome of a derivation or interference proceeding have recourse to the courts. Pursuant to 35 U.S.C. § 141, “[a] party to a derivation proceeding” may appeal BPAI’s or PTAB’s “final decision” to the Federal Circuit.¹⁴⁰ “[A]fter the appellant has filed notice of appeal,” the “adverse party” may obtain a dismissal “within twenty days” by moving proceedings to the district court.¹⁴¹ Pursuant to 35 U.S.C. § 146, “any party,” within sixty days of PTAB’s final decision in a derivation proceeding, may file suit in district court “unless” the same party appealed to the Federal Circuit and the case is pending or the court has issued its ruling.¹⁴² The Federal Circuit affirmed in *Finkle* that § 146 does not permit an end-run around 35 U.S.C. §§ 116 and 256; parties seeking to correct errors in patent applications must exhaust their administrative remedies before filing suit in district court.¹⁴³ Notably, these sections do not condition access to district court or the Federal Circuit on whether a patent application is pending or a patent has issued.¹⁴⁴ The statute’s controlling review of derivation proceedings are largely unchanged from the pre-AIA statute respecting interferences.¹⁴⁵

The only major change to appellate review procedures is that the Leahy-Smith American Invents Technical Corrections Act modified the eligibility of recourse to district court for interferences “declared” on or after September 16, 2012. Parties may appeal an interference’s final decision to the Federal Circuit, but the Federal Circuit held, in *Biogen*, that because “specific [language] governs the general,” the absence of lan-

138. 35 U.S.C. § 135(a)(1) (2012) (stating that “[t]he petition shall set forth with particularity the basis” for the claim that an inventor on the opponent’s patent or application derived the invention without permission from the petitioner); 37 C.F.R. §§ 42.21–.22 (2015) (stating that the petitioner must provide “sufficient detail” “expla[ining] [] the significance of the evidence including material facts, and the governing law, rules, and precedent”); *Derivation Proceedings*, *supra* note 120; Ellison & Sterne, *supra* note 120.

139. 35 U.S.C. § 135 (2012); 35 U.S.C. § 135 (2006).

140. 35 U.S.C. § 141(d) (2012); 35 U.S.C. § 141 (2006).

141. 35 U.S.C. § 141(d) (2012).

142. *Id.* § 146.

143. *Consol. World Housewares, Inc. v. Finkle*, 662 F. Supp. 389, 390–92 (N.D. Ill.), *aff’d*, 831 F.2d 261, 265 (Fed. Cir. 1987). Notably, the Federal Circuit’s abbreviated analysis affirms the district court’s decision to dismiss for lack of subject-matter jurisdiction. *HIF Bio* mentions *Finkle* without taking up the 12(b)(1) and 12(b)(6) distinction and effectively abrogates that part of *Finkle*’s ruling. *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co., Ltd.*, 600 F.3d 1347, 1353–54 (Fed. Cir. 2010).

144. 35 U.S.C. §§ 141, 146 (2012); 35 U.S.C. §§ 141, 146 (2006).

145. See Daniel A. Tysver, *Redline Version (2011) 35 U.S.C. 141, Appeal to the Court of Appeals for the Federal Circuit*, BITLAW, http://www.bitlaw.com/source/35usc/aia_redline/141.html (last updated Nov. 2011); Daniel A. Tysver, *Redline Version (2011) 35 U.S.C. 146, Civil Action in Case of Derivation Proceeding Interference*, BITLAW, http://www.bitlaw.com/source/35usc/aia_redline/146.html (last updated Nov. 2011).

guage authorizing review under § 146 precludes subject-matter jurisdiction for district courts.¹⁴⁶

D. Restraints on Inventorship Disputes

Contracts and common law limit whether defendants may challenge a patent or patent application's inventorship: 1) employment contracts, common law, or state law may entitle an employer to the sole ownership or to an unpaid license of a patent of a present or former employee; 2) the evidentiary standards of clear-and-convincing evidence for inventorship contests about patents are a significant hurdle; and the doctrines of 3) laches and 4) equitable estoppel bar belated ownership claims that prejudice a patent applicant.

1. Employment Agreements & Employer Rights

Inventorship contests frequently fail because employment agreements or employment-related common-law doctrines entitle employers to own a patent.

First, absent agreement to the contrary, two “default rules” control ownership.¹⁴⁷ Under the “shop right” doctrine, if an employee “used [her] employer’s facilities or work time in perfecting the invention,” then the employer has a right “in equity” to “a royalty-free license to use the invention.”¹⁴⁸ In disputes, courts look to “two factors: whether the invention relates to the employee’s job duties and whether it was made using the facilities, tools, personnel, or other resources of the employer.”¹⁴⁹ Under the “hired to invent” doctrine, if an employer hires a worker “to invent a specific thing” and not “generally,” then the employer has a common law ownership right superior to that of the employee-inventor.¹⁵⁰ The exceptions are where it is “an already-complete invention” or “unrelated to his job description,” and, in some cases, the employer “has a shop right” and in others he “must obtain a license like anyone else.”¹⁵¹

Second, and more common today, employee-inventors “are bound by contracts requiring them to assign the patents to their employers,” and if the contract is valid, then courts award ownership rights to em-

146. Leahy-Smith America Invents Technical Corrections Act, Pub. L. No. 112-274, § 1(k)(3), 126 Stat. 2456, 2458 (2013); *Biogen MA, Inc. v. Japanese Found. for Cancer Res.*, 785 F.3d 648, 656 (Fed. Cir. 2015) (quoting *RadLAX Gateway Hotel, LLC v. Amalgamated Bank*, 132 S. Ct. 2065, 2071 (2012)), *cert. denied*, 136 S. Ct. 1450 (2016).

147. Catherine L. Fisk, *Removing the ‘Fuel of Interest’ from the ‘Fire of Genius’: Law and the Employee-Inventor, 1830–1930*, 65 U. CHI. L. REV. 1127, 1181 (1998).

148. *Id.* at 1131, 1164.

149. Robert P. Merges, *The Law and Economics of Employee Inventions*, 13 HARV. J.L. & TECH. 1, 6 (1999).

150. Fisk, *supra* note 147, at 1132, 1181.

151. Merges, *supra* note 149, at 5–6.

ployers.¹⁵² The contract may be express or implied.¹⁵³ “Assignment-of-rights” clauses are standard in a company’s agreements with consultants and employees.¹⁵⁴ The clauses “usually impose several related duties on employees, including 1) a duty to assign patent applications and patents to the employer, 2) a duty to assist in the patent prosecution, and 3) a general duty to cooperate in the perfection of the employer’s rights in the invention.”¹⁵⁵ Courts generally enforce these provisions subject to state laws limiting employer rights in an employee’s inventions.¹⁵⁶

Indeed, the district court in *Okuley* held that DuPont was the true owner of the FAD2 patent on contract grounds, respecting DuPont’s research agreement with WSU and Okuley’s patent assignment where DuPont was an assignee.¹⁵⁷

2. *Evidentiary Standards*

The evidentiary standard for inventorship disputes varies between preponderance and clear and convincing, depending on whether the forum is the USPTO or courts and whether the disputed patent application’s status is pending, published, or granted.

In proceedings before the USPTO, preponderance of the evidence is the baseline for originality contests. USPTO regulations state that “preponderance of the evidence” is the evidentiary standard for interference proceedings.¹⁵⁸ That standard “requires the trier of fact to believe that the existence of a fact is more probable than its nonexistence before he may find in favor of the party who has the burden to persuade the judge of the fact’s existence.”¹⁵⁹ The standard, however, becomes “clear and convincing evidence” in an interference proceeding if the petitioner’s application’s EFD is later than the date the opponent’s patent was issued or the date the patent application was published.¹⁶⁰ The “[c]lear and convincing evidence standard can be described as evidence that produces in the mind of the trier of fact an abiding conviction that the truth

152. Fisk, *supra* note 147, at 1130–31, 1133.

153. *Id.* at 1181–82, 1197.

154. Richard A. Mann et al., *Starting from Scratch: A Lawyer’s Guide to Representing a Start-Up Company*, 56 ARK. L. REV. 773, 815–16 (2004).

155. Merges, *supra* note 149, at 8.

156. *Id.* at 8–9.

157. E.I. Du Pont de Nemours & Co. v. Okuley, No. C2-97-1205, 2000 WL 1911430, at *26–27 (S.D. Ohio Dec. 21, 2000), *aff’d*, 344 F.3d 578 (6th Cir. 2003).

158. 37 C.F.R. § 41.207(a)(2) (2012) (“Priority may be proved by a preponderance of the evidence except a party must prove priority by clear and convincing evidence if the date of its earliest constructive reduction to practice [i.e., a patent application’s earliest EFD] is after the issue date of an involved patent or the publication date under 35 U.S.C. 122(b) of an involved application or patent.”) Post-AIA, USPTO regulations leave interference proceedings’ evidentiary standard unchanged. 37 C.F.R. § 41.207(a)(2) (2015); see *Loken-Flack, LLC v. Novozymes Bioag, A/S*, No. 105,996, 2015 BL 165619, at *18 n.5 (P.T.A.B. May 27, 2015).

159. *Price v. Symsek*, 988 F.2d 1187, 1193 (Fed. Cir. 1993) (internal quotation marks omitted) (quoting *In re Winship*, 397 U.S. 358, 371–72 (1970)).

160. 37 C.F.R. § 41.207(a)(2) (2012). A patent application’s publication date is eighteen months from its earliest filing date. 37 C.F.R. § 1.211(a) (2015).

of a factual contention is highly probable.”¹⁶¹ It is a “heavy burden.”¹⁶² In either case, the movant has the burden of proof.¹⁶³ “[P]reponderance of the evidence” is also the “default evidentiary standard” for derivation proceedings and other Patent Trial and Appeal Board (“PTAB”) proceedings.¹⁶⁴

In the district court, inventorship disputes may only address patents, pursuant to 35 U.S.C. § 256,¹⁶⁵ and, under longstanding precedent, parties alleging nonjoinder or misjoinder of inventor or co-inventorship must present clear-and-convincing evidence to prevail.¹⁶⁶ The courts provide several reasons for this standard. First, statutory considerations require a heightened evidentiary standard for inventorship contests in court because the pre-AIA patent statute required both that patents be presumed valid and that inventorship errors could invalidate patents.¹⁶⁷ Congress mandated in 35 U.S.C. § 282, before and after the AIA, that:

A patent shall be presumed valid. Each claim of a patent . . . shall be presumed valid independently of the validity of other claims; dependent or multiple dependent claims shall be presumed valid even though dependent upon an invalid claim. The burden of establishing invalidity of a patent or any claim thereof shall rest on the party asserting such invalidity.¹⁶⁸

Congress also mandated that applicants make an oath or declaration about the application’s inventors, 35 U.S.C. § 115, and mandated that misjoinder or nonjoinder were grounds for invalidity.¹⁶⁹ Clear-and-convincing evidence coordinates these mandates: “the requirement of evidence sufficient to carry conviction to the mind is little more than another form of words for the requirement that the presumption of validity shall prevail against strangers as well as parties unless the countervailing evidence is clear and satisfactory.”¹⁷⁰ In contrast, interferences and derivation proceedings have no presumption of patent validity.¹⁷¹ Second, policy considerations require a heightened evidentiary standard to guard against mistaken memories (especially if the interval between invention and suit is substantial) and self-serving testimony by inventors’ co-

161. *Price*, 988 F.2d at 1191 (internal quotation marks omitted) (quoting *Buildex, Inc. v. Kason Indus., Inc.*, 849 F.2d 1461, 1463 (Fed. Cir. 1988)).

162. *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1358 (Fed. Cir. 2004).

163. 37 C.F.R. § 41.208(b) (2015); *accord* 37 C.F.R. § 41.208(b) (2012).

164. 37 C.F.R. § 42.1(d) (2015).

165. *See supra* Subsection II.C.1–3.

166. *Price*, 988 F.2d at 1192 (collecting authorities); *Amax Fly Ash Corp. v. United States*, 514 F.2d 1041, 1047–48, 1050 (Ct. Cl. 1975) (collecting authorities); *Garrett Corp. v. United States*, 422 F.2d 874, 880 (Ct. Cl. 1970).

167. *Aradigm*, 376 F.3d at 1364–65; *Apotex USA Inc. v. Merck & Co., Inc.*, 254 F.3d 1031, 1036–38 (Fed. Cir. 2001); *Amax*, 514 F.2d at 1047; *Garrett*, 422 F.2d at 880.

168. 35 U.S.C. § 282(a) (2012); 35 U.S.C. § 282(a) (2006).

169. *See supra* text accompanying notes 91–92.

170. *Price*, 988 F.2d at 1192 (internal quotation marks omitted) (quoting *Radio Corp. of Am. v. Radio Eng’g Lab, Inc.*, 293 U.S. 1, 9 (1934)).

171. *Apotex*, 254 F.3d at 1037 n.1; *see* *Henkel Corp. v. Proctor & Gamble Co.*, No. 105,174, 2008 WL 5783337, at *24 (B.P.A.I. Mar. 28, 2008).

workers who belatedly decide to assert claims.¹⁷² Indeed, the Federal Circuit held that testimony alone in an inventorship contest is not clear-and-convincing evidence.¹⁷³ Next, policy considerations require a heightened evidentiary standard for fairness because a § 256 claim allocates risk entirely to the patent holder, whereas the movant in an interference may lose her interfering patent application.¹⁷⁴ Finally, policy considerations indicate a heightened evidentiary standard is not unfair because allegedly nonjoined inventors have recourse through interferences and derivation proceedings with potentially lower evidentiary standards.¹⁷⁵

3. *Laches*

Claims of nonjoinder or misjoinder of inventor are subject to the equitable defense of laches under a preponderance-of-the-evidence standard.¹⁷⁶ The length of delay determines whether the opponent patent holder enjoys a “rebuttable presumption” or must prove all of the defense’s elements.¹⁷⁷

An opponent enjoys a rebuttable presumption against an inventorship challenge if she proves that the allegedly erroneously omitted inventor had “actual or constructive knowledge” of “the issuance of the patent” and sat on her rights for six years—calculated backwards “from the date of the complaint.”¹⁷⁸ A patent’s issuance itself, however, does not constitute constructive knowledge “in the absence of proof” that the alleged inventor “should have known that the patent issued and that he was omitted as a[n] [] inventor.”¹⁷⁹ An alleged inventor “rebut[s] the presumption” if she presents “evidence sufficient” that the delay was less than six years, is excusable or reasonable, or the defendant suffered no economic or evidentiary prejudice.¹⁸⁰

If the alleged inventor rebuts the presumption or her delay was less than six years, then her opponent must prove by a “preponderance of the evidence,” taken as a “totality,” that the delay was 1) unreasonable and inexcusable and 2) it prejudiced the defendant.¹⁸¹ Whether a delay is unwarranted is contextually determined; and the period begins tolling when the plaintiff had actual or constructive knowledge of the patent’s issu-

172. *Eibel Process Co. v. Minn. & Ont. Paper Co.*, 261 U.S. 45, 60 (1923); *Aradigm*, 376 F.3d at 1366–67; *Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976, 980 (Fed. Cir. 1997); *Amax*, 514 F.2d at 1047.

173. *Price*, 988 F.2d at 1194.

174. *Aradigm*, 376 F.3d at 1367.

175. *Id.* at 1368.

176. *Lismont v. Alexander Binzel Corp.*, 813 F.3d 998, 1002 (Fed. Cir. 2016) (collecting authorities); *A.C. Aukerman Co. v. R.L. Chides Const. Co.*, 960 F.2d 1020, 1045 (Fed. Cir. 1992) (*en banc*).

177. *Binzel*, 813 F.3d at 1002.

178. *Advanced Cardiovascular Sys., Inc. v. Scimed Life Sys., Inc.*, 988 F.2d 1157, 1163 (Fed. Cir. 1993); *Aukerman*, 960 F.2d at 1030, 1035–36.

179. *Scimed*, 988 F.2d at 1162.

180. *Serdarevic v. Advanced Med. Optics, Inc.*, 532 F.3d 1352, 1360–61 (Fed. Cir. 2008); *Aukerman*, 960 F.2d at 1038.

181. *Aukerman*, 960 F.2d at 1038, 1045.

ance, but no earlier than when the patent issues.¹⁸² Acceptable excuses may include: “other litigation; negotiations with the accused; . . . poverty and illness under limited circumstances; wartime conditions; extent of infringement; and dispute over ownership of patent.”¹⁸³ The opponent suffers economic prejudice due to delay if the alleged inventor had tried enforcing her rights earlier and it “would have prevented” her opponent’s “loss of monetary investments” or “damages” awards.¹⁸⁴ The opponent suffers evidentiary prejudice if the alleged inventor’s delayed enforcement prevented “a full and fair defense on the merits” because evidence is destroyed or lost, witnesses become unavailable, and memories fade.¹⁸⁵

Regardless of the delay’s length, inequitable conduct may also bar a laches defense, but only if the party asserting laches engaged in “particularly egregious conduct” and thereby delayed the adverse party.¹⁸⁶ Examples include a patent applicant deceiving a true inventor about who the named inventors are or a patent applicant plagiarizing the work of a true inventor.¹⁸⁷

4. *Equitable Estoppel*

Claims contesting inventorship are also subject to equitable estoppel defenses that must be proven by a preponderance of the evidence.¹⁸⁸ The defense requires showing that 1) a first person, knowing otherwise, misrepresented facts to a second person by words, acts, or omissions; 2) the second person substantially relied on those representations; and 3) the second person would be prejudiced if the court permits the first person to make claims contrary to his initial representations.¹⁸⁹ The first element generally involves the potential challenger communicating to the named inventor or patent applicant that the challenger knows the patent asset exists and believes the asset has inventorship errors.¹⁹⁰ The challenger’s inaction on the claim, however, communicates abandonment to the applicant.¹⁹¹ The second element requires communication from the challenger that reassures the patent applicant into taking particular ac-

182. *Scimed*, 988 F.2d at 1162; *Aukerman*, 960 F.2d at 1032.

183. *Aukerman*, 960 F.2d at 1033.

184. *Id.*

185. *Id.*

186. *Serdarevic v. Advanced Med. Optics, Inc.*, 532 F.3d 1352, 1361 (Fed. Cir. 2008) (quoting *Aukerman*, 960 F.2d at 1033).

187. *Id.* at 1361–62; *Bott v. Four Star Corp.*, 807 F.2d 1567, 1576 (Fed. Cir. 1986).

188. *Aukerman*, 960 F.2d at 1041–46; *Rhone-Poulenc Agro, S.A. v. Monsanto Co.*, 445 F. Supp. 2d 531, 563–64 n.40 (M.D.N.C. 2006). Prior to the AIA, inventorship contests could invalidate a patent and for this reason, the doctrine of assignor estoppel (assignors of a patent cannot later challenge the asset’s validity) was another defense to originality contests. *See, e.g., Checkpoint Sys. Inc. v. All-Tag Sec., S.A.*, 412 F.3d 1331, 1336–37 (Fed. Cir. 2005). The AIA renders this defense inapplicable respecting inventorship contests. *See supra* text and accompanying notes 91–98.

189. *Aukerman*, 960 F.2d at 1041.

190. *Id.* at 1042.

191. *Id.*

tions or making certain investments.¹⁹² The third element is economic or evidentiary prejudice.¹⁹³ The court will then consider the equities involved and, if the patent applicant prevails, bar the suit.¹⁹⁴ The applicant enjoys no presumptions, regardless of delay.¹⁹⁵

E. Inventorship Disputes' Infrequency

Inventorship disputes constitute a small subset of patent litigation. Parties litigate claims about patent and patent applications before a variety of forums: federal courts, state courts, the USPTO, the International Trade Commission, and private arbitration panels.¹⁹⁶ The classic form of patent litigation is an infringement lawsuit in federal district court, where a patent owner sues a competitor to extract royalties or to prevent the competitor from making and selling an infringing product.¹⁹⁷ From 2009 to 2014, 3,000 to 6,500 patent infringement cases were filed annually in district courts, with nonpracticing entities driving a substantial portion of the litigation.¹⁹⁸

192. *Id.* at 1042–43.

193. *Id.* at 1043.

194. *Id.*

195. *Id.*

196. *See, e.g.*, Paul R. Michel & Meredith Martin Addy, *State and Federal Court Adjudication of Federal Patent Issues*, in *PRINCIPLES OF PATENT LAW* 1410 (Donald S. Chisum et al. eds., 1998), <http://www.brinksgilson.com/state-federal-court-adjudication-federal-patent-issues>; Paul R. Gugliuzza, *Patent Law Federalism*, 2014 WIS. L. REV. 11; Christopher Ilardi, *The Broken System of Parallel Patent Proceedings: How to Create A Unified, One-Judgment System*, 36 CARDOZO L. REV. 2213 (2015); William Rose, *Calming Unsettled Waters: A Proposal for Navigating the Tenuous Power Divide Between the Federal Courts and the U.S.P.T.O. Under the America Invents Act*, 22 WM. & MARY BILL RTS. J. 613 (2013); Sarah Tran, *Administrative Law, Patents, and Distorted Rules*, 80 GEO. WASH. L. REV. 831, 842–53 (2012).

197. 35 U.S.C. § 271 (2012). For a patent owner who prevails at trial, and, if necessary, on appeal, the patent statute authorizes money damages equal to, or greater than, a reasonable royalty and injunctions as remedies the court may impose. *Id.* §§ 283–84. Settlements favorable to a patent owner, however, commonly involve a defendant paying a lump sum or running royalty in exchange for a non-exclusive license from the plaintiff or the parties exchanging nonexclusive cross-licenses to each other's patents rather than ceasing their activity. Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117, 2129–46 (2013). The Supreme Court has restricted patent owners that do not make, sell, or use a patented invention (*i.e.*, nonpracticing entities or NPEs) from obtaining injunctions against entities who practice the patent. *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 393–94 (2006); *but see* Colleen V. Chien & Mark A. Lemley, *Patent Holdup, the ITC, and the Public Interest*, 98 CORNELL L. REV. 1, 2–8 (2012) (analyzing NPE use of § 337 proceedings before the International Trade Commission to enjoin the import of an infringing product). *See generally* PRICEWATERHOUSECOOPERS, 2015 PATENT LITIGATION STUDY A CHANGE IN PATENTEE FORTUNES 3 (May 2015), <https://www.pwc.com/us/en/forensic-services/publications/assets/2015-pwc-patent-litigation-study.pdf> (analyzing trends in U.S. patent litigation, including average settlements from 1995–2014); John R. Allison et al., *Our Divided Patent System*, 82 U. CHI. L. REV. 1073, 1119–22 (2015) (analyzing U.S. patent-litigation outcomes respecting validity and infringement by technology classification from 2009–2013); John R. Allison et al., *Patent Quality and Settlement Among Repeat Patent Litigants*, 99 GEO. L.J. 677, 678 (2011) (analyzing U.S. patent-litigation outcomes respecting once-litigated and most-litigated patents from Jan. 2000 to Feb. 2009).

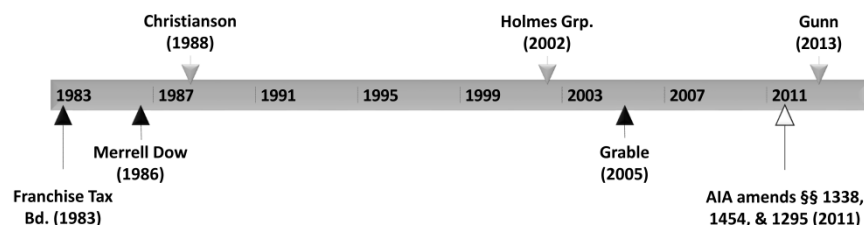
198. PRICEWATERHOUSECOOPERS, *supra* note 197, at 3, 9; *see also* RPX CORP., 2014 NPE LITIGATION REPORT 6 (Mar. 12, 2015), http://www.rpxcorp.com/wp-content/uploads/2014/12/Compressed-RPX_Litigation-Report-2014_FNL_031215.indd_.pdf.

Inventorship correction is litigated much less frequently than infringement. As a rough metric, Westlaw includes about 4,700 federal district court opinions and magistrate reports between 1990 and 2015 that discuss 35 U.S.C. § 271, the statute defining patent infringement; in contrast, about 400 opinions and reports discuss 35 U.S.C. § 256, the statute authorizing courts to correct a patent's inventorship.¹⁹⁹ The USPTO, likewise, docketed less than 100 proceedings per year, between 2002 and 2015, contesting the inventorship of patents or patent applications.²⁰⁰

III. CIVIL PROCEDURE: *CHRISTIANSON* AND SUBJECT-MATTER JURISDICTION

This Note analyzes inventorship disputes respecting a circuit split between the Federal Circuit and Fifth and Sixth Circuits on jurisdiction over patent applications. To orient that specific inquiry, this Part provides background about federal statutes and case law: (A) patent jurisdiction statutes; (B) patent jurisdiction under the *Christianson* line of cases, federal question jurisdiction under the *Franchise Tax Board* line of cases, and the AIA.

FIGURE 2: TIMELINE OF SUPREME COURT DECISIONS CONSTRUING 28 U.S.C. §§ 1331 and 1338 AND FEDERAL LEGISLATION AMENDING §§ 1338, 1454, AND 1295



199. 4,658 federal district court opinions, from 1990 to 2015, include the search terms 'inventor' and 35 U.S.C. § 271 (defining patent-infringement disputes). 402 federal district court opinions and magistrate reports from 1990 to 2015, include the search terms 'inventor' and 35 U.S.C. § 256 (authorizing courts to adjudicate a patent's inventorship). (Both searches used the term 'inventor' to keep the two statutes the independent variable.) These data points approximate very roughly how often the infringement and inventorship are disputed. Courts may mention §§ 256 and 271 for reasons unrelated to patent-infringement litigation or inventorship correction. Many cases relating those sections and those types of litigation may never be reported to Westlaw or other services.

200. The USPTO has assigned four to six derivation proceedings numbers (DER2013-00001, DER2014-00002, DER2014-00005, and DER2014-00006) respecting the patent applicants Chemi Nutra and adidas AG. *Patent Review Processing System*, USPTO, <https://ptabtrials.uspto.gov/prweb> (last visited April 4, 2017) (enter DER in "case number" and search). The USPTO assigned numbers from 105000 to 106034 to interference proceedings filed between Sept. 19, 2002, and Aug. 27, 2015, or eighty per year. *Efiling for Patent Trial and Appeal Board*, USPTO, <https://acts.uspto.gov/ifiling/DispatchServlet> (last visited April 4, 2017) (enter a six-digit number without punctuation in "Interference Number").

A. Patent-Jurisdiction Statutes

Congress created federal district courts and courts of appeals by statute pursuant to Article I, Section 8, Clause 9 of the United States Constitution. Consequently, the lower federal courts have limited subject-matter jurisdiction, and they may only hear cases that the Constitution or Congress authorize.²⁰¹ While patents are federal grants, the statutes authorizing federal courts to hear patent cases are specific: original jurisdiction (28 U.S.C. § 1338), removal jurisdiction (28 U.S.C. § 1454), and appellate jurisdiction (28 U.S.C. § 1295).²⁰²

1. Original Jurisdiction, 28 U.S.C. § 1338

The patent-question statute, § 1338, states that: “The district courts shall have original jurisdiction of any civil action arising under any Act of Congress relating to patents. . . . No State court shall have jurisdiction over any claim for relief arising under any Act of Congress relating to patents”²⁰³ The patent-question statute’s “arising under” language parallels the federal-question statute, § 1331, which states that: “[t]he district courts shall have original jurisdiction of all civil actions arising under the Constitution, laws, or treaties of the United States.”²⁰⁴ This parallel is both important and problematic for patent jurisdiction, as this Note explains below.²⁰⁵

2. Removal Jurisdiction, 28 U.S.C. § 1454

The AIA added § 1454 as a counterpart to § 1338 to control removal jurisdiction.²⁰⁶ Section 1454 grants federal district courts jurisdiction to hear cases removed from state court to federal district courts: “[a] civil action in which any party asserts a claim for relief arising under any Act of Congress relating to patents . . . may be removed to the district court of the United States for the district and division embracing the place where the action is pending.”²⁰⁷ The important feature here is that the statute enables claims of “any party,” including defendants and their

201. *Gunn v. Minton*, 133 S. Ct. 1059, 1064 (2013) (citing *Kokkonen v. Guardia Life Ins. Co. of America*, 511 U.S. 375, 377 (1994)); *Christianson v. Colt Indus. Operating Corp.*, 486 U.S. 800, 818 (1988) (citing *Sheldon v. Sill*, 49 U.S. 441, 448–49 (1850)).

202. The patent statute also authorizes the Federal Circuit to review completed proceedings before the USPTO, including *inter partes* and derivation proceedings. 28 U.S.C. § 1295(a)(4)(A) (2012); 35 U.S.C. § 141 (2012); *see* 37 C.F.R. § 90 (2015).

203. 28 U.S.C. § 1338(a). The pre-AIA statute correspondingly stated that “[t]he district courts shall have original jurisdiction of any civil action arising under any Act of Congress relating to patents Such jurisdiction shall be exclusive of the courts of the states in patent cases.” 28 U.S.C. § 1338(a) (2006).

204. 28 U.S.C. § 1331 (2012) (“[A]rising under the Constitution, laws, or treaties of the United States.”).

205. *See infra* Section III.B.

206. *Matal, Part II*, *supra* note 95, 539–41.

207. 28 U.S.C. § 1454(a).

counterclaims, to satisfy the requirements for removal. Indeed, “any party” may file a motion for removal under § 1454, unlike the general-removal statute, 28 U.S.C. § 1446, under which defendants alone can be the moving party.²⁰⁸ The court exercising removal jurisdiction “solely under” § 1454 “shall remand all claims” over which the court lacks removal jurisdiction under § 1454 or “original or supplemental jurisdiction.”²⁰⁹ Thus, “the court is instructed to not remand those claims that were a basis for removal in the first place—that is, the intellectual property counterclaims.”²¹⁰ The court “may” remand any claims allowable under supplemental jurisdiction by satisfying the list in 28 U.S.C. § 1367(c).²¹¹

3. *Appellate Jurisdiction, 28 U.S.C. § 1295*

Third, § 1295 grants the Federal Circuit “exclusive jurisdiction” over “appeal[s] from a final decision of a district court of the United States . . . in any civil action arising under, or in any civil action in which a party has asserted a compulsory counterclaim arising under, any Act of Congress relating to patents.”²¹² Thus, while the Federal Circuit’s appellate jurisdiction extends to all federal district courts, the Federal Circuit may hear appeals only on a limited range of issues, such as patent claims and counterclaims.²¹³ In contrast, its sister regional circuits have appellate jurisdiction limited in geography, but otherwise extending to all federal nonpatent and diversity jurisdiction claims before district courts.²¹⁴

B. *Supreme Court Precedent and Statutory Amendment Affecting Patent Jurisdiction: Christianson, Franchise Tax Board, and the AIA*

District courts have original jurisdiction over patent issues under 28 U.S.C. § 1338(a): “The district courts shall have original jurisdiction of any civil action arising under any Act of Congress relating to patents No State court shall have jurisdiction over any claim for relief arising under any Act of Congress relating to patents. . . .”²¹⁵ The most problematic phrase in § 1338 is “arising under”; it is an “unruly doctrine”—“the can-

208. *Id.* §§ 1446(a), 1454(b).

209. *Id.* § 1454(d)(1).

210. 157 CONG. REC. S1379 (daily. ed. Mar. 8, 2011) (statement of Sen. Kyl).

211. 28 U.S.C. §§ 1367(c), 1454(d)(2).

212. *Id.* § 1295(a)(1). The pre-AIA statute correspondingly stated that “[t]he United States Court of Appeals for the Federal Circuit shall have exclusive jurisdiction—(1) of an appeal from a final decision of a district court of the United States . . . if the jurisdiction of that court was based, in whole or in part, on section 1338 of this title” 28 U.S.C. § 1295(a)(1) (2006).

213. *Id.* § 1291 (2012) (“The jurisdiction of the United States Court of Appeals for the Federal Circuit shall be limited to the jurisdiction described in sections 1292(c) and (d) and 1295 of this title.”) The Federal Circuit’s jurisdiction also extends to final decisions from the U.S. Court of Federal Claims, the U.S. Court of International Trade Commission (§ 337 cases), etc. *Id.* § 1295(a)(3), (6).

214. *Id.* §§ 1291, 1294.

215. *Id.* § 1338(a).

vas . . . Jackson Pollock got to first.”²¹⁶ This Section divides the “canvas” into three parts: 1) *Christianson*’s two prong inquiry that assimilates patent jurisdiction to the Court’s federal question jurisprudence; 2) the line of federal question jurisdiction cases—*Franchise Tax Board*, *Merrell Dow*, and *Grable*—that inform the Court’s patent jurisdiction cases; 3) *Holmes Group* and the *Holmes Group* Fix respecting compulsory patent counterclaims and state jurisdiction over patent claims; and 4) *Gunn*’s refinement of *Christianson*’s second prong in light of the *Grable* Court’s four prong analysis of federal question jurisprudence.

1. *Christianson and Patent Jurisdiction*

The Supreme Court first analyzed § 1338’s “arising under” jurisdiction in *Christianson v. Colt Industries*, which addressed a circuit split between the Federal Circuit and Seventh Circuit.²¹⁷ In *Christianson*, Colt appealed an adverse summary-judgment decision in an antitrust and tortious-inference case that Colt’s trade secrets and patents respecting the M16 assault rifle were both invalid under 28 U.S.C. § 112 because Colt’s secrets about certain specifications were necessary to enable persons of ordinary skill to make and use the patented inventions.²¹⁸ The Court granted *certiorari* on whether the state-law claims created original jurisdiction under § 1338 and, thus, whether the Federal Circuit had exclusive appellate jurisdiction under § 1295.²¹⁹

The *Christianson* Court unanimously held that a claim “arises under”

§ 1338(a) if the claim asserts: either 1) a particular cause of action from the patent statute; or 2) a state or federal law claim²²⁰ that “[a1] necessarily depends on resolution [a2] of a substantial question of federal patent law, in that [b1] patent law is a necessary element [b2] of one of the well-pleaded claims.”²²¹

216. *Gunn v. Minton*, 133 S. Ct. 1059, 1064–65 (2013) (Roberts, C.J.) (citing 13D CHARLES ALAN WRIGHT ET AL., *FEDERAL PRACTICE AND PROCEDURE* § 3562 (3d ed. 2008)).

217. *Christianson v. Colt Indus. Operating Corp.*, 486 U.S. 800 (1988). Title 13, Section 711, of the Revised Statutes of the United States, the “precursor” to 28 U.S.C. § 1338, contained similar language: “[T]he jurisdiction vested in the courts of the United States in the cases and proceedings hereinafter mentioned, shall be exclusive of the courts of the several States. . . . Fifth. Of all cases arising under the patent-right . . . of the United States.” *Pratt v. Paris Gas Light & Coke Co.*, 168 U.S. 255, 257 (1897); see *Christianson*, 486 U.S. at 807–08 (stating the *Pratt* Court’s holding about federal jurisdiction “arising under” the patent law).

218. *Christianson*, 486 U.S. at 804–06.

219. *Id.* at 806–07.

220. The Courts’ inquiry was not limited to state claims as the appeal asked whether the lawsuit triggered Federal Circuit jurisdiction under § 1295. *Id.* at 807.

221. *Id.* at 809; see also *Hunter Douglas, Inc. v. Harmonic Design, Inc.*, 153 F.3d 1318, 1324–25 (Fed. Cir. 1998), *overruled on other grounds by* *Midwest Industries, Inc. v. Karavan Trailers, Inc.* 175 F.3d 1356, 1358–59 (Fed. Cir. 1999), *abrogated on other grounds by* *Trafix Devices, Inc. v. Marketing Displays, Inc.*, 532 U.S. 23, 28 (2001). The *Christianson* Court stated another version of the jurisdictional test where a case “aris[es] under” the patent statute only if (1) the plaintiff has “right, title or interest under the patent laws” or (2) the suit supports or undercuts some such “right or privilege.” *Christianson*, 486 U.S. at 807–08 (citing *Henry v. A.B. Dick Co.*, 224 U.S. 1 (1912); *Pratt v. Paris Gas*

The first prong depends *expressly* on federal patent law, while the second prong depends *implicitly*.²²² The Court focused on the second prong and analyzed [a1] necessity and [a2] substantiality respecting [b1] the necessary patent law element and [b2] the well-pleaded complaint rule.²²³ The necessity requirement means that a plaintiff's complaint does not satisfy § 1338 if it requests relief under the patent law, but also alleges "alternative theories" for relief that are "completely unrelated to the provisions and purposes of [the patent laws]."²²⁴ The well-pleaded-complaint rule requires the claim to appear in the plaintiff's complaint and not in the defendant's defenses or the plaintiff's denials thereof; plaintiff, however, "may not defeat [subject matter jurisdiction] by omitting to plead necessary federal questions in a complaint."²²⁵ The rule provided a negative boundary on substantiality, but unclear direction about what is substantial.²²⁶ The Court's application of its test gave little guidance because it rejected Christianson's claim on the grounds that it did not satisfy necessity, as patent and nonpatent theories supported its anti-trust and tortious inference claims.²²⁷

The Court thereby assimilated inquiry about patent jurisdiction to the Court's federal-question jurisprudence in its unanimous decision in *Franchise Tax Board of California v. Construction Laborers Vacation*

Light & Coke Co., 168 U.S. 255, 259 (1897)). The Court labeled this its holding from "long ago" in contrast to its "recent[]" decision "arising under" jurisprudence. *Id.* The Court, however, was unclear about how its old and recent tests relate. Comparison with the Federal Circuit and Seventh Circuit cases generating the circuit split indicate that the Supreme Court cited *Pratt* and *Henry* to sketch the history of patent jurisdiction while providing clearer language consistent with recent precedent on federal question jurisprudence. See *Christianson v. Colt Indus. Operating Corp.*, 822 F.2d 1544, 1553–56 (Fed. Cir. 1987); *Christianson v. Colt Indus. Operating Corp.*, 798 F.2d 1051, 1059–61 (7th Cir. 1986). This explains why the Court omitted the old test when it revisited its *Christianson* decision in *Gunn v. Minton*, 133 S. Ct. 1059, 1064–65 (2013). Federal Circuit decisions are relatively consistent with this interpretation. First, the disjunctive two-prong test in *Christianson* restates *Pratt/Henry*'s two-prong test "[i]n other words" to clarify it. *Biotech. Indus. Org. v. D.C.*, 496 F.3d 1362, 1367 (Fed. Cir. 2007); *Helfgott & Karas, P.C. v. Dickinson*, 209 F.3d 1328, 1334 (Fed. Cir. 2000). The old test uses obsolete language that is legitimate to invoke but does no work in deciding jurisdiction. *ClearPlay Inc. v. Abecassis*, 602 F.3d 1364, 1366–67 (Fed. Cir. 2010). Second, the old test sets out requirements additional to *Christianson*. *MCV, Inc. v. King-Seeley Thermos Co.*, 870 F.2d 1568, 1571 (Fed. Cir. 1989) (stating that the plaintiff satisfied the *Pratt/Henry* right, title, or interest prong because an inventorship contest under § 256 would determine if the applicant deceptively omitted a co-inventor and invalidated the patent and any property interest in it), *overruled on other grounds* by *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1042 (Fed. Cir. 1992) (*en banc*). Third, the old test is operative without reference to the recent test. *Microsoft Corp. v. Motorola, Inc.*, 564 F. App'x 586, 589 (Fed. Cir. 2014).

222. *Christianson*, 486 U.S. at 809 ("[P]atent law did not . . . create petitioners' antitrust or intentional-interference claims. . . . [T]he dispute centers around whether patent law is a necessary element of one of the well-pleaded [antitrust] claims.").

223. *Id.*

224. *Id.* at 810 (quoting *Franchise Tax Bd. v. Const. Laborers Vacation Trust for Southern Cal.*, 463 U.S. 1, 26 (1983)).

225. *Id.* at 809 & n.3 (quoting *Franchise Tax Bd.*, 463 U.S. at 22).

226. Kristen Lovin, Note, *One Size Does Not Fit All: Hypothetical Patents and Difficulties with Applying the § 1331 "Substantial Question" Formula to §1338*, 14 COLUM. SCI. & TECH. L. REV. 254, 259 (2013).

227. *Id.*

Trust for Southern California.²²⁸ This interpretation's key premise is that § 1338 mirrors the federal-question statute, 28 U.S.C. § 1331, stating that "[t]he district courts shall have original jurisdiction of all civil actions arising under the Constitution, laws, or treaties of the United States."²²⁹

2. Franchise Tax Board *Line of Cases and Federal Question Jurisdiction*

In *Franchise Tax Board*, the Court held that a federal district court lacked subject-matter jurisdiction over a case removed from California state court because the parties were nondiverse and, contrary to the defendant trust's claim, federal law (the Employment Retirement Insurance Security Act of 1974, or ERISA) did not necessarily pre-empt the State of California's attempt to levy on CLVT trust for unpaid taxes.²³⁰ *Franchise Tax Board* briefly surveyed case law on how a case may satisfy federal-question jurisdiction by arising under the U.S. Constitution or federal statutes or treaties.²³¹ The Court stated that a complaint stating a claim under federal statute satisfies 28 U.S.C. § 1331²³² as long as it satisfies the well-pleaded-complaint rule.²³³ Or, if a plaintiff's complaint asserts a state claim, then "original federal jurisdiction is unavailable unless it appears that some [1] substantial [2] disputed question of federal law is a [3] necessary element of one of the well-pleaded state claims, or that one or the other claim is 'really' one of federal law."²³⁴

The *Franchise Tax Board* Court held that federal courts lack subject matter jurisdiction over state declaratory-judgment suits raising federal-law questions if the federal claim (*e.g.*, federal preemption of state-tax law) would otherwise arise only as a defense to a state-law suit.²³⁵ Subject-matter jurisdiction would also be lacking if, contrary to fact, California had sued in state court under the federal Declaratory Judgment Act, 28 U.S.C. § 2201, and the case was removed to federal court because, given federalism concerns, the validity of state regulations should be tested in state court, despite potential preemption issues.²³⁶ Lastly, plaintiffs did not improperly omit a federal cause of action insofar as state-tax

228. 463 U.S. 1 (1983); see *Christianson*, 468 U.S. at 808–09; see also Lovin, *supra* note 226, at 259 & n.22 (citing *Christianson v. Colt Indus. Operating Corp.*, 822 F.2d 1544, 1550–51 (Fed. Cir. 1987) (noting that the Federal Circuit's analysis of the Federal Courts Improvement Act of 1982 may have contributed to the Supreme Court's reasoning in its review of the case)).

229. 28 U.S.C. § 1331 (2012) (emphasis added).

230. *Franchise Tax Bd.*, 463 U.S. at 4, 8.

231. *Id.* at 8–10.

232. *Id.* at 8–9.

233. *Id.* at 9–12. See *supra* text accompanying note 225.

234. *Franchise Tax Bd.*, 463 U.S. at 13. Notably, the second element, "disputed question," is missing from *Christianson*'s formulation but reappears in *Gunn*. See *supra* text accompanying note 221; see *infra* text accompanying note 265.

235. *Franchise Tax Bd.*, 463 U.S. at 17–19 (citing *Skelly Oil Co. v. Phillips Petroleum Co.*, 339 U.S. 667, 669–72 (1950)).

236. *Id.* at 19–22.

levies are not a “central concern” to ERISA, and if there is an omitted cause of action under ERISA, it must be brought by the defendant.²³⁷

In *Merrell Dow Pharmaceuticals Inc. v. Thompson*, the Court examined whether negligence claims for birth defects against Bendectin manufacturers warranted removal to federal district court on the theory that the torts arose under misbranding provisions of the Federal Food, Drug, and Cosmetic Act (“FDCA”).²³⁸ The parties agreed that the FDCA provided no express private remedy for misbranding.²³⁹ Thus, the Court considered whether the FDCA implied a private remedy.

The majority held that an implied private federal remedy did not exist because:

(1) the plaintiffs are not part of the class for whose special benefit the statute was passed; (2) the indicia of legislative intent reveal no congressional purpose to provide a private cause of action; (3) a federal cause of action would not further the underlying purposes of the legislative scheme; and (4) the respondents’ cause of action is a subject traditionally relegated to state law.²⁴⁰

The negligence claims failed the substantiality requirement for federal-question jurisdiction, articulated in *Franchise Tax Board* in 1983 and restated in *Christanson* in 1988, because those torts were contrary to Congress’ intent not to provide a private federal remedy for misbranding.²⁴¹

The four dissenting justices in *Merrell Dow* replied that the Court’s holding in *Smith v. Kansas City Title & Trust Co.* did not require a private federal remedy for federal-question jurisdiction over a state-law claim, but only that the “right to relief depends upon the construction or application of the Constitution or laws of the United States, and that such federal claim is not merely colorable, and rests on a reasonable foundation.”²⁴² This interpretation of

§ 1331, the dissenters claimed, served to make application of federal law more uniform and informed, as federal courts had stronger expertise in federal law than state courts.²⁴³ The courts of appeals split on whether

237. *Id.* at 25–27.

238. *Merrell Dow Pharm. Inc. v. Thompson*, 478 U.S. 804, 817 (1986). Bendectin was a drug prescribed to mitigate nausea and vomiting in pregnant women, and Merrell Dow voluntarily removed the drug from the market in 1983 due to lawsuits alleging birth defects. Shelley R. Slaughter et al., *FDA Approval of Doxylamine-Pyridoxine Therapy for Use in Pregnancy*, 370 NEW ENG. J. MED. 1081, 1082 (2014). The FDA exonerated Bendectin in 1999 and approved Duchesnay, Inc., to market it under the name Diclegis for morning sickness in April 2013. Determination That Bendectin Was Not Withdrawn from Sale for Reasons of Safety or Effectiveness, 64 Fed. Reg. 43,190 (Aug. 9, 1999); *Drug Approval Package*, FDA (Mar. 25, 2014), http://www.accessdata.fda.gov/drugsatfda_docs/nda/2013/021876Orig1s000TOC.cfm.

239. *Merrell Dow*, 478 U.S. at 810.

240. *Id.* at 810–11.

241. *Id.* at 814, 817.

242. *Id.* at 819–20, 823 (Brennan, J., dissenting) (citing *Smith v. Kansas City Title & Trust Co.*, 255 U.S. 180, 199 (1921)).

243. *Id.* at 814, 826–27.

Merrell Dow required a state-law claim to raise a federal cause of action to satisfy § 1331.²⁴⁴ This prompted the Supreme Court to address the subject in *Grable*.²⁴⁵

The *Grable* Court articulated a four-prong test for federal-question jurisdiction when the cause of action originates in “a state-law claim”: does the “claim [1] *necessarily* raise a stated federal issue, [2] *actually disputed* and [3] *substantial*, which a federal forum may entertain without disturbing any [4] *congressionally approved balance* of federal and state judicial responsibilities.”²⁴⁶ This is the same test *Gunn* stated for § 1338 jurisdiction over state-law claims.²⁴⁷ The *Grable* Court then pruned back *Merrell Dow*.²⁴⁸

[A]n opinion is to be read as a whole, and *Merrell Dow* cannot be read whole as overturning decades of precedent, as it would have done by effectively adopting the Holmes dissent in *Smith* and converting a federal cause of action from a sufficient condition for federal question jurisdiction into a necessary one.²⁴⁹

The Court held that “read[ing] [*Merrell Dow*] in its entirety” and its “broad language” about the absence of a federal cause of action was “evidence relevant to, but not dispositive of” the third and fourth sub-prongs and the policy consideration of administrability, *i.e.*, avoiding “a horde of original filings and removal cases raising other state claims with embedded federal issues.”²⁵⁰

3. Holmes Group, *Patent Jurisdiction*, and the Holmes Group Fix

In *Holmes Group*, the Court applied the well-pleaded-complaint rule to patent-infringement counterclaims. Reversing the Federal Circuit, the Court held that only a plaintiff’s complaint is a proper basis for § 1338 jurisdiction and, therefore, for § 1295 appellate jurisdiction.²⁵¹ The decision cited three policy rationales. First, granting a patent-infringement counterclaim original jurisdiction would substitute a “master of the counterclaim” doctrine for the traditional “master of the complaint” doctrine, undermining respect for a plaintiff’s forum choice. Additionally, it would shift litigation to federal courts and undermine state courts’ independence, and it would complicate jurisdictional disputes.²⁵² One of the problems *Holmes* disregarded, however, was that compulsory patent-infringement counterclaims were now subject to the jurisdiction

244. *Grable & Sons Metal Prods., Inc. v. Darue Eng’g & Mfg.*, 545 U.S. 308, 312 n.2 (2005); *Mr. Smith Goes to Federal Court: Federal Question Jurisdiction over State Law Claims Post-Merrell Dow*, 115 HARV. L. REV. 2272, 2281 n.50, 2282 n.51 (2002).

245. *Grable*, 545 U.S. at 311–12.

246. *Id.* at 314 (emphasis added).

247. See *infra* text accompanying note 265.

248. *Grable*, 545 U.S. at 317–18.

249. *Id.* at 317.

250. *Id.* at 317–18.

251. *Holmes Grp., Inc. v. Vornado Air Circulation Sys., Inc.*, 535 U.S. 826, 829 (2002).

252. *Id.* at 831–32.

of regional appellate courts, which was inconsistent with the intent of Congress in creating the Federal Circuit.²⁵³

The AIA²⁵⁴ implemented the “*Holmes Group* fix,”²⁵⁵ abrogating the Supreme Court decision by providing the Federal Circuit with jurisdiction over patent-related compulsory counterclaims.²⁵⁶ The legislation also further limited state-court jurisdiction over claims arising under the patent laws and gave federal district courts removal jurisdiction over patent claims of any parties (*e.g.*, plaintiffs, defendants, third-party plaintiffs and defendants).²⁵⁷

4. *Gunn and Patent Jurisdiction*

The Court revisited *Christianson* twenty-five years later in *Gunn v. Minton* and further aligned § 1338 and § 1331.²⁵⁸ Minton sued securities-trading companies for infringing his patent on interactive trading, which was found invalid under the “on sale” bar²⁵⁹ because he had leased his invention to a stock broker more than one year before applying for a patent.²⁶⁰ His attorney was Gunn, whom Minton subsequently sued in Texas state court for malpractice for not timely raising an “experimental use” defense.²⁶¹ Though the suit could not overturn the district court’s finding, the malpractice suit litigated whether the defense would have been successful if raised earlier.²⁶² Losing at trial, Minton appealed, arguing that the state court lacked subject-matter jurisdiction because the malpractice claim rested on a patent issue.²⁶³ The appeals court affirmed, the Texas Supreme Court reversed, and the U.S. Supreme Court granted *certiorari*.²⁶⁴

The Court unanimously held that original jurisdiction arises under *Christianson*’s second prong if a state law claim related to patent issues satisfies four sub-prongs: “federal jurisdiction over a state law claim will lie if a federal [patent] issue is (1) necessarily raised, (2) actually disputed, (3) substantial, and (4) capable of resolution in federal court without

253. *Id.* at 839–40 (Ginsburg, J., concurring).

254. *See supra* text accompanying notes 203, 206–7, 212; *see also* *Vermont v. MPHJ Tech. Invs., LLC*, No. 2015-1310, 2015 WL 5667526, at *5–6 (Fed. Cir. Sept. 28, 2015).

255. 157 CONG. REC. S1368 (daily ed. Mar. 8, 2011) (statement of Sen. Kyl). For criticism of the legislation’s language, see Paul M. Schoenhard, *Gaps, Conflicts and Ambiguities in the Federal Courts’ Post-AIA Patent Jurisdiction*, 25 INTELL. PROP. & TECH. L.J. 20 (2013).

256. *Matal, Part II, supra* note 95, at 540.

257. *Id.*

258. *Gunn v. Minton*, 133 S. Ct. 1059, 1064–65 (2013).

259. 35 U.S.C. § 102(b) (2006) (stating that an invention is unpatentable if it was “on sale in this country, more than one year prior to the date of the application for patent in the United States”). The AIA extends the on sale bar to offers for sale or sales worldwide. *See* 35 U.S.C. § 102(a)(1) (2012).

260. *Gunn*, 133 S. Ct. at 1062.

261. *Id.* at 1062–63.

262. *Id.* at 1063.

263. *Id.*

264. *Id.* at 1063–64.

disrupting the federal-state balance approved by Congress.”²⁶⁵ The standard in *Gunn* was again the Court’s federal-question jurisprudence—in this case its unanimous decision in *Grable & Sons Metal Products*.²⁶⁶ Moreover, the opinions provided reasonable guidance about interpreting the four sub-prongs.

(1) *Necessity*. To satisfy the necessity sub-prong, patent law must be essential to each supporting theory if alternative theories support the plaintiff’s claim.²⁶⁷ If an essential element of the cause of action is federal, such as the claim in *Gunn* that the plaintiff would have likely prevailed in a patent infringement lawsuit except for his attorney’s malpractice, then the sub-prong is met.²⁶⁸ The monopolization claim in *Christianson*, that the defendant sought “to illegally extend its monopoly position” with its patents over the M-16’s parts, did not satisfy the sub-prong because the plaintiff alleged other non-patent reasons for the illegal monopoly.²⁶⁹

(2) *Actually Disputed*. To satisfy the actually disputed sub-prong, the parties must dispute the “meaning of the federal statute” or whether it “applie[s]” in the instant case or what is its “effect.”²⁷⁰ In *Gunn*, the dispute was whether “the experimental-use exception properly applied to [respondent’s] lease . . . , saving his patent from the on-sale bar.”²⁷¹ In *Grable*, the parties disputed whether the Internal Revenue Service gave “adequate notice” by law and, thus, who had better title to property sold in a tax delinquency sale.²⁷²

(3) *Substantial Federal Issue*. To satisfy the substantial federal issue sub-prong, the claim must raise “an important issue of federal law . . . [in which] [t]he [g]overnment has a strong interest” or an “importan[t] issue to the federal system as a whole.”²⁷³ Whether the government may collect from tax debtors in default by levying property and selling it at auction is a prime example.²⁷⁴ Another is whether federal bonds are constitutionally valid and, thus, purchasable.²⁷⁵

In its substantiality discussion, the Court deemphasized uniformity of, and knowledgeability about, patent law as reasons to prefer federal court over state court. The “hypothetical” “backward looking” patent case about an invalidated patent in *Gunn* was not substantial because “it [would] not change the real-world result of the prior federal patent litiga-

265. *Id.* at 1065 (citing *Grable & Sons Metal Prods., Inc. v. Darue Eng’g & Mfg.*, 545 U.S. 308, 314 (2005)).

266. *Grable*, 545 U.S. at 308.

267. *Christianson v. Colt Indus. Operating Corp.*, 486 U.S. 800, 810 (1988).

268. *Gunn*, 133 S. Ct. at 1065.

269. *Christianson*, 486 U.S. at 810–12.

270. *Gunn*, 133 S. Ct. at 1065; *Grable*, 545 U.S. at 315; *see id.* at 315 n.3.

271. *Gunn*, 133 S. Ct. at 1065.

272. *Grable*, 545 U.S. at 310, 314–15.

273. *Gunn*, 133 S. Ct. at 1066; *Grable*, 545 U.S. at 315.

274. *Grable*, 545 U.S. at 314–15.

275. *Gunn*, 133 S. Ct. at 1066 (citing *Smith v. Kan. City Title & Trust Co.*, 255 U.S. 180, 198, 201 (1921)).

tion.”²⁷⁶ For such retrospective, “case-within-a-case patent rulings,” state courts were adequate because decisions about invalidated patents would not affect patent law “uniformity” and they “can be expected to hew closely to the pertinent federal precedents.”²⁷⁷ For a question of first impression, if it begins to arise frequently, then federal courts will soon develop consistent law erasing idiosyncratic state results; if the issue arises infrequently, “it is unlikely to implicate substantial federal interests.”²⁷⁸ The Court stated that “the possibility that a state court will incorrectly resolve a state claim is not, by itself, enough to trigger the federal courts’ exclusive patent jurisdiction, even if the potential error finds its roots in a misunderstanding of patent law.”²⁷⁹

Notably, this approach abrogates, or at least complicates, the Federal Circuit’s simpler “subject-specific approach,” where issues of infringement, validity, inventorship, compliance with patent regulations, and ownership may satisfy *Christianson*’s substantiality requirement.²⁸⁰

(4) *Congressionally Approved Balance*. To satisfy the congressionally approved balance sub-prong, the state claim must either “rare[ly]” trigger federal subject-matter jurisdiction, as in a state title case for a federal tax debtor, or the federal interest must be “substantial.”²⁸¹

IV. THE CIRCUIT SPLIT

Under *Christianson* and *Gunn*, subject-matter jurisdiction in inventorship disputes is straightforward for issued patents and less so for pending patent applications. 35 U.S.C. § 256 is generally understood to authorize courts to decide inventorship disputes about patents, even outside of patent infringement suits.²⁸² This statutory cause of action satisfies *Christianson*’s first prong and, therefore, 28 U.S.C. §1338.²⁸³ Inventorship disputes about patent application do not enjoy similar statutory support. As this Part demonstrates, the courts of appeals are split about the implications for patent jurisdiction.²⁸⁴ *Okuley*, *HIF Bio*, and *Camsoft* illustrate competing approaches to inventorship contests and different business and research arrangements that prompt such contests.

276. *Id.* at 1066–67.

277. *Id.* at 1067.

278. *Id.*

279. *Id.* at 1068.

280. Lovin, *supra* note 226, 262–66; *see, e.g.*, *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co., Ltd.*, 600 F.3d 1347, 1353 (Fed. Cir. 2010) (citation omitted) (“[T]his court has held that issues of inventorship, infringement, validity, and enforceability present sufficiently substantial questions of federal patent law to support jurisdiction under section 1338(a).”).

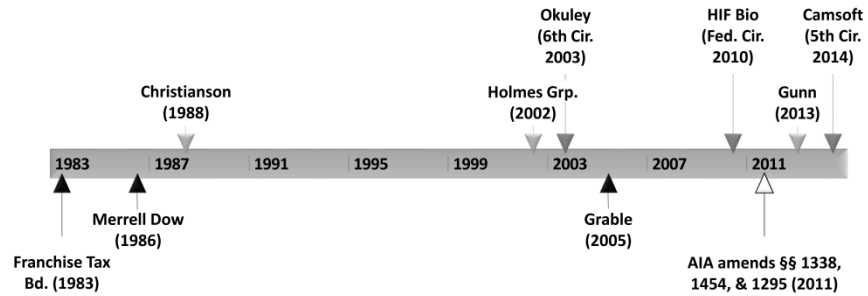
281. *Gunn*, 133 S. Ct. at 1068; *Grable & Sons Metal Prods. v. Darue Eng’g & Mfg.*, 545 U.S. 308, 315 (2005).

282. *See MCV, Inc. v. King-Seeley Thermos Co.*, 870 F.2d 1568, 1570 (Fed. Cir. 1989).

283. *See id.* at 1570–71.

284. *See infra* Sections IV.A–C.

FIGURE 3: TIMELINE OF CIRCUIT-COURT DECISIONS ABOUT FEDERAL JURISDICTION OVER PATENT APPLICATIONS AND RELEVANT SUPREME COURT DECISIONS AND FEDERAL LEGISLATION



A. E.I. Du Pont de Nemours & Co. v. Okuley (6th Cir. 2003)

As the introduction recounted, DuPont and Okuley disputed the ownership of patent applications relevant to oil-seed biotechnology from Okuley's discovery of the FAD2 gene in *Arabidopsis*.²⁸⁵ Okuley contended he held sole title because he was sole inventor (Lightner suggested a research plan, but did not actually help conceive of the invention) and his claim arose under 28 U.S.C. § 1338.²⁸⁶ The district court rejected Okuley's inventorship claim for lack of subject-matter jurisdiction over patent applications.²⁸⁷

Following his loss in district court, Okuley appealed to the Sixth Circuit. He argued that the district court erred in holding it lacked jurisdiction over two claims implicating an inventorship dispute: DuPont's claim of sole title to the FAD2 patent family, and Okuley's counterclaim of sole inventorship.²⁸⁸ Okuley argued that the district court also erred on the merits of the property and contract claims that the court heard sitting in diversity.²⁸⁹ The Sixth Circuit, however, affirmed the district court's judgment.²⁹⁰

The court held that the first ground did not satisfy *Christianson's* second prong that "DuPont's well-pleaded complaint necessarily requires resolution of [] [a patent law] question," in this case respecting inventorship.²⁹¹ The court held that, despite DuPont's rhetoric, the company was not making a global claim against all comers that might require determining who was the true inventor, but instead a claim about the relative merits of DuPont and Okuley's ownership claims.²⁹² In any case, DuPont's ownership claim was subject to independent, alternative theories about inventorship and contractual rights that entailed DuPont's right to relief and did not necessarily require resolution of a patent law question.²⁹³

The court held that Okuley's counterclaim did not satisfy *Christianson* in two ways. First, defendant Okuley's sole inventorship counterclaim violated the well-pleaded-complaint rule under *Holmes Group*, which had been decided a year earlier.²⁹⁴ Second, the court implied that

285. See *supra* Section I.A.

286. E.I. Du Pont de Nemours & Co. v. Okuley, No. C2-97-1205, 2000 WL 1911430, at *9, *11 (S.D. Ohio Dec. 21, 2000), *aff'd*, 344 F.3d 578 (6th Cir. 2003).

287. *Id.* at *10 ("[T]he Court . . . has no jurisdiction to consider Okuley's claims concerning inventorship.").

288. E.I. Du Pont de Nemours & Co. v. Okuley, 344 F.3d 578, 582–83 (6th Cir. 2003). In his appeal to the Sixth Circuit, Okuley unsuccessfully moved to transfer his case to the Federal Circuit. *Id.* at 581.

289. *Id.* at 585–86.

290. *Id.* at 587.

291. *Id.* at 582.

292. *Id.* This distinguished Okuley's case from the district court case *Rustevader Corp. v. Cowatch*, 842 F. Supp. 171 (W.D. Pa. 1993).

293. *Okuley*, 344 F.3d at 582–83.

294. *Id.* at 583 n.3.

the counterclaim failed the first prong of *Christianson* because it did not plead a proper cause of action under the patent statute.²⁹⁵ It affirmed the district court's holding that 35 U.S.C. §§ 116 and 256 are asymmetrical: § 256 authorizes district courts to order the USPTO to correct inventorship errors in patents, but § 116 "gives [sole] discretion to the Director of the PTO."²⁹⁶ The court inferred from this statutory difference "that Congress intended to draw a distinction between patent applications and issued patents," denying a cause of action in district court under § 116.²⁹⁷ The only viable cause of action in § 256 was inapplicable in Okuley's case because the patent assets were pending applications when the suit was filed.²⁹⁸ The court cited two additional policy reasons: "[s]uch a scheme avoids premature litigation and litigation that could become futile if the Director declined to grant a patent or voluntarily acceded to the claims of the would-be inventor prior to issue."²⁹⁹

The Sixth Circuit affirmed the district court's holding that the court lacked subject-matter jurisdiction over the inventorship contest: "federal courts have not been granted jurisdiction to settle all questions of law."³⁰⁰

B. HIF Bio, Inc. v. Yung Shin Pharmaceuticals Indus. Co., Ltd. (Fed. Cir. 2010)

In late 1999, two pharmacology professors at Seoul National University,³⁰¹ Jong-Wan Park and Yang-Sook Chun, started studying the effect of a small molecule (benzene indazole derivative YC-1) on a complex protein (hypoxia-inducible factor 1-alpha or HIF-1 α) to try developing cancer therapies that would starve tumors by cutting off blood supply.³⁰² Park contacted Che-Ming Teng, a senior colleague at National Taiwan University who studied YC-1 as an alternative to sildenafil, to obtain supplies of YC-1.³⁰³ Teng was affiliated with a Taiwanese pharmaceutical company, Yung Shin Pharmaceuticals, which manufactured YC-1, and he agreed to supply YC-1 in exchange for pre-publication drafts of academic papers, experimental results, and authorship on the papers.³⁰⁴ Through 2002, Park and Chun conducted test-tube

295. *Id.* at 583–84. *See supra* text accompanying note 220.

296. *Id.* at 583–84.

297. *Id.* at 584.

298. *Id.*

299. *Id.*

300. *Id.*

301. Combined Declaration and Power of Attorney for Utility or Design Patent Application, U.S. Patent Application 10/407,136 (filed Apr. 7, 2003), <http://portal.uspto.gov/pair/PublicPair> (search "Application Number" 10/407,136; then select "Image File Wrapper" tab).

302. *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co., Ltd.*, 508 F.3d 659, 660–61 (Fed. Cir. 2007), *rev'd*, *Carlsbad Tech., Inc. v. HIF Bio, Inc.*, 556 U.S. 635 (2009); *see* Method for Inhibiting Tumor Angiogenesis and Tumor Growth, U.S. Patent Application Publication No. US 2004/0198798 A1 (filed Apr. 7, 2003) (published Oct. 7, 2004).

303. Brief of Plaintiff-Appellees, *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co., Ltd.*, No. 2006-1522, 2007 WL 869881 (Fed. Cir. Feb. 23, 2007).

304. *HIF Bio*, 508 F.3d at 661; Brief of Plaintiff-Appellees, *supra* note 303.

and live-animal experiments, published two papers in *Biochemical Pharmacology* and *Journal of National Cancer Institute*, and filed a Korean patent application.³⁰⁵ On April 7, 2003, they filed a U.S. patent application and assigned their rights in July to the Korean startup BizBiotech Co., Ltd., which assigned its rights to the U.S. corporation HIF Bio, Inc., in 2005.³⁰⁶

Teng, however, secretly disclosed the research of Park and Chun to Yung Shin, beginning in 1999.³⁰⁷ Teng and Yung Shin's CEO, Fang-Yu Lee, filed a U.S. provisional patent application on March 29, 2002, U.S. patent application on May 16, 2002, and a PCT application claiming priority to the U.S. provisional on March 31, 2003.³⁰⁸ Trying to negotiate a joint venture with Yung Shin starting in June 2003, BizBiotech disclosed further research and business plans and only learned about the competing patent applications in December 2003 after the PCT application was published.³⁰⁹

After attempting to settle the dispute, HIF Bio sued Yung Shin, its affiliate Carlsbad Technology, and others in Los Angeles Superior Court on September 27, 2005.³¹⁰ Defendants removed the case to the Central District of California.³¹¹ In 2006, the district court granted Carlsbad's motion to dismiss HIF Bio's first amended complaint that alleged twelve causes of action.³¹² It held that the only federal claim was the claim three RICO and that claims one and two, contesting ownership and inventorship, and claims nine through twelve were state law claims.³¹³ It then dismissed the RICO claim for failure to state a claim (Rule 12(b)(1)), declined exercising supplemental jurisdiction where state claims were preponderant, and remanded the other eleven claims to state court.³¹⁴

Having argued to the district court that federal patent law vests exclusive jurisdiction over inventorship disputes about patent applications in the USPTO,³¹⁵ Carlsbad now attempted to dispose of the ownership and inventorship claims in its appeal to the Federal Circuit. Carlsbad argued the inventorship claims could not be remanded to state court because they arose under the patent laws.³¹⁶ The Federal Circuit, however,

305. *HIF Bio*, 508 F.3d at 661; see First Amended Complaint for Damages and Injunctive Relief at ¶¶ 22–26, *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co., Ltd.*, No. CV 05-7976-DPP, 2005 WL 1041043 (C.D. Cal. Mar. 7, 2006). The Federal Circuit stated that it accepted the first amended complaint's allegations as true for the appeal's purposes. *HIF Bio*, 508 F.3d at 660.

306. First Amended Complaint, *supra* note 305, ¶¶ 27–29.

307. *Id.* ¶¶ 43–44.

308. *Id.* ¶¶ 57, 61, 73; see *id.* ¶¶ 86, 128 (listing the correct PCT number).

309. *Id.* ¶¶ 63–73.

310. *HIF Bio*, 508 F.3d at 661; First Amended Complaint, *supra* note 305, ¶ 78.

311. *HIF Bio*, 508 F.3d at 661.

312. See *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co. Ltd.*, No. CV 05-07976 DDP, 2006 WL 6086295, at *1, 3 (C.D. Cal. June 9, 2006), *appeal dismissed*, 508 F.3d 659 (Fed. Cir. 2007), *rev'd sub nom.* Carlsbad Tech., Inc. v. HIF Bio, Inc., 556 U.S. 635 (2009).

313. *Id.* at *3–5.

314. *Id.* at *3, 6.

315. *Id.* at *4.

316. *HIF Bio*, 508 F.3d at 663.

affirmed the district court holding that 28 U.S.C. § 1447(c)–(d) precluded it from reviewing remands based on § 1367(c).³¹⁷ For, absent supplemental jurisdiction, the district court's order could "be colorably characterized as a remand based on lack of subject matter jurisdiction," and the district court held that this was sufficient under recent precedent to trigger § 1447(d)'s bar on appellate review.³¹⁸ Though the Federal Circuit did not reach Carlsbad's claim, it addressed the claim's merits on remand after the Supreme Court reversed.³¹⁹

Almost five years after the case was filed, the Federal Circuit held that, under *Christianson*, the inventorship dispute claim arose under the patent laws, but that the suit should be dismissed for failure to state a claim.³²⁰ To HIF Bio's claim that they sought a declaratory judgment of inventorship "under state common law" and the district court's citation to a 1940s district court case that inventorship was "a valid state law claim[]," the Federal Circuit replied that under its precedent in *American Cyanamid*, "federal patent law preempts any state law that purports to define rights based on inventorship."³²¹ Determining the applicable law does not determine proper venue because state courts are courts of general jurisdiction³²² and federal courts "have an independent obligation to determine whether subject-matter jurisdiction exists, even in the absence of challenge from any party."³²³ So, the next step was an analysis of HIF Bio's claim under *Christianson*.

From the outset, we should note two contrasts with prior cases. First, unlike *Okuley*, the well-pleaded-complaint rule did not bar HIF Bio's declaratory judgment inventorship claim because HIF Bio was a plaintiff.³²⁴ Second, unlike *Franchise Tax Board*,³²⁵ the declaratory judgment's inventorship claim was not barred as an anticipatory defense because Yung Shin and Carlsbad never alleged a patent-infringement claim or counterclaim to which inventorship error may have been a defense in 2005 under pre-AIA law.³²⁶

The *HIF Bio* court deemed inventorship as satisfying necessity and substantiality under *Christianson*. The Federal Circuit restated the Su-

317. 28 U.S.C. § 1447(c)–(d) (2006) (stating procedures for remand after removal and restricting appellate review); *id.* § 1367(c) (stating discretionary conditions for declining supplemental jurisdiction); *HIF Bio*, 508 F.3d at 667.

318. *HIF Bio*, 508 F.3d at 667.

319. *Carlsbad Tech., Inc. v. HIF Bio, Inc.*, 556 U.S. 635, 641 (2009); *HIF Bio*, 508 F.3d at 666.

320. *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co., Ltd.* 600 F.3d 1347, 1350, 1352–53 (Fed. Cir. 2010).

321. *Id.* at 1352–53. *See Univ. of Colo. Found., Inc. v. Am. Cyanamid Co.*, 196 F.3d 1366, 1372 (Fed. Cir. 1999).

322. *Tafflin v. Levitt*, 493 U.S. 455, 458–60 (1990) (citations omitted) (noting that "explicit statutory directive," "unmistakable implication from legislative history," "or clear incompatibility between state-court jurisdiction and federal interest" may "divest[] [state courts] of jurisdiction").

323. *Arbaugh v. Y&H Corp.*, 546 U.S. 500, 514 (2006).

324. *See supra* text accompanying notes 225, 294.

325. *See supra* text accompanying notes 235–37.

326. *See supra* text accompanying notes 91–98.

preme Court test that a claim arises under 28 U.S.C. § 1338 if it asserts: either 1) a particular cause of action from the patent statute; or 2) a state-or federal-law claim that “necessarily depends on resolution of a substantial question of federal patent law, in that patent law is a necessary element of one of the well-pleaded claims.”³²⁷ First, the Federal Circuit held that the inventorship claim satisfied necessity because “the only possible theory upon which relief could be granted . . . would be one in which determining the true inventor(s) of competing patent applications is essential.”³²⁸ That is, the district court would have to mount the “highly technical,” two-part inquiry involving claim construction and determining each inventor’s allegedly inventive activities respective contribution to the claimed invention; after all that, the result would still be subject to defenses of laches and equitable estoppel and to certain standards of evidence.³²⁹ Second, the court, in keeping with its “subject-specific approach,” held that inventorship satisfied substantiality because “inventorship is a unique question of patent law.”³³⁰

Only after analyzing the patent-related issue, abstracted from statutory causes of action, did the Federal Circuit then broach the asymmetry between 35 U.S.C. § 116 and § 256 and its implications for pending applications. Here, the court did not disagree with its sister court that a claim contesting inventorship amounted to a request to “modif[y] . . . inventorship on pending patent applications or an interference proceeding.”³³¹ But only § 116 or § 135³³² addressed pending applications’ inventorship errors, and those statutes only granted authority to the director of the USPTO.³³³

The court expressly held that § 116 does not create a “private right of action” for patent applications, but that “the district court has jurisdiction over the cause of action” inventorship, and dismissal was proper under Rule 12(b)(6).³³⁴ It justified this distinction, in part, by quoting its *Litecubes* decision, which in turn quoted the Supreme Court in *Bell v. Hood*: the complaint’s “failure to state a proper cause of action calls for judgment on the merits and not for a dismissal for want of jurisdiction.”³³⁵ This resembles the *Grable* Court’s criticism of *Merrell Dow*’s excesses: a statutory cause of action is sufficient, but not necessary, for federal jurisdiction, otherwise *Franchise Tax Board* and *Christianson* would collapse into their first prong.³³⁶ The *Bell* Court also stated its test positively: ju-

327. *HIF Bio*, 600 F.3d at 1352; see *supra* text accompanying note 221.

328. *HIF Bio*, 600 F.3d at 1353.

329. See *supra* Subsections II.B.6 and II.D.2–4.

330. *HIF Bio*, 600 F.3d at 1353; see *supra* text accompanying note 280.

331. *HIF Bio*, 600 F.3d at 1353.

332. See *supra* Section II.C.

333. *HIF Bio*, 600 F.3d at 1353.

334. *Id.* at 1353–54.

335. *Id.* at 1354 (quoting *Litecubes, LLC v. N. Lights Prods, Inc.*, 523 F.3d 1353, 1361 (Fed. Cir. 2008)).

336. See *supra* Subsection III.B.2.

risdiction fails only where the claim under Constitutional or federal statute “appears to be immaterial and made solely for the purpose of obtaining jurisdiction or where such a claim is wholly insubstantial and frivolous.”³³⁷

While the *Bell* test may appear overly permissive, the Supreme Court approvingly restated it in its unanimous *Arbaugh* decision: “[a] plaintiff properly invokes § 1331 jurisdiction when she *pleads a colorable claim* ‘arising under’ the Constitution or laws of the United States.”³³⁸ (*Merrell Dow*’s dissent invoked similar language.)³³⁹ Indeed, *Litecubes* independently cites *Arbaugh*,³⁴⁰ which focused on confusion about when dismissal is proper pursuant to Rules 12(b)(1) or 12(b)(6).³⁴¹ *Arbaugh* asked if the “15-employee threshold” for Title VII liability was a jurisdictional or substantive requirement.³⁴² An example of a jurisdictional requirement is the amount-in-controversy requirement in 28 U.S.C. § 1332 or in § 1331, before 1980.³⁴³ Besides reaffirming *Bell*, *Arbaugh* held the threshold to be substantive: “If the Legislature clearly states that a threshold limitation on a statute’s scope shall count as jurisdictional, then courts and litigants will be duly instructed But when Congress does not rank a statutory limitation on coverage as jurisdictional, courts should treat the restriction as nonjurisdictional in character.”³⁴⁴ The Court then cited a set of statutes it considered to be state jurisdictional requirements, and they uniformly were phrased as determining the court’s jurisdiction.³⁴⁵

Additionally, *Litecubes* cited *Montana-Dakota Utilities*, which also addressed the distinction between jurisdiction and causes of action.³⁴⁶ The two public electric utilities, Montana-Dakota and Northwestern, traded electricity in a regulated market.³⁴⁷ The suit alleged that Northwestern overcharged for electricity Montana-Dakota received and underpaid for electricity Montana-Dakota provided under the Federal Power Act’s (“FPA”) reasonable-rate requirement.³⁴⁸ Montana-Dakota won compensatory damages, but the Eighth Circuit reversed for lack of subject-matter jurisdiction because there was no proper cause of action.³⁴⁹ The Supreme Court held that the FPA vested electricity rate determinations

337. *Bell v. Hood*, 327 U.S. 678, 682–83.

338. *Arbaugh v. Y&H Corp.*, 546 U.S. 500, 513 (2006) (Ginsburg, J.) (8–0 decision) (emphasis added) (citing *Bell*, 327 U.S. at 681–85); see *id.* at 513 n.10; see also *supra* text accompanying note 242.

339. See *supra* text accompanying note 242.

340. *Litecubes*, 523 F.3d at 1361–62 (quoting *Arbaugh*, 546 U.S. at 511, 514).

341. *Arbaugh*, 546 U.S. at 503, 511–512.

342. *Id.* at 513–14.

343. *Id.* at 506, 513.

344. *Id.* at 515–16; see *Gonzalez v. Thaler*, 132 S. Ct. 641, 648 (2012) (8–1 decision) (reaffirming the *Arbaugh* rule in the context of 28 U.S.C. § 2253 (2012)).

345. *Arbaugh*, 546 U.S. at 515 n.11.

346. *Litecubes*, 523 F.3d at 1361–62 (quoting *Mont.-Dakota Utils. Co. v. Nw. Pub. Serv. Co.*, 341 U.S. 246, 249 (1951) (5–4 decision)).

347. *Mont.-Dakota*, 341 U.S. at 247–48.

348. *Id.*

349. *Id.* at 248–50.

in the Federal Power Commission (“FPC”) and not in the courts, and absent Montana-Dakota exhausting its administrative remedies, the courts lacked power to enforce a different rate.³⁵⁰ The Court admitted that it could not refer the issue to the FPC because it lacked power to grant compensatory damages, and, therefore, Montana-Dakota lacked a remedy. Ultimately, the Court affirmed the Eighth Circuit not for a lack of subject-matter jurisdiction, but rather for failure to state a claim.³⁵¹

C. Camsoft Data Systems, Inc. v. Southern Electronics Supply, Inc.
(5th Cir. 2014)

One solution to the vulnerability of communications and network infrastructure in emergencies and natural disasters is “wireless mesh”: that is, “ad hoc” but “self-configur[ing]” networks of wireless devices connecting through unfixed “network nodes” to provide mobility, scalability, and redundancy.³⁵² CamSoft Data Systems was a contractor that developed a mesh network in New Orleans.³⁵³ It alleged partnering in an informal venture with Southern Electronics Supply (“Southern”) and Active Solution (“Active”) to win a contract with New Orleans to create a network of surveillance cameras.³⁵⁴ CamSoft claimed it conceived of new networking models to manage the streaming video data volume.³⁵⁵ Southern and Active won the contract in 2004 and allegedly pushed out CamSoft while it built out the camera network through 2006.³⁵⁶ To get the contract, CamSoft’s former partners apparently colluded in kick-backs and contract steering and were themselves later pushed out by larger corporations.³⁵⁷ Following its former partners’ suit against New Orleans and other companies, CamSoft sued in state court for “declaration that it is the sole owner or co-owner . . . [of] the intellectual property associated with the wireless video surveillance system.”³⁵⁸ CamSoft’s suit was removed to the Middle District of Louisiana in 2009, and, on appeal, the Fifth Circuit addressed jurisdiction over inventorship disputes about patent applications in 2014.³⁵⁹

The court rehearsed the same arguments about the asymmetry of § 116 and § 256 and how the USPTO, not the courts, have authority to

350. *Id.* at 250–52. *But see id.* at 261 (Frankfurter, J., dissenting) (“A duty declared by Congress does not evaporate for want of a formulated sanction.”).

351. *Id.* at 250, 255.

352. David Abusch-Magder et al., *911-NOW: A Network on Wheels for Emergency Response and Disaster Recovery Operations*, 11 BELL LABS TECHNICAL J. 113, 115–16, 119 (2007).

353. Corrected Brief for Plaintiff-Appellant at 9–10, *CamSoft Data Sys., Inc. v. S. Elecs. Supply, Inc.*, No. 12-31013, 2013 WL 8216542 (5th Cir. Mar. 6, 2014).

354. *Id.* at *9–14.

355. *Id.* at *11–12.

356. *Id.* at *14–17.

357. *CamSoft Data Sys., Inc. v. S. Elecs. Supply, Inc.*, 2015-1260 (La. App. 1 Cir. 9/23/15); 182 So. 3d 1009, 1012–14; Corrected Brief, *supra* note 353, at *3, 17–25.

358. *CamSoft Data Sys., Inc. v. S. Elecs. Supply, Inc.*, No. 09-1047-C, 2010 WL 763508, at *3 (M.D. La. Mar. 4, 2010), *vacated and appeal dismissed*, 756 F.3d 327 (5th Cir. 2014).

359. *CamSoft*, 756 F.3d at 330–31.

determine inventorship of patent applications.³⁶⁰ It never mentioned the well-pleaded complaint rule because *Camsoft* was a plaintiff. It mentioned *Christianson* once in quoting *HIF Bio*,³⁶¹ but *CamSoft* never mentions *Gunn*, despite *Gunn* having been decided sixteen months earlier.

The court instead cited the Supreme Court in *Russello* for the statutory construction rule: “where Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion.”³⁶² While agreeing with the *HIF Bio* that “[i]nventorship is an issue ‘unique’ to federal patent law, and raises a substantial question thereof,” the *Camsoft* court concluded that *Okuley* was correct that “a district court lack[s] [subject matter] jurisdiction to review the inventorship of an unissued patent.”³⁶³

The *Camsoft* court analogized the situation to other federal laws over which federal courts lack federal-question jurisdiction. For instance, federal law controls immigration, but Article III courts may only exercise appellate jurisdiction and only after proceedings before immigration courts and the Board of Immigration Appeals.³⁶⁴ Also, federal law governs collective bargaining, but some labor statutes “expressly and unequivocally consign” labor litigation to an “adjustment board,” such that “the court must dismiss under Rule 12(b)(1).”³⁶⁵ If district courts lack original and removal jurisdiction over immigration and some aspects of federally regulated labor disputes, then a similar lack of authority over certain patent-related questions makes sense.

The employment law example comes from *Oakey*, a D.C. Circuit case addressing whether courts may hear an ERISA claim regarding a pilot’s disability plan governed by the Railway Labor Act (“RLA”).³⁶⁶ The *Oakey* court held that the RLA’s language was jurisdictional under *Arbaugh*, and it affirmed that the airline’s arbitral board’s jurisdiction was exclusive.³⁶⁷ Notably, the court had previously considered this in *Northwest*, where it cited a series of Supreme Court and appellate-court cases affirming the board’s exclusivity.³⁶⁸ The *Slocum* Court held that, under the RLA, Congress gave the National Railway Adjustment Board (“NRAB”) “exclusive” jurisdiction over employee grievances against a carrier because this would prevent “strikes” and promote “conciliation,”

360. *Id.* at 334–35.

361. *Id.* at 334 (quoting *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co., Ltd.*, 600 F.3d 1347, 1352 (Fed. Cir. 2010)).

362. *Id.* at 335 (quoting *Russello v. United States*, 464 U.S. 16, 23 (1983)).

363. *Id.* at 334 (quoting *HIF Bio*, 600 F.3d at 1352–53); *id.* at 335 (quoting *E.I. Du Pont de Nemours & Co. v. Okuley*, 344 F.3d 578, 584 (6th Cir. 2003)).

364. *Camsoft*, 756 F.3d at 335.

365. *Id.* at 336 (citing *Oakey v. U.S. Airways Pilots Disability Income Plan*, 723 F.3d 227, 238 (D.C. Cir. 2013); *Emswiler v. CSX Transp., Inc.*, 691 F.3d 782, 789 (6th Cir. 2012)).

366. *Oakey*, 723 F.3d at 229.

367. *Id.* at 238.

368. *See Air Line Pilots Ass’n, Intern. v. Nw. Airlines, Inc.*, 627 F.2d 272, 275 (D.C. Cir. 1980) (collecting cases).

and the “agency was peculiarly competent in this field.”³⁶⁹ The *Day* Court held that NRAB had “exclusive primary jurisdiction” and that “legislative meaning and policy” required retirees to take their grievances to NRAB, otherwise they might be treated better than “active employee[s],” causing “discontent which it was the aim of the Railway Labor Act to eliminate,” and generating “conflict” and “strikes.”³⁷⁰ The *Andrews* Court held that, not only are “administrative remedies” under the RLA “compulsory” for discharged employees, but also that “exhaust[ing] . . . administrative remedies” by “litigating an issue before the Adjustment Board on the merits” is “exclusive” and bars “independent judicial review.”³⁷¹ In *Haney*, the D.C. Circuit held that a “carve out” to *Andrews* to avoid retaliation was impermissible because exceptions would proliferate and because *Andrews* was settled law.³⁷² Finally, in *de la Rosa Sanchez*, the First Circuit held that *Andrews* barred suit over pension payments to an airline employee and required submission to the Pilot System Board of Adjustment.³⁷³

In contrast, the Fifth Circuit deemed the *HIF Bio* court’s decision unexplained and unpersuasive:

Without further explanation, the Federal Circuit concluded that the district courts therefore have jurisdiction over pre-patent inventorship disputes but must dismiss under Rule 12(b)(6) until a patent has issued such that a valid § 256 action might be brought It seems like splitting jurisdictional hairs to suggest that the federal courts entertain some kind of pending jurisdiction over a dispute whose immediate resolution Congress delegated to another forum.³⁷⁴

The Fifth Circuit also criticized the *HIF Bio* court for neglecting ripeness concerns that bar jurisdiction.³⁷⁵ Courts lack subject-matter jurisdiction over pending patent application because “federal courts have no jurisdiction over claims that ‘rest[] upon contingent future events that may not occur as anticipated, or indeed may not occur at all.’”³⁷⁶

The *Camsoft* court concluded that inventorship contests are not justiciable until the USPTO grants a patent, and the case, including any inventorship claims, should be remanded to state court.³⁷⁷

369. *Slocum v. Delaware, L & W. R. Co.*, 339 U.S. 239, 242–45 (1950).

370. *Penn. R.R. Co. v. Day*, 360 U.S. 548, 552–53 (1959).

371. *Andrews v. Louisville & Nashville R.R.*, 406 U.S. 320, 323, 325 (1972).

372. *Haney v. Chesapeake & Ohio R.R. Co.*, 498 F.2d 987, 992 (D.C. Cir. 1974).

373. *De La Rosa Sanchez v. E. Airlines, Inc.*, 574 F.2d 29, 32–33 (5th Cir. 1980).

374. *CamSoft Data Sys., Inc. v. S. Elecs. Supply, Inc.*, 756 F.3d 327, 336 (5th Cir. 2014).

375. *Id.*

376. *Id.* (citing *Texas v. United States*, 523 U.S. 296, 300 (1998)). The court thus implied that ripeness challenges should be articulated as Rule 12(b)(1) motions and not Rule 12(b)(6) motions. *See, e.g., St. Clair v. City of Chico*, 880 F.2d 199, 201 (9th Cir. 1989).

377. *Camsoft*, 756 F.3d at 336.

V. ANALYSIS: RELITIGATING *OKULEY*, *HIF BIO*, AND *CAMSOFT*

This Part will collect and analyze the results of Parts II–IV as follows: (A) the inventorship correction statutes; (B) the merits of the appellate courts’ arguments about inventorship contests and patent applications; and (C) *HIF Bio*’s result under *Gunn*.

A. *Inventorship Correction Statutes*

The starting point for all the discussions is the asymmetry of the inventorship correction statutes,³⁷⁸ 35 U.S.C. §§ 116, 256:

Whenever through error a person is named in an application for patent as the inventor, or through error an inventor is not named in an application, the *Director* may permit the application to be amended accordingly, under such terms as he prescribes.³⁷⁹

The error of omitting inventors or naming persons who are not inventors shall not invalidate the patent in which such error occurred if it can be corrected as provided in this section. The *court* before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned and the *Director* shall issue a certificate accordingly.³⁸⁰

Federal regulation states that the director may exercise this authority if the applicant and nonjoined or misjoined inventor agree about the correction.³⁸¹ If parties do not agree about a correction, they may exercise their rights under § 135 and institute an *inter partes* interference or derivation proceeding.³⁸² This proceeding permits a person to obtain a USPTO determination about who contributed to an invention’s conception.³⁸³ Applications with EFDs on or before March 15, 2013, are eligible for an interference proceeding; derivation rules apply to later EFDs.³⁸⁴ Besides frontloading the merits arguments and being before distinct adjudicatory bodies, the first stage of derivations is procedurally similar to that of interferences.³⁸⁵

The argument that § 116 proceedings are a true counterpart to § 256 is not unreasonable. On one hand, parties that elect to use interference and derivation proceedings have access to federal courts.³⁸⁶ The Federal Circuit clarified in *Finkle*, however, that § 141 and § 146, authorizing appeals from such proceedings, require parties first to exhaust administrative relief.³⁸⁷

378. See *supra* Section II.C.

379. 35 U.S.C. § 116(c) (2012) (emphasis added).

380. *Id.* § 256(b) (emphasis added).

381. See *supra* Subsection II.C.1.

382. See *supra* Subsections II.C.1, 4.

383. See *supra* Subsection II.C.4.

384. See *id.*

385. See *id.*

386. See *id.*

387. See *id.*

On the other hand, subject to laches and estoppel,³⁸⁸ inventors always have access to the court to contest inventorship under § 256, while § 116 has stricter limits. An interference or derivation petition must be filed within one year of a patent application's publication or a patent's issuance.³⁸⁹ The *Finkle* court did not address whether parties acting in good faith who fail to file have thereby constructively exhausted their administrative remedies. After all, a patent may remain pending for a very long time.³⁹⁰ Additionally, the *Biogen* court held that for an interference declared on or after September 12, 2012, but before the March 16, 2013 deadline, § 116 does not permit an appeal to district court, rather it only allows for appeals to the Federal Circuit.³⁹¹ Parties are stuck with the record developed before the USPTO.

A second complication is that the *Finkle* and *Biogen* courts stated their holdings as failures of subject-matter jurisdiction, contrary to *HIF Bio*.³⁹² On one hand, *Finkle* and *Biogen* may tip the Federal Circuit's hand that policy considerations drove *HIF Bio* more than statute and precedent. On the other hand, *Finkle* and *Biogen* may be understood as falling under Justice Ginsberg's dictum in *Arbaugh* that "such unrefined dispositions [are] 'drive-by jurisdictional rulings' that should be accorded no precedential effect" on the scope of a district courts' original jurisdiction.³⁹³ The *Biogen* court found the Federal Circuit had jurisdiction under § 141 to hear the appeal from interference, so it is improper to read failures of subject-matter jurisdiction under § 146 into 28 U.S.C. § 1338 and § 1295. Additionally, the conclusions of *Finkle* and *Biogen* about the subject matter jurisdiction are properly viewed as *dicta*. They did not address the issues in *Christianson* and *Gunn*, and *Biogen* did not overrule *HIF Bio*.

B. Subject-Matter Jurisdiction Under Christianson

1. Objections to Jurisdiction

The *Okuley* and *Camsoft* courts held that a court lacks subject-matter jurisdiction over an inventorship contest if none of the relevant patent applications are granted when the suit is filed. The courts agreed that the implication of the asymmetry between 35 U.S.C. § 116 and § 256 is the major premise for the lack of subject-matter jurisdiction. The arguments they produced for that premise are as follows (with individual arguments numbered in parentheses).

388. See *supra* Subsections II.D.3–4.

389. See *supra* Subsection II.C.4.

390. See *supra* Section V.A.

391. See *supra* Subsection II.C.4.

392. See *supra* *id.*

393. *Arbaugh v. Y & H Corp.*, 546 U.S. 500, 511 (2006).

First, it is consistent with the canons of good statutory construction. 1) On a plain reading, the asymmetry of § 116 and § 256 justifies a denial of subject-matter jurisdiction over inventorship disputes over patent applications.³⁹⁴ 2) The *Russello* Court held that in a statute where two sections differ respecting the addition or omission of language, it should be understood as intentional.³⁹⁵

Second, federal laws over which federal courts lack federal-question jurisdiction are not unusual. 3) Federal immigration-law claims are genuine federal issues, but district courts lack subject-matter jurisdiction over them.³⁹⁶ 4) Collective bargaining disputes governed by adjustment boards are genuine federal issues, but district courts lack subject-matter jurisdiction over them.³⁹⁷ Inventorship errors in pending applications pose a problem analogous to both examples.

Third, courts regularly deny premature claims on grounds of justiciability and efficiency. 5) A claim is not justiciable on ripeness grounds when a statute authorizes courts to act only when a patent application is granted and then suit is filed.³⁹⁸ 6) This division of labor between the USPTO for pending applications and the courts for patents avoids premature litigation.³⁹⁹ 7) This division of labor also avoids useless litigation. The director may not grant the patent or the alleged inventor may convince the director to correct the patent before granting it.⁴⁰⁰ Alternatively, an applicant may amend a patent application to exclude a nonjoined inventor's contributions or abandon the application.⁴⁰¹ 8) This division of labor is sensible because the interference/derivation proceedings under § 116 and § 135 are "more apt vehicle[s] for determining the inventorship" of a patent application's claims given the USPTO's expertise.⁴⁰²

Fourth, the *HIF Bio* alternative is contrived. 9) The Federal Circuit lacks a sound legal basis for rejecting a Rule 12(b)(1) dismissal but affirming a Rule 12(b)(6) dismissal when the court admits that Congress divided the labor and the courts lack the basis to hear such cases.⁴⁰³

2. *Replies to Objections*

The *Okuley* and *Camsoft* arguments are subject to the following replies. First, the referenced canons of statutory construction are neutral to whether dismissal is proper under Rules 12(b)(1) or 12(b)(6). 1) The *HIF*

394. See *supra* text accompanying notes 296–98.

395. See *supra* text accompanying note 362; see *supra* text accompanying notes 331–33 (discussing a similar reasoning by the Federal Circuit).

396. See *supra* text accompanying note 364.

397. See *supra* text accompanying note 365; see also *supra* text accompanying notes 366–734.

398. See *supra* text accompanying note 375.

399. See *supra* text accompanying note 299.

400. See *id.*

401. *Concrete Washout Sys. Inc. v. Minegar Envtl. Sys. Inc.*, No. CIVS041005WBSDAD, 2005 WL 1683930, at *4 (E.D. Cal. 2005).

402. *Id.*

403. See *supra* text accompanying notes 374–76.

Bio court agreed⁴⁰⁴ that Congress drew a distinction between patents and patent applications, and that Congress did not give courts authority to decide inventorship errors about patent applications. Nothing about Rules 12(b)(1) or 12(b)(6) follow from that bare fact. 2) *Arbaugh* held that linguistic differences between a statute's sections should be deemed jurisdictional rather than substantive only when its jurisdictional nature is clear—a case that *Okuley* and *Camsoft* did not make.⁴⁰⁵ 3) Infelicities in *Finkle* and *Biogen* about subject-matter jurisdiction⁴⁰⁶ should not determine the law here for reasons that Justice Ginsburg articulated in *Arbaugh* ('drive-by jurisdictional rulings').⁴⁰⁷

Second, immigration law and labor law are dissimilar from patent applications because the patent statute does not create a comprehensive scheme separating jurisdiction over patent applications and issued patents. 4) The AIA's changes to the jurisdictional statutes abrogated *Holmes Group*, but did not abrogate *Christianson* or preempt *Gunn*. Pending patent applications would satisfy *Christianson*'s requirements for a cause of action absent the implied limits of 35 U.S.C. § 116. 5) Courts have original jurisdiction over other features of pending applications. For instance, the Federal Circuit held, in *VanVoorhies*, that courts can determine disputes about parent-child relationships between patent applications and consequent contractual rights.⁴⁰⁸ 6) *Oakey* cites precedents interpreting a statute, the RLA, that Congress intended to prevent strikes from shutting down commerce and travel; and, that purpose is undermined if union employees have general access to the courts.⁴⁰⁹ The policy stakes are high, and the law is well-trodden.⁴¹⁰ In these respects, the RLA is disanalogous to 35 U.S.C. § 116 and § 256. *Okuley* and *Camsoft* never allege that recognizing a district court's original jurisdiction over inventorship disputes about patent applications would damage the U.S. patent system. Even considering how the patent statute divides labor between the courts and the USPTO, the patent statute is not a comprehensive scheme like the RLA because 35 U.S.C. §§ 135, 146, and 141(d) are only relevant to patent applications within the

404. See *supra* text accompanying notes 331–34.

405. See *supra* text accompanying notes 339–45.

406. See *supra* text accompanying notes 143, 146.

407. See *supra* text accompanying notes 339–45.

408. *Univ. of W. Va. Bd. of Trs. v. VanVoorhies*, 278 F.3d 1288, 1296–97 (Fed. Cir. 2002). *VanVoorhies* applied the Federal Circuit's subject-specific test to the second-prong of *Christianson*, not *Gunn*, so the result might be different today. *Id.* The Federal Circuit responded to *Gunn* primarily by viewing its holding as a negative limit on patent jurisdiction. As long as a claim involves a forward looking, live asset, and the result is important to the patent system as a whole (*e.g.*, it requires application of key patent doctrines such as infringement and validity, potentially inconsistent judgments may result from subsequent litigation in other forums, a federal issue is dispositive, the case would affect many other cases, the federal government wants its administrative actions to be adjudicated in federal court), the second prong is usually satisfied. See, *e.g.*, *NeuroRepair, Inc. v. The Nath Law Grp.*, 781 F.3d 1340, 1343–48 (Fed. Cir. 2015) (denying patent jurisdiction); *Jang v. Bos. Sci. Corp.*, 767 F.3d 1334, 1336–39 (Fed. Cir. 2014) (granting patent jurisdiction).

409. See *supra* text accompanying notes 366–73.

410. See *supra* text accompanying notes 366–73.

first year of their publication.⁴¹¹ 7) *Montana-Dakota* provides a counter-analogy to *Oakey* and the RLA. In *Montana-Dakota*, the plaintiff made a series of complaints under the statute: the courts could not provide a remedy before the plaintiff exhausted administrative relief because the statute assigned authority over utility rates to the regulator, the regulator could only provide a prospective solution, and the Court amended the appellate court's decision from dismissal for lack of subject-matter jurisdiction to a dismissal for failure to state a claim.⁴¹²

Third, justiciability is a nonissue for three reasons. 8) Inventorship disputes about pending applications satisfy ripeness's requirements—"fitness . . . for judicial decision" and "hardship to parties of withholding court consideration"—because the filed application fixes the outer boundaries of the disclosed invention (it is not a moving target) and waiting for a granted patent disadvantages the aggrieved party.⁴¹³ 9) Courts disagree about whether ripeness makes a 12(b)(1) or 12(b)(6) motion proper.⁴¹⁴ 10) Disputes about patent applications are justiciable, as *Van-Voorhies* demonstrates.⁴¹⁵

Additionally, the division of labor between the courts and USPTO in inventorship correction, however efficient, may substantially prejudice a nonjoined inventor's claims. 11) Allowing a patent applicant to amend an application's claims and exclude another inventor's contributions does not cure the injury to the nonjoined party. The nonjoined party may have made a material contribution to an invention, but not enough for a separate, patentable claim that can be filed.⁴¹⁶ The publication of the patent application, however, would serve as prior art to future applications.⁴¹⁷ While the nonjoined party has recourse through the USPTO to contest the origin of the prior application's disclosure, this still prejudices the nonjoined party's claim.⁴¹⁸ 12) The USPTO uses precedent from Article III courts to evaluate inventorship claims, and the scientific credentials of USPTO personnel provides no advantages in terms of "expertise" in examining the documentary, physical, circumstantial, and testimonial evidence.⁴¹⁹ 13) Court intervention after issuance pursuant to § 256 is unfavorable to a nonjoined party because courts presume that an issued patent names the correct inventors, and, thus, a court challenge on the point requires clear-and-convincing evidence.⁴²⁰ To avoid such prejudice,

411. See *supra* Subsection II.C.4.

412. See *supra* text accompanying notes 346–51.

413. *Abbott Labs. v. Gardner*, 387 U.S. 136, 149 (1967).

414. See 5B CHARLES ALAN WRIGHT & ARTHUR R. MILLER, FEDERAL PRACTICE AND PROCEDURE §§ 1350 n.11, 1357 n.83.25 (3d ed. 2004); 5C CHARLES ALAN WRIGHT & ARTHUR R. MILLER, FEDERAL PRACTICE AND PROCEDURE § 1363 n.12 (3d ed. 2004).

415. See *supra* text accompanying note 408.

416. See *supra* Subsections II.B.1–2.

417. See 35 U.S.C. § 102(a)–(b) (2006); 35 U.S.C. § 102(a) (2012).

418. See *supra* Section V.A.

419. See *Trovan Ltd. v. Sokymat SA*, 299 F.3d 1292, 1302–03 (Fed. Cir. 2002).

420. *Trovan*, 299 F.3d at 1301 (citing *Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976, 979–80 (Fed. Cir. 1997)); *Duke Univ. v. Elan. Corp.*, No. 1:04CV532, 2006 WL 267185, at *5

the nonjoined party must bring suit before issuance, when the standard is a preponderance of the evidence.⁴²¹

Fourth, *Camsoft's* complaint that *HIF Bio* gratuitously ‘splits hairs’ begs the question. Whether to dismiss under Rule 12(b)(1) or 12(b)(6) is not a distinction without a difference. In *Camsoft*, the inventorship dispute (about a vaguely described patent application) was remanded to state court, whereas it is taken out of play in *HIF Bio* (a cancer-therapy patent application). The *Arbaugh* rule distinguishes jurisdictional and substantive requirements by asking if the 14) claim is colorable, and 15) if the statute’s language is clearly jurisdictional. Its examples of clearly jurisdictional statutes all have plain boundary-setting language that is missing from § 116.⁴²² Claims for inventorship correction in patent applications under § 116 and § 256 are not frivolous and thus are colorable.⁴²³ Inventorship errors do occur though, and those errors injure inventors. The patent statute gives courts authority in some circumstances to order the correction of inventorship errors, but neither the Supreme Court nor Congress has expressly forbidden courts from exercising original jurisdiction over inventorship errors in patent applications. If § 116 and § 256 had the language of 28 U.S.C. § 1338, they would be jurisdictional rather than substantive.

That is, an inventorship dispute about an application lacks the substantive requirement under § 256 of dealing with an issued patent, and the courts cannot create common law, including patent applications, because § 116 exists.

C. Subject-Matter Jurisdiction Under *Gunn*

Is *HIF Bio* a dead letter after *Gunn*? No, but its relevance has changed because being a plausible answer to *Christianson* is inadequate under the *Grable/Gunn* test. What *HIF Bio* did correctly, and *Camsoft* and *Okuley* did less well, is distinguish between the two prongs of *Christianson* rather than collapsing them into the search for an adequate cause of action.⁴²⁴ That is *Grable's* criticism of *Merrell Dow*.⁴²⁵ The lack of a

(M.D.N.C. Jan. 30, 2006) (“PTO is a better forum for resolving inventorship disputes because of its expertise in the area and its superior access to the relevant information.”).

421. 37 C.F.R. § 41.207(a)(2) (2016); *Loken-Flack, LLC v. Novozymes Bioag, A/S*, No. 8,357,631, 2015 BL 165619, at *18 n.5 (P.T.A.B. May 27, 2015). *But see* *Henkel Corp. v. Procter & Gamble Co.*, Paper No. 115, Patent Interference 105,174, slip op. at *42–43 (B.P.A.I May 3, 2006).

422. *See, e.g.*, 7 U.S.C. § 2707(e)(3) (2012) (“[T]he several district courts of the United States are hereby vested with jurisdiction to entertain such suits”); 16 U.S.C. § 814 (2012) (“That United States district courts shall only have jurisdiction of cases when the amount claimed by the owner of the property to be condemned exceeds \$3,000”); 49 U.S.C. § 24301(l)(2) (2012) (“The district courts of the United States have original jurisdiction over a civil action Amtrak brings to enforce this subsection. . . .”); *Arbaugh v. Y&H Corp.*, 546 U.S. 500, 515 n.11 (2006) (citing 28 U.S.C. § 1345 (2006) (“[T]he district courts shall have original jurisdiction”)).

423. *See supra* text accompanying note 337–38.

424. *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co., Ltd.*, 600 F.3d 1347, 1352 (Fed. Cir. 2010).

425. *See supra* text accompanying note 336.

proper federal cause of action does not end the inquiry and neither does imperfectly fitting federal causes of action, such as § 116 and § 256.

The *HIF Bio* court could see this because its subject-specific substantiality test did not start examining *Christianson*'s second prong by looking for a cause of action that fits.⁴²⁶ The *Okuley* court did not approach *Okuley*'s counterclaim in this way, but the court was overall correct that his counterclaim violated the well-pleaded-complaint rule under *Holmes Group*, and, thus, his counterclaim could not establish subject-matter jurisdiction.⁴²⁷ In contrast, the *Camsoft* court did not actually analyze the plaintiff's claim under *Christianson* or *Gunn*, though it can be read plausibly as a coda to *Okuley*.⁴²⁸

The *Gunn* test asks if a patent issue is "(1) necessarily raised, (2) actually disputed, (3) substantial, and (4) capable of resolution in federal court without disrupting the federal-state balance approved by Congress."⁴²⁹

(1) *HIF Bio*'s second cause of action for declaration of inventorship was based on Park and Chun having conceived of YC-1 interacting with HIF-1 to retard angiogenesis and starve tumors. Though Teng was the senior YC-1 researcher, he and Lee did not contribute to the invention beyond providing supplies of YC-1 and some encouragement.⁴³⁰ The allegedly nonjoined inventors' inventorship claim did not arise from contract rights or other nonpatent law theories. Thus, their claim would satisfy necessity.

(2) The allegedly nonjoined inventors Park and Chun were named inventors on patent applications in Korea and the United States. Teng and Lee filed competing patent applications in the United States. How patent law applied to their competing claims was actually disputed.

(3) The substantial federal interest prong is the most difficult. Unlike the facts in *Gunn*, the inventorship dispute in *HIF Bio* was not backward looking because the patent application was pending and the outcome would not be hypothetical like a patent already declared invalid by a district court. Was *HIF Bio*'s dispute important to the patent system as a whole as *Gunn* requires? Admittedly, the issue of inventorship disputes about patent applications is infrequently litigated before the USPTO or in federal courts. *Gunn*'s holding on substantiality, however, may be limited to its facts concerning a legal-malpractice claim about an invalidated patent. The Federal Circuit has treated *Gunn* as a negative limit on patent jurisdiction, rather than a threshold requiring some volume of litigation—as long as a claim involves a forward looking, live asset, and the result is important to the patent system as a whole because it

426. See *supra* text accompanying notes 324–30.

427. See *supra* text accompanying notes 294–300.

428. See *supra* text accompanying notes 360–77.

429. See *supra* text accompanying note 265.

430. See *HIF Bio, Inc. v. Yung Shin Pharm. Indus. Co., Ltd.*, 600 F.3d 1347, 1351 (Fed. Cir. 2010).

involves a key patent doctrine, the second prong is usually satisfied.⁴³¹ If this is correct, then the subject-specific substantiality of an inventorship dispute may still be enough to satisfy *Gunn*'s third prong. *Arbaugh*'s distinction between jurisdictional and substantive requirements provides a stronger legal basis for *HIF Bio*'s so-called hair-splitting. Aside from the issue of remanding inventorship disputes to state court, inventorship disputes about patent applications raise the issue of whether the Supreme Court has articulated a consistent theory of subject-matter jurisdiction between *Grable/Gunn* and *Arbaugh*. One way to reconcile the cases is to take *Gunn* as stating a sufficient condition for subject-matter jurisdiction (“[F]ederal jurisdiction over a state law claim will lie if a federal issue is: (1) necessarily raised,” *etc.*), whereas *Arbaugh* states a necessary condition for the absence of a statutory element to defeat subject matter jurisdiction (“[W]hen Congress does not rank a statutory [element] . . . as jurisdictional, courts should treat the [element] as nonjurisdictional in character.”).⁴³² This theory is consistent with *Muchnick*, where the Supreme Court held that the Copyright Act's requirement of prior registration to file suit was not jurisdictional but substantive because the statute “is not clearly labeled jurisdictional” and “is not located in a jurisdiction-granting provision.”⁴³³ Likewise, 35 U.S.C. § 116, § 256 never discuss the jurisdiction of federal courts, and 28 U.S.C. § 1338 does not condition jurisdiction on a patent being granted.

(4) Federal inventorship law, and patent law in general, preempts state law.⁴³⁴ Unlike contract or malpractice claims, inventorship is not a major area of state-court litigation.

VI. RECOMMENDATION: AFTER *CHRISTIANSON*

This Part argues three propositions. (A) The Supreme Court should overrule *Okuley* and *Camsoft* by holding that federal courts have subject-matter jurisdiction over inventorship disputes about patent applications. (B) Lowering the standard of review for inventorship disputes from clear-and-convincing evidence to preponderance is within the Court's power and would avoid injustice. (C) Limiting the options for litigation in state and federal court is desirable because it encourages avoiding inventorship contests through disciplined, intelligent use of contracts.

A. Overrule *Okuley* and *Camsoft*

The Supreme Court should hold that, under *Christianson* and *Gunn*, federal courts have subject-matter jurisdiction over inventorship disputes about patent applications. Section 116 and § 256 do not provide causes of

431. See *supra* note 408.

432. See *supra* notes 265 and 345.

433. *Reed Elsevier, Inc. v. Muchnick*, 559 U.S. 154, 166 (2010).

434. See *supra* note 49.

action for inventorship disputes about patent applications, but the disputes still present substantial questions of federal patent law and civil procedure (particularly how *Grable/Gunn* and *Arbaugh* should be reconciled). Without a statutory cause of action, however, district courts may not remand inventorship disputes to state courts.⁴³⁵ This leaves parties with recourse to the USPTO's derivation and interference proceedings.

Alternatively, if the Supreme Court does not overrule *Okuley* and *Camsoft*, then circuit courts and district courts should erode the precedential value of *Okuley* and *Camsoft* when parties litigate subject matter jurisdiction over inventorship disputes about patent applications.

B. Relax the Evidentiary Standard for § 256 Challenges

The Court should replace “clear and convincing evidence” with a “preponderance of the evidence standard” for prevailing on claims of nonjoinder or misjoinder of inventors in patents. The current standard is a “heavy burden.”⁴³⁶ While lowering the standard introduces risks to collaboration, it incentivizes contracting about assignment of rights before filing a patent application. The remaining cases would either work their way through the USPTO or wait for a fair adjudication in federal court.

First, requiring clear-and-convincing evidence for inventorship corrections is a judge made standard, and the Supreme Court has persuasive grounds for changing it. 1) § 256 does not prescribe a standard of review: it states that erroneous misjoinder or nonjoinder “shall not invalidate the patent” if corrected, and a court “may order correction of the patent on notice and hearing of all parties concerned and the Director shall issue a certificate accordingly.”⁴³⁷ 2) The Federal Circuit in *Hess v. Advanced Cardiovascular Systems, Inc.* cited binding precedent from the Court of Claims in *Garrett Corp. v. United States* that “misjoinder or nonjoinder of inventors . . . must be proved by clear and convincing evidence.”⁴³⁸ The *Hess* court cited a district court and argued that the clear-and-convincing standard was appropriate because a patent's named inventors “are presumed to be correct,” and a lower standard would allow people to “reconstruct” memories in their favor.⁴³⁹ Respecting *Garrett*, however, the defendant was not attempting to correct a patent or patent application,

435. See *HIF Bio*, 600 F.3d at 1350.

436. *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1358 (Fed. Cir. 2004).

437. 35 U.S.C. § 256(b) (2012).

438. *Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976, 979–80 (Fed. Cir. 1997) (quoting *Garrett Corp. v. United States*, 422 F.2d 874, 880 (Ct. Cl. 1970)). *Garrett*, 422 F.2d at 880, cites a district court (*Porter-Cable Machine Co. v. Black & Decker Mfg. Co.*, 274 F. Supp. 905, 913 (D. Md. 1967) for the proposition, but the district court cites no authority in asserting the clear-and-convincing evidence standard.

439. *Hess*, 106 F.3d at 980 (quoting *Amax Fly Ash Corp. v. United States*, 514 F.2d 1041, 1047 (Ct. Cl. 1975)); see also *Eibel Process Co. v. Minn. & Ont. Paper Co.*, 261 U.S. 45, 60 (1923) (stating that a party claiming have conceived of an invention prior to a patentee must demonstrate her claim by “clear and satisfactory” evidence because oral evidence is unreliable given the temptation to lie and defective memories).

but instead hoped to prevail on an invalidity challenge.⁴⁴⁰ The situation is different here for two reasons. First, the AIA amended § 116 and § 256 to enable inventorship corrections without invalidating the patent. Second, while patent examiners test the validity of patent applications, they do nothing more than enforce compliance with the patent statute's requirement for declaration of inventorship.

There is precedent for making such changes. The Court, in *Octane Fitness v. Icon Health & Fitness, Inc.*, lowered the evidentiary standard from clear and convincing to preponderance of evidence for awarding attorney fees in infringement litigation.⁴⁴¹ The Court argued that the statute is silent about the proper standard, patent-infringement litigation uses preponderance for infringement determinations, and the preponderance standard shares risk more equitably among litigants.⁴⁴²

The objection that a preponderance standard would cloud patent rights has three replies: 1) a relaxed standard is consistent with the current practice of requiring alleged inventors to corroborate their oral testimony; 2) the relaxed standard is consistent with the defense of laches to inventorship contests; and 3) under the AIA, inventorship errors are not grounds for invalidity or inequitable conduct claims against patent holders, so, the incentives to litigate inventorship are more favorable to good-faith claims of nonjoinder and misjoinder.

C. Incentivize Contracts Rather Than Litigation

Even if interference and derivation proceedings are not desirable because they require filing a new application, making litigation unattractive because relief is unavailable (*i.e.*, removal of an inventorship claim to federal court will terminate under Rule 12(b)(6) without the possibility of remand) creates incentives to avoid the problem. Limiting recourse to federal or state courts prejudices innocent inventors and raises the costs of collaboration.⁴⁴³ Making litigation less attractive, however, may not raise costs overall. First, limiting litigation options incentivizes contracts, due diligence on research and product-development partners, and retaining adequate legal counsel. We should want fewer *Camsofts* where businesses enter informal joint ventures and invent a technology with disputed inventorship and ownership in favor of well-drafted JV contracts that spell out ownership rights over intellectual property. After all, inventorship is not really the goal for businesses—they want the ownership rights

440. *Garrett*, 422 F.2d at 880 (“Defendant says claims 2 and 3 are invalid under 35 U.S.C. § 116 which requires that patent applications filed on inventions made ‘by two or more persons jointly’ shall include the signature and oath of each inventor.”); *see also* *Jamesbury Corp. v. United States*, 518 F.2d 1384, 1395 (Ct. Cl. 1975) (citing *Garrett*, 422 F.2d at 874) (“[I]t is well established in this court that since misjoinder is a technical defense, it must be proven by ‘clear and convincing’ evidence.”).

441. *Octane Fitness v. Icon Health & Fitness, Inc.*, 134 S. Ct. 1749, 1758 (2014).

442. *Id.*

443. *But see* *Armitage*, *supra* note 62, at 108–09 (describing a much more flexible process for correcting inventorship, absent serious factual disputes, at the USPTO).

that come just as easily through compulsory assignment. Second, limiting litigation moves the costs of collaboration forward. In aggregate, the up-front costs are likely cheaper than backend litigation.

VII. CONCLUSION

The *Okuley* and *Camsoft* courts' brief analyses of "arising under" jurisdiction in 28 U.S.C. § 1338 "effectively . . . convert[s] a federal cause of action from a sufficient condition for [patent] question jurisdiction into a necessary one."⁴⁴⁴ Both decisions were defensible, as interpreted under *Merrell Dow*, but are unnecessary and unpersuasive in light of *Grable* and *Gunn*. The *HIF Bio* court reached the correct result. It did not, however, effectively rebut or anticipate its sister circuits' interpretations that require a federal cause of action for subject-matter jurisdiction under § 1338. The *Camsoft* court is not wrong that *HIF Bio*'s analysis of *Christianson* ends abruptly with Rule 12(b)(6) and a reference to *Litecubes* and *Bell*.

The prospects for self-correction are uncertain. That is, if on removal from state court a party challenging inventorship of a patent application is dismissed in district court for lack of subject-matter jurisdiction, then she may appeal to the Federal Circuit who may reverse that holding and remand it to the district court for a 12(b)(6) dismissal. That will become the law of the case, even if the defendant was in the Fifth or Sixth Circuits and could appeal to the regional circuit court.⁴⁴⁵ On the other hand, dismissals for failure to state a claim can be appealed to the regional court, and so on.

While inventorship is a substantial issue in patent law, it is rarely litigated. Thus, the likelihood of the Supreme Court weighing in is not great. The difference between a 12(b)(1) and 12(b)(6) dismissal is in many cases negligible, except where 12(b)(1) dismissals permit remand of inventorship disputes to state courts. The task will more likely be left to courts of appeals. Lowering the standard of proof for inventorship disputes under § 256 in the Federal Circuit would be a good and appropriate first step because the America Invents Act approach to inventorship correction eliminates the motivation for a heightened standard.

444. *Grable & Sons Metal Prods., Inc. v. Darue Eng'g & Mfg.*, 545 U.S. 308, 317 (2005).

445. *Christianson v. Colt Indus.*, 486 U.S. 800, 817, 819 (1988) (holding that a court may revisit its own decisions or those of a coordinate court, but generally should defer "in the absence of extraordinary circumstances," e.g., clear error or where the transfer order is plausible); *Xeta, Inc. v. Atex, Inc.*, 852 F.2d 1280, 1281 (Fed. Cir. 1998) (stating that the jurisdictional decision of the transferor court is the law of the case).