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The 'Four Cs' of Joint Inventorship: A Practical Framework for Determining Joint Inventorship

Bradley M. Krul

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THE 'FOUR CS' OF JOINT INVENTORSHIP: A PRACTICAL FRAMEWORK FOR DETERMINING JOINT INVENTORSHIP

Bradley M. Krul

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* Bradley M. Krul is an associate in the Intellectual Property Department at Foley & Lardner LLP and is a member of the firm's Mechanical and Electromechanical Technologies Practice Group. Bradley would like to thank Professors Christopher Frerking and John Orcutt for their input and feedback while writing this Article.

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I. INTRODUCTION

In practice, most patent attorneys are not involved with the day-to-day activities of inventors. As a result, they rely on information provided by engineers and scientists to determine who the inventors are, what was invented, and when it was invented. Ultimately, attorneys serve an after-the-fact role in determining who is an inventor under the law of inventorship. Combine this with the fact that many potential joint inventors are incentivized to make false inventorship claims, and it becomes clear why joint inventorship is one of the most difficult determinations to make. A practical, step-by-step framework would be helpful in evaluating joint inventorship claims; however, no step-by-step framework currently exists.

The purpose of this Article is to provide a step-by-step framework to help attorneys recognize and determine joint inventorship correctly. Determining joint inventorship correctly is important for identifying potential ownership rights to a patent and for assessing the validity of a patent.¹ According to the United States Patent and Trademark Office (PTO), the definition of inventorship

[c]an be *simply* stated: “[t]he threshold question in determining inventorship is who conceived the invention. Unless a person contributes to the conception of the invention, he is not an inventor . . . [i]nsofar as defining an inventor is concerned, reduction to practice, *per se*, is irrelevant [except for simultaneous conception and reduction to practice]”²

This definition seems simple enough. In fact, however, determining what conception entails, who contributed to conception, and whether contributions to reduction to practice are relevant has made the law of inventorship one of the most complex areas of patent law.³ Still, there is no need to fret. As attorneys, we approach every problem methodically and mechanically. Determining joint inventorship is no different. Part II of this Article discusses the importance of correctly determining joint inventorship in both the corporate and non-corporate settings. Part III explores the impact of certain

¹ John J. Okuley, *Resolution of Inventorship Disputes: Avoiding Litigation Through Early Evaluation*, 18 OHIO ST. J. ON DISP. RESOL. 915, 939 (2003).

² MPEP § 2137.01 (8th ed. Rev. 8, July 2010) (emphasis added) (quoting *Fiers v. Revel*, 984 F.2d 1164, 1168 (Fed. Cir. 1993)).

³ See *Jamesbury Corp. v. United States*, 518 F.2d 1384, 1396 (Ct. Cl. 1975) (stating that joint inventorship is one of the most “muddiest concepts” in American Patent law).

provisions of the Leahy-Smith America Invents Act (AIA) on joint inventorship. Part IV presents a summary of the current law of joint inventorship, and Part V sets forth a step-by-step framework for determining joint inventorship.

II. THE IMPORTANCE OF CORRECT JOINT INVENTORSHIP

Determining joint inventorship correctly is important in both corporate and non-corporate settings. In the corporate setting, most inventors transfer their patent ownership rights to their employers via written agreements.⁴ However, potential joint inventors are incentivized to be named as inventors on a patent because joint inventors may be eligible for monetary awards as well as other corporate recognition.⁵ Furthermore, many corporate engineers and scientists find a great source of pride in being named as an inventor on a patent.⁶ Alternatively, being left off of a patent can be professionally devastating and can even create feelings of resentment.⁷ Aside from the personal benefits of being named correctly as a joint inventor, there are benefits to the company as well. First, the costs of correcting inventorship errors are eliminated if the correct inventors are named before a patent grants.⁸ Second, inventorship on an granted patent is presumed correct.⁹ Thus, the uphill battle of arguing incorrect inventorship is eliminated if the correct inventors are named at the beginning. Third, and arguably most importantly, the costs and complexity of litigation are reduced if inventorship is correct.¹⁰

Correct joint inventorship is important in the non-corporate setting because a joint inventor “enjoys a presumption of ownership in the entire patent.”¹¹ Absent an agreement to the contrary, the presumption of ownership includes an equal, undivided interest in the patent.¹² A joint inventor who is improperly left

⁴ KIRK TESKA, *PATENT SAVVY FOR MANAGERS* 133 (2007); *see also* ERIC M. DOBRUSIN & RONALD A. KRASNOW, *INTELLECTUAL PROPERTY CULTURE: STRATEGIES TO FOSTER SUCCESSFUL PATENT AND TRADE SECRET PRACTICES IN EVERYDAY BUSINESS* 187–88 (2008).

⁵ *See, e.g.*, TESKA, *supra* note 4, at 146 (many companies implement financial incentives to encourage invention disclosure).

⁶ Robert A. Hulse, *Correct Inventorship Prevents Patent Application Headaches*, FENWICK & WEST LLP (May 23, 2005), http://www.fenwick.com/fenwickdocuments/correct_inventorship.pdf.

⁷ *Id.*

⁸ *Id.* at 3.

⁹ *Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976, 980 (Fed. Cir. 1997).

¹⁰ Hulse, *supra* note 6, at 3.

¹¹ *See Okuley, supra* note 1, at 926 n.53 (quoting *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1465–66 (Fed. Cir. 1998)).

¹² *Id.* at 926 n.54 (quoting *Ethicon*, 135 F.3d at 1465); *see also* Hulse, *supra* note 6, at 3 (every inventor has an equal, undivided interest in a patent unless transferred by law).

off of a patent can seek to license the patent unilaterally and/or bring an action to correct inventorship.¹³

Finally, different inventorship in a prior patent can cause that patent to act as prior art against a subsequent related patent.¹⁴ For example, assume that Alice and Ben are joint inventors of Invention 1. Now assume that later Ben is the sole inventor of a second related invention, Invention 2. Invention 1 may act as prior art against Invention 2 because the inventions are said to be invented by different inventive entities.¹⁵ By contrast, if Alice and Ben were joint inventors of Invention 2, then Invention 1 would not act as prior art against Invention 2.¹⁶ Hence, if the inventive entity is the same between two similar inventions, then the previous invention does not act as prior art against the subsequent related invention.¹⁷

Whether you are working in a corporate or non-corporate setting, determining joint inventorship correctly is important. Identifying joint inventorship correctly early in the application process can help reduce risk and facilitate the protection of inventor rights. In addition, recognizing and protecting inventor rights may become increasingly important in light of certain provisions of the AIA.

III. THE IMPACT OF THE AIA ON JOINT INVENTORSHIP

With the recent passage of the AIA, the United States has transitioned from a “first-to-invent” patent system to a “first-inventor-to-file” patent system.¹⁸ Patent applications that were filed before March 16, 2013, are still subject to the laws of the first-to-invent system.¹⁹ Under the first-to-invent regime, a person who contributed to the conception²⁰ of an invention and diligently reduced the invention to practice could use the date of conception as the invention priority

¹³ See Okuley, *supra* note 1, at 926 (stating that an infringer could identify an unnamed inventor, seek to have inventorship corrected, and then obtain a license from the newly named inventor).

¹⁴ See MPEP, *supra* note 2, § 2136.04.

¹⁵ See *id.* (an inventive entity is different if not all inventors are the same).

¹⁶ See *id.* (an invention by the same inventive entity cannot act as prior art against another related invention by that inventive entity).

¹⁷ See *id.*

¹⁸ Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 3, 125 Stat. 284, 285 (2011).

¹⁹ See *id.* (the first-inventor-to-file provision of the AIA takes effect on March 16, 2013).

²⁰ Conception is defined as “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.” *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994) (quoting *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986)).

date.²¹ The invention priority date could be used to antedate a later conceived invention or a printed publication.²² Consider the following example:

Suppose that Ben conceived the same invention as Alice. Now assume that Ben conceived the invention after Alice, but Ben was the first to file a patent application at the PTO. Under the first-to-invent system, if Alice was diligent in reducing the invention to practice, she would have priority to the invention because she conceived it before Ben.²³ However, under the new first-inventor-to-file system, Ben would have priority to the invention because he filed his application before Alice.²⁴ The fact that Alice conceived the same invention *before* Ben is irrelevant under the new law.²⁵ The date that the patent application is filed is the invention priority date under the new system.²⁶ Thus, the AIA has effectively eliminated the “first-to-conceive” argument (*i.e.*, Alice’s argument that she has a right to the patent because she conceived the invention before Ben).²⁷

Although the first-inventor-to-file provision of the AIA does not have a direct effect on joint inventorship, one aspect of the provision deserves attention. The fact that the AIA has eliminated the first-to-conceive argument for purposes of determining invention priority does not mean that conception is irrelevant to inventorship.²⁸ Indeed, conception is still “the touchstone of inventorship.”²⁹ The details and importance of conception within the context of a joint inventorship determination are discussed later in this Article. For now, suffice it to say that conception is a critical component of joint inventorship.³⁰

In addition to the first-inventor-to-file provision, there are a few administrative changes in the AIA that are relevant to joint inventorship. However, it should be mentioned at the outset that this Article does not discuss

²¹ See MPEP, *supra* note 2, § 2138.01.

²² See 37 C.F.R. § 1.131 (2001).

²³ See MPEP, *supra* note 2, § 2138.01.

²⁴ See Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 3, 125 Stat. 284, 285 (2011) (an inventor who files first has priority to an invention).

²⁵ See *id.* (conception and reduction to practice are no longer relevant in determining invention priority under the AIA).

²⁶ *Id.*

²⁷ See *id.* (an inventor can no longer assert earlier conception of an invention to provide invention priority, except in a derivation proceeding).

²⁸ See Sherry L. Murphy, *Determining Patent Inventorship: A Practical Approach*, 13 N.C. J.L. & TECH. 215, 220 (2012) (records documenting invention dates will continue to be relevant for inventorship determinations).

²⁹ *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227 (Fed. Cir. 1994).

³⁰ See *id.*

the nuts and bolts of the administrative changes under the AIA as they relate to joint inventorship. Rather, this Article merely provides a high level overview of the administrative changes that may be relevant to a joint inventorship determination.

For instance, the AIA no longer includes the statutory requirement of originality of inventors under 35 U.S.C. § 102(f).³¹ Originality means that the invention has not been derived from another inventor.³² Section 102(f) required, in pertinent part, that “only a true and original inventor may obtain a patent.”³³ Based on the elimination of § 102(f), it would appear that originality of inventors is no longer a requirement for obtaining a patent. Despite the elimination of § 102(f), the PTO has stated that originality of inventors is still a requirement for obtaining a patent because it is codified in 35 U.S.C. § 101.³⁴ Section 101 states, “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.”³⁵ One commentator noted the PTO’s position with respect to originality pursuant to § 101: “The AIA does not sanction the award of patents to anyone but inventors. . . . By retaining § 101, the AIA still requires as a condition of patentability that the named inventor actually invent the claimed subject matter.”³⁶ Additionally, the U.S. Constitution makes an explicit reference to inventors, stating that Congress has the power “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and *Inventors* the exclusive Right to their respective Writings and Discoveries.”³⁷ Accordingly, it appears that originality of inventors is still a requirement for obtaining a patent, notwithstanding the elimination of § 102(f).³⁸

Another relevant administrative change is amended 35 U.S.C. § 118, which now makes it easier for an assignee to file a patent application in certain

³¹ See Leahy-Smith American Invents Act, Pub. L. No. 112-29, § 3, 125 Stat. 284, 287 (2011).

³² 1 DONALD S. CHISUM, CHISUM ON PATENTS § 2.01 (1999) (an applicant may apply for a patent if he or she is the true and original inventor of the subject matter described in the application for patent).

³³ *Id.*

³⁴ See Dennis Crouch, *With 102(f) Eliminated, Is Inventorship Now Codified in 35 U.S.C. 101? Maybe, but not Restrictions on Patenting Obvious Variants of Derived Information*, PATENTLY-O (Oct. 4, 2012), <http://www.patentlyo.com/patent/2012/10/with-102f-eliminated-is-inventorship-now-codified-in-35-usc-101.html>.

³⁵ 35 U.S.C. § 101 (2014) (emphasis added).

³⁶ Crouch, *supra* note 34 (quoting the USPTO in a letter received by the Author).

³⁷ U.S. CONST. art. I, § 8, cl. 8 (emphasis added).

³⁸ See *id.*; Crouch, *supra* note 34.

situations.³⁹ Amended § 118 states, in pertinent part, “[a] person to whom the inventor has assigned or is under an obligation to assign the invention may make an application for patent.”⁴⁰ In addition, amended § 118 permits the grant of a patent to a “real party in interest.”⁴¹ Similarly, 35 U.S.C. § 115 has been amended to more easily permit an assignee to file an accompanying oath with a patent application in certain situations.⁴² Previous § 115 required *only* an inventor to file an oath asserting that he or she was the original inventor of the subject matter in the patent.⁴³ Taken together, amended §§ 115 and 118 appear to reinforce the misconception that originality of inventors is no longer a requirement for obtaining a patent.⁴⁴ Furthermore, amended §§ 115 and 118 arguably raise some concerns relating to the protection of inventor rights.⁴⁵ One critic argued that amended §§ 115 and 118 facilitate the theft of inventor rights by allowing an assignee to file a patent application, execute an oath, and have a patent awarded to it as the “real party in interest.”⁴⁶ However, as previously discussed, in the corporate setting most inventors transfer their patent ownership rights to their employers via written agreements.⁴⁷ Moreover, amended §§ 115 and 118 have no substantive influence in making a joint inventorship determination because both statutes are administrative in nature.⁴⁸ Nevertheless, as patent practitioners, it is important to be aware of these administrative changes.

The AIA has also introduced derivation proceedings as a method to challenge the “theft” of an invention.⁴⁹ Amended § 291 of Title 35 provides

³⁹ See Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 4, 125 Stat. 284, 296 (2011) (an assignee of an invention and persons who have sufficient proprietary interests in an invention can make an application for patent); see also Murphy, *supra* note 28, at 218 (new § 118 allows an entity to more easily apply for a patent without the active participation of inventors).

⁴⁰ § 4, 125 Stat. at 218.

⁴¹ *Id.*

⁴² *Id.* § 4, 125 Stat. at 293–94.

⁴³ 35 U.S.C. § 115 (2006).

⁴⁴ The fact that an entity can avoid the active participation of an inventor in filing a patent application and in having a patent awarded to it, creates the impression that determining the correct inventors is no longer important or necessary.

⁴⁵ Ron D. Katznelson, *America Invents Act—The Erosion of Inventors’ Due Process Protections and a Legislative Cover for Theft of Patent Rights* 1 (Apr. 26, 2011), <http://works.bepress.com/cgi/viewcontent.cgi?filename=2&article=1057&context=rkatznelson&type=additional>.

⁴⁶ *Id.* at 1–2.

⁴⁷ See TESKA, *supra* note 4, at 133.

⁴⁸ See, e.g., Leahy-Smith American Invents Act, Pub. L. No. 112-29, § 4, 125 Stat. 284 (2011) (discussing the administrative details of filing an application by someone other than an inventor).

⁴⁹ *Id.* § 3, 125 Stat. at 288–89 (derivation proceedings replace the traditional interference proceedings from the first-to-invent regime, which allowed a party to challenge the right/priority to an invention).

relief for the owner of a patent “against the owner of another patent that claims the same invention and has an earlier effective filing date, if the invention . . . was derived from . . .” the other patent owner.⁵⁰ In the earlier example with Alice and Ben, Alice had no recourse to challenge Ben’s rights to the patent at issue because Ben was the first to file. Assuming that Alice filed a patent application at the PTO after Ben, § 291 could provide a vehicle for Alice to challenge Ben’s rights to the earlier filing. Alice could bring a derivation proceeding *if* Ben “derived” the invention from her.⁵¹ For Alice to prevail, Ben’s invention must be “the same or substantially the same” as Alice’s invention.⁵² Although derivation proceedings are not directly related to a joint inventorship determination, identifying and documenting who was involved in the inventive process can be beneficial if a derivation proceeding should arise.⁵³

In the future, the AIA will not likely have a direct effect on determining joint inventorship. Regardless, the following principles should be kept in mind when making a joint inventorship determination: first, the elimination of the first-to-conceive argument does not affect the importance of conception in a joint inventorship determination.⁵⁴ Second, the originality requirement is likely codified in § 101 and the U.S. Constitution despite the elimination of § 102(f).⁵⁵ Third, the fact that an assignee can file a patent application and execute an oath arguably facilitates the theft of inventor rights, but it does not eliminate the originality requirement.⁵⁶ Finally, documenting inventorship correctly before a patent is issued can be beneficial if a derivation proceeding should arise.⁵⁷

⁵⁰ *Id.* § 3, 125 Stat. at 288.

⁵¹ *See id.* (what constitutes “derived” is unclear, but the plain meaning of the term suggest that the invention must be obtained from a specific source).

⁵² *Id.* § 3, 125 Stat. at 289.

⁵³ *See* Murphy, *supra* note 28, at 221 (inventor records “may have a heightened importance as derivation evidence” in the new derivation proceedings).

⁵⁴ *See id.*; *see also* Sewall v. Walters, 21 F.3d 411, 415 (Fed. Cir. 1994).

⁵⁵ *See generally* Murphy, *supra* note 28; Sewell, 21 F.3d at 411, 415 (proof of complete conception by an inventor prior to his communication of his invention to an alleged joint inventor established his sole inventorship).

⁵⁶ *See* Katznelson, *supra* note 45, at 1 (the proposed AIA legislation removes the inventor as a required party in filing a patent application allowing entities to obtain invention rights without the participation of the inventor).

⁵⁷ *See* Murphy, *supra* note 28, at 221 (suggesting that maintaining correct inventor records can facilitate an accurate determination of inventor rights in a derivation proceeding).

IV. THE LAW OF JOINT INVENTORSHIP

Inventorship is a legal determination that rests on underlying facts.⁵⁸ For the most part, courts view incorrect inventorship claims with skepticism because inventorship on an granted patent is presumed to be correct.⁵⁹ Thus, those claiming incorrect inventorship “lose such disputes much more often than they win.”⁶⁰ Therefore, it is important to determine joint inventorship correctly before a patent grants.

An overarching requirement of joint inventorship is the originality of inventors.⁶¹ As previously discussed, the AIA has eliminated § 102(f); however, the originality requirement is arguably codified in 35 U.S.C. § 101 and the U.S. Constitution.⁶² The purpose of the originality requirement is to ensure that a person who is not a true inventor does not “reap the reward of exclusive rights to an invention.”⁶³ There are two types of “true” inventors: sole inventors and joint inventors. If only one person contributes to the conception of an invention, then that person qualifies as a sole inventor.⁶⁴ In today’s world, sole inventors are a dwindling breed.⁶⁵

For example, in 1970, roughly 60% of patents issued had one inventor, compared to roughly 35% of patents issued in 2010—approximately a 50% decline.⁶⁶ Conversely, the number of patents issued with three or more inventors has grown steadily since the 1970s.⁶⁷ In 1970, roughly 10% of patents issued had three or more inventors per patent, compared to roughly 40% of patents issued in 2010.⁶⁸ In total, around 65% of patents issued in 2010 had joint inventors (i.e., two or more).⁶⁹

⁵⁸ 2 KEVIN L. RUSSELL & JULIANNE R. DAVIS, FEDERAL CIRCUIT PATENT CASE DIGESTS § 5:73 (2013).

⁵⁹ Andrew B. Dzeguze, *Avoiding the “Fifth Beatle” Syndrome: Practical Solutions to Minimizing Joint Inventorship Exposure*, 6 J. MARSHALL REV. INTELL. PROP. L. 645, 648 (2007).

⁶⁰ *Id.*

⁶¹ See U.S. CONST. art. I, § 8, cl. 8; see also 35 U.S.C. §§ 101, 102(f) (2006).

⁶² See Crouch, *supra* note 34.

⁶³ Univ. of Colo. Found., Inc. v. Am. Cyanamid Co., 105 F. Supp. 2d 1169, 1175 (D. Colo. 2000) (citing *Agawam Co. v. Jordan*, 74 U.S. (7 Wall.) 583, 602 (1868)).

⁶⁴ 1 CHISUM, *supra* note 32, § 2.02.

⁶⁵ See Dennis Crouch, *The Changing Nature Inventing: Collaborative Inventing*, PATENTLY-O (July 9, 2009), <http://www.patentlyo.com/patent/2009/07/the-changing-nature-inventing-collaborative-inventing.html> (the average number of inventors per issued patent increased from 1.6 in the 1970s to 2.5 in 2000 and after).

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ *Id.*

Today, potential inventors are much more likely to encounter a joint inventorship issue. Changes in workplace environment, globalization, and technology all contribute to the growing trend in collaborative projects.⁷⁰ The result is a rise in patents issued to joint inventors. However, determining who qualifies as a joint inventor has been the subject of frequent debate in many courts. One court described joint inventorship as “one of the muddiest concepts in the muddy metaphysics of the patent law.”⁷¹

If more than one person contributes to the conception of an invention, then each person may qualify as a joint inventor.⁷² The joint inventor statute, 35 U.S.C. § 116, provides that

[w]hen an invention is made by two or more persons jointly, they shall apply for patent jointly . . . [i]nventors may apply for a patent jointly even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent.⁷³

Although it is unclear from the joint inventor statute, to prove joint inventorship, one must show that an alleged joint inventor: (1) *collaborated* with the other joint inventors,⁷⁴ (2) made a significant *contribution* to the conception of the invention,⁷⁵ (3) had the contribution *corroborated*,⁷⁶ and (4) made a contribution to at least one *claim* of the patent.⁷⁷ These elements combine to form the “Four Cs” of joint inventorship: collaboration, contribution, corroboration, and claims. Each element is discussed below.

⁷⁰ See *id.*

⁷¹ *Mueller Brass Co. v. Reading Indus., Inc.*, 352 F. Supp. 1357, 1372 (E.D. Pa. 1972).

⁷² 1 CHISUM, *supra* note 32, § 2.02.

⁷³ 35 U.S.C. § 116 (2006).

⁷⁴ See, e.g., *Kimberly-Clark Corp. v. Procter & Gamble Distrib. Co.*, 973 F.2d 911, 917 (Fed. Cir. 1992) (held that § 116 requires collaboration or connection).

⁷⁵ See, e.g., *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997) (to be a joint inventor, one must make a contribution to conception that is not insignificant in quality when measured against the full invention).

⁷⁶ See, e.g., *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994) (conception, as a mental act requires corroborating evidence of contemporaneous disclosure).

⁷⁷ See, e.g., *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1359 (Fed. Cir. 2004) (a person is a joint inventor “only if he contributes to the conception of the *claimed* invention” (emphasis added)).

A. COLLABORATION

The first element of joint inventorship is collaboration. Section 116 states, in pertinent part, “[i]nventors may apply for a patent jointly even though (1) *they did not physically work together or at the same time . . .*”⁷⁸ Although § 116 states that a joint inventor does not need to work physically with another joint inventor or at the same time, there must be at least “some quantum of collaboration or connection” between joint inventors.⁷⁹

In the context of “in-house” inventions, one court has given a broad definition of collaboration. In *General Motors Corp. v. Toyota Motor Co.*,⁸⁰ the defendant-appellee, Toyota, sought to invalidate General Motor’s (GM’s) patent covering an improved catalytic converter based on obviousness.⁸¹ Toyota argued on appeal that previous in-house developments of a catalytic converter at GM were prior art for purposes of obviousness because the inventorship between the earlier developments and the patented converter were different.⁸² GM argued that “there was only one invention, the patented converter,” and that the previous developments “should be seen as merging into the final product.”⁸³ The Sixth Circuit found that the creation of the patented converter was “the product of a concerted effort underwritten and directed by GM.”⁸⁴ Furthermore, the court stated that joint invention should be interpreted broadly when “numerous ‘inventors’ all work under the aegis of one employer toward a common goal,” and that “[i]t is not realistic to require in such circumstances that joint inventors work side-by-side and that each step in the inventive process be taken by all the firm’s collaborators.”⁸⁵ Thus, in the context of in-house inventions, the collaboration element *may* be satisfied if joint inventors are working under common direction “toward a common goal.”⁸⁶

By contrast, if alleged joint inventors are completely ignorant of each other’s work and they are not working under common direction, then they do not qualify as joint inventors.⁸⁷ For example, in *Kimberly-Clark Corp. v. Procter & Gamble Distributing Co.*, three employees of Procter & Gamble (P & G)

⁷⁸ 35 U.S.C. § 116 (emphasis added).

⁷⁹ *Kimberly-Clark*, 973 F.2d at 917.

⁸⁰ 667 F.2d 504 (6th Cir. 1981).

⁸¹ *Id.* at 505.

⁸² *Id.* at 506.

⁸³ *Id.*

⁸⁴ *Id.*

⁸⁵ *Id.* at 507.

⁸⁶ *See id.* (collaboration should be interpreted broadly in the context of in-house inventions).

⁸⁷ *See Kimberly-Clark Corp. v. Procter & Gamble Distrib. Co.*, 973 F.2d 911, 917 (Fed. Cir. 1992) (some element of joint behavior is required).

conceived the same improvement to a disposable diaper independently.⁸⁸ Each employee worked alone and was completely unaware of earlier work done by the other employees.⁸⁹ P & G argued that the invention by one of the employees was made jointly by all three pursuant to the joint inventor requirements of § 116.⁹⁰ The Federal Circuit found that the three employees were not joint inventors because they were unaware of what the others had done until years later.⁹¹ Further, the court stated that “there must be some element of joint behavior, such as collaboration or working under common direction, one inventor seeing a relevant report and building upon it or hearing another’s suggestion at a meeting.”⁹² Ultimately, the court held that joint inventorship requires “at least some quantum of collaboration or connection” between joint inventors.⁹³

On the other hand, the collaboration element may be satisfied easily if alleged joint inventors consult and interact with each other frequently.⁹⁴ In *Monsanto Co. v. Kamp*, two co-workers had their own laboratories at the same company but were working on the same project.⁹⁵ One employee was the principal proprietor of the business, and the other was a chemist.⁹⁶ The two co-workers consulted often with each other on various aspects of the project.⁹⁷ One made suggestions regarding the other’s laboratory operations, and both exchanged ideas until a final invention was reached.⁹⁸ The district court found that the two co-workers were joint inventors in part because there was adequate evidence of collaboration.⁹⁹

B. CONTRIBUTION

The second element of joint inventorship is a contribution to conception. There are two characteristics of the contribution element: (1) type of contribution, and (2) amount of contribution.¹⁰⁰ Unfortunately, the joint

⁸⁸ *Id.* at 912–13.

⁸⁹ *Id.* at 913.

⁹⁰ *Id.* at 915.

⁹¹ *Id.* at 917.

⁹² *Id.*

⁹³ *Id.*

⁹⁴ *See, e.g., Monsanto Co. v. Kamp*, 269 F. Supp. 818, 825 (D.D.C. 1967).

⁹⁵ *Id.*

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ 35 U.S.C. § 116 (2006).

inventor statute offers little guidance on the topic of contributing to conception. To understand truly what conception is and how it relates to joint inventorship, one must consult a vast array of Federal Circuit decisions.

According to the Federal Circuit, conception is “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.”¹⁰¹ An idea is definite and permanent when “only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation.”¹⁰² In other words, if only ordinary skill is necessary to physically build or make the invention, “without extensive research or experimentation,” then conception is complete. The Federal Circuit has emphasized that determining whether contributions to conception are sufficient to trigger joint inventorship “turns on the facts of the particular case.”¹⁰³ However, “[a]n inventor’s belief that his invention will work or his reasons for choosing a particular approach are irrelevant to conception.”¹⁰⁴

Conception can occur simultaneously with reduction to practice. Simultaneous conception and reduction to practice (SCRIP) of an invention occurs when an actual reduction to practice is necessary to conceive an invention.¹⁰⁵ SCRIP typically arises in the “unpredictable arts,” such as the chemical and biotechnology fields.¹⁰⁶ In the context of chemical inventions, the Federal Circuit has held that “[conception of a chemical substance includes knowledge of both] the specific chemical structure of the compound and an operative method of making it.”¹⁰⁷ Indeed, situations arise where inventors do not know the specific chemical structure of a compound or a method of making it until experimentation commences.¹⁰⁸ In these situations, a successful reduction to practice is necessary to conceive the invention.¹⁰⁹ It is unclear whether or not the doctrine of SCRIP could apply to other fields, such as the

¹⁰¹ *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994) (quoting *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986)).

¹⁰² *Id.*

¹⁰³ *Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976, 981 (Fed. Cir. 1997).

¹⁰⁴ *Burroughs Wellcome*, 40 F.3d at 1228.

¹⁰⁵ *See id.* at 1228–29; *see also Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1206 (Fed. Cir. 1991).

¹⁰⁶ *See* 2 R. CARL MOY, *MOY’S WALKER ON PATENTS* § 8:54 (4th ed. 2012) (physical investigation that is necessary to complete conception also satisfies the requirements of a reduction to practice).

¹⁰⁷ *Burroughs Wellcome*, 40 F.3d at 1229.

¹⁰⁸ *See Fiers v. Revel*, 984 F.2d 1164, 1169 (Fed. Cir. 1993); *see also Amgen*, 927 F.2d at 1206 (the detailed structure of a gene is not conceived until after the gene has been isolated).

¹⁰⁹ *See Fiers*, 984 F.2d at 1169; *Amgen*, 927 F.2d at 1206.

mechanical or electrical arts.¹¹⁰ Regardless of the field of an invention, the mere exercise of ordinary skill, without more, is insufficient to trigger joint inventorship.¹¹¹

The second characteristic of the contribution element is the amount of contribution. Section 116 states, in relevant part, “[i]nventors may apply for a patent jointly even though . . . *each did not make the same . . . amount of contribution.*”¹¹² The Federal Circuit has held that a contribution to conception must be “not insignificant,” but contributions between joint inventors do not have to be equal in type or quality.¹¹³ Each joint inventor’s contribution must be significant “when that contribution[’s quality] is measured against the dimension of the full invention.”¹¹⁴ Unfortunately, there is no bright-line test for determining whether a contribution is significant.¹¹⁵ Rather, the case law on this point can be divided into three categories of *insignificant* contributions: (1) merely carrying out acts or instructions of another inventor,¹¹⁶ (2) merely suggesting a desired end without any means to achieve that end,¹¹⁷ and (3) contributing well-known concepts or explaining the current state of the art.¹¹⁸

¹¹⁰ See *Mycogen Plant Sci. v. Monsanto Co.*, 243 F.3d 1316, 1330 (Fed. Cir. 2001) (stating that simultaneous conception and reduction to practice “may apply to either method or product claims”).

¹¹¹ *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997); see also *Sewall v. Walters*, 21 F.3d 411, 416 (Fed. Cir. 1994).

¹¹² 35 U.S.C. § 116 (2006) (emphasis added).

¹¹³ See *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1358 (Fed. Cir. 2004) (section 116 “sets no explicit lower limit on the quantum or quality of inventive contribution required for a person to qualify as a joint inventor”).

¹¹⁴ *Id.* at 1359 (citing *Fina Oil*, 123 F.3d at 1473).

¹¹⁵ See *Fina Oil*, 123 F.3d at 1993 (stating that “[t]he determination of whether a person is a joint inventor is fact specific, and no bright-line standard will suffice in every case”).

¹¹⁶ *Stern v. Trustees of Columbia Univ.*, 434 F.3d 1375, 1378 (Fed. Cir. 2006) (“Stern simply carried out an experiment previously done by Vato on different animals.”); see also *Acromed Corp. v. Sofamor Danek Grp., Inc.*, 253 F.3d 1371, 1381 (Fed. Cir. 2001) (machinist’s countersinking of elongated slots was no more than following instructions).

¹¹⁷ See *Garrett Corp. v. United States*, 422 F.2d 874, 881 (Ct. Cl. 1970) (merely suggesting a broad idea of a water ballast pocket that is obvious in view of prior art is insufficient to constitute joint invention); see also *Regents of the Univ. of Cal. v. Synbiotics Corp.*, 29 U.S.P.Q.2d (BNA) 1463, 1466–69 (S.D. Cal. 1993).

¹¹⁸ See *Nartron Corp. v. Schukra U.S.A., Inc.*, 558 F.3d 1352, 1356–58 (Fed. Cir. 2009) (“One who simply provides the inventor with well-known principles or explains to state of art without ever having a form and definite idea of the claimed combination as a whole does not qualify as a joint inventor.”); see also *Caterpillar Inc. v. Sturman Indus., Inc.*, 387 F.3d 1358, 1378 (Fed. Cir. 2004) (providing knowledge that is taught by prior art is insufficient); *Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976, 981 (Fed. Cir. 1997) (explaining principles that were well-known and found in textbooks and products that were available in the marketplace is insufficient).

1. *Merely Carrying Out Acts or Instructions of Another Inventor.* Merely performing an experiment that has been performed previously by another inventor, without contributing anything original, is an insignificant contribution to conception.¹¹⁹ For example, in *Stern v. Trustees of Columbia University in the City of New York*, a student performed experiments while conducting research for a faculty member.¹²⁰ The experiments that the student performed had already been performed by the faculty member but with different animals—animals that the faculty member had already identified as suitable subjects for experimentation.¹²¹ After the student finished his research activities, the faculty member conceived an invention while studying the effects of these experiments.¹²² The Federal Circuit determined that the student’s contribution was insignificant because he simply carried out an experiment that the faculty member had already performed with animals that the faculty member had already identified.¹²³ Furthermore, there was no other evidence showing that the student conceived or discovered any of the subject matter in the patent.¹²⁴

Similarly, merely carrying out the instructions of another inventor is an insignificant contribution to conception.¹²⁵ In *Acromed Corp. v. Sofamor Danek Group, Inc.*, an inventor instructed an alleged joint inventor to add recesses to the slots of a spinal plate.¹²⁶ According to the record, the inventor told the alleged joint inventor, “[w]hen I drive the nut down, I have to have it so it sinks in and stays right there.”¹²⁷ The Federal Circuit found that the alleged joint inventor’s contribution of adding recesses to the slots of the spinal plate was insignificant to qualify him as a joint inventor because his work was no more “than the work of an ordinarily skilled machinist following instructions.”¹²⁸

2. *Merely Suggesting a Desired End.* Courts have also found that merely suggesting a desired end or result with no suggestion of a means to achieve that end is an insignificant contribution.¹²⁹ In *Garrett Corp. v. United States*,¹³⁰ an

¹¹⁹ *Stern*, 434 F.3d at 1378.

¹²⁰ *Id.* at 1377.

¹²¹ *Id.*

¹²² *Id.*

¹²³ *Id.* at 1378.

¹²⁴ *Id.*

¹²⁵ *Acromed Corp. v. Sofamor Danek Grp., Inc.*, 253 F.3d 1371, 1381 (Fed. Cir. 2001).

¹²⁶ *Id.* at 1380.

¹²⁷ *Id.*

¹²⁸ *Id.* at 1380–81.

¹²⁹ See, e.g., *Garrett Corp. v. United States*, 422 F.2d 874, 881 (Ct. Cl. 1970); see also *Regents of the Univ. of Cal. v. Synbiotics Corp.*, 29 U.S.P.Q.2d (BNA) 1468, 1466–69 (S.D. Cal. 1993) (suggestion that cats showed symptoms of a virus was an insignificant contribution to the conception of a method for diagnosing the virus).

alleged joint inventor suggested to the sole inventor of the patent at issue that he combine a ballast pocket with a boarding ramp for a life raft.¹³¹ The court determined that the combination of the two features was obvious in view of the prior art.¹³² Furthermore, the sole inventor of the patent made a drawing showing the structure of the combination and was solely responsible for the construction details of the combination.¹³³ The court ultimately found that the alleged joint inventor made an insignificant contribution to conception because his participation in the inventive effort was merely the suggestion of a broad, obvious idea—the combination of the ballast pocket and the boarding ramp.¹³⁴

Likewise, in *Regents of the University of California v. Symbiotics Corp.*, an alleged joint inventor's mere suggestion that her cats showed symptoms of AIDS, without any additional contribution, was insignificant to the conception of diagnostic methods for AIDS.¹³⁵ The alleged joint inventor owned several cats and observed that they exhibited symptoms of human AIDS.¹³⁶ The alleged joint inventor subsequently donated her cats to researchers at the University of California, Davis, where the researchers isolated the FIV virus as the cause of the cats' illness.¹³⁷ The court determined that the alleged joint inventor made an insignificant contribution to conception because she suggested simply that her cats showed symptoms of human AIDS, unlike the researchers who identified a method for isolating the new virus, actually isolated the virus, and developed a method for diagnosing other cats infected with the virus.¹³⁸

3. *Contributing Well-Known Concepts or Explaining the Current State of the Art.* Another insignificant contribution to conception is supplying "well-known concepts" to joint inventors.¹³⁹ Contributing well-known concepts can include suggesting the use of known materials or applying known design features.¹⁴⁰ In *Caterpillar Inc. v. Sturman Industries, Inc.*, the patent at issue concerned a fuel

¹³⁰ 422 F.2d 874 (Ct. Cl. 1970).

¹³¹ *Id.* at 869–70.

¹³² *Id.* at 879.

¹³³ *Id.* at 870.

¹³⁴ *Id.*

¹³⁵ 29 U.S.P.Q.2d (BNA) 1463, 1466–67 (S.D. Cal. 1993).

¹³⁶ *Id.* at 1466.

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ See *Nartron Corp. v. Schukra U.S.A., Inc.*, 558 F.3d at 1357–58 (Fed. Cir. 2009) (alleged joint inventor's contribution of an extender to a seat was well-known in the prior art at the time of the invention and therefore, was insignificant); see also *Caterpillar Inc. v. Sturman Indus., Inc.*, 387 F.3d 1358, 1378 (Fed. Cir. 2004) (alleged joint inventor's contribution of materials known from the prior art was an insignificant contribution to conception).

¹⁴⁰ See *Nartron Corp.*, 558 F.3d at 1357–58; *Caterpillar*, 387 F.3d at 1378.

injector that had a claim directed toward materials for magnetic latching.¹⁴¹ The claim broadly referenced a “material with enough residual magnetism” and made no mention of any specific materials.¹⁴² An alleged joint inventor identified a specific material that could be used for magnetic latching.¹⁴³ However, the Federal Circuit found that the alleged joint inventor’s contribution was insignificant because the specific material that he identified was well-known.¹⁴⁴ Furthermore, the material identified was not claimed specifically in the patent, and therefore, the alleged joint inventor had not made a contribution to a claim of the patent.¹⁴⁵

Similarly, in *Nartron Corp. v. Schukra U.S.A., Inc.*, an alleged joint inventor contributed an extender to a lumbar support adjuster on a seat.¹⁴⁶ The Federal Circuit determined that the alleged joint inventor’s contribution was insignificant because the extender existed in the prior art and had been used on existing seats.¹⁴⁷ Moreover, when measured against the whole invention, the patent claim that focused on the extender was insignificant because the specification of the patent focused primarily on a control module, which operates the seat, and not on the structure of the seat itself.¹⁴⁸

Finally, it has been found that merely explaining the current state of the art is an insignificant contribution to conception.¹⁴⁹ In *Hess v. Advanced Cardiovascular Systems, Inc.*, an alleged joint inventor informed several doctors about different materials that could be used for a balloon catheter.¹⁵⁰ The alleged joint inventor supplied material samples and also explained how to attach a balloon to a catheter without any adhesive.¹⁵¹ The principles that the alleged joint inventor explained to the doctors were “‘in various published textbooks and the like’ and [the attaching procedure] ‘was a generally known process to a number of companies.’”¹⁵² The Federal Circuit concluded that the alleged joint inventor made an insignificant contribution to conception because

¹⁴¹ 387 F.3d at 1360.

¹⁴² *Id.* at 1376.

¹⁴³ *Id.* at 1362.

¹⁴⁴ *Id.* at 1378.

¹⁴⁵ *Id.*

¹⁴⁶ *Nartron Corp. v. Schukra U.S.A., Inc.*, 558 F.3d 1352, 1355 (Fed. Cir. 2009).

¹⁴⁷ *Id.* at 1357.

¹⁴⁸ *Id.* at 1357–58.

¹⁴⁹ *See Hess v. Adv. Cardiovascular Sys., Inc.*, 106 F.3d 976, 981 (Fed. Cir. 1997) (alleged joint inventor’s explanation to other inventors regarding product availability in the marketplace was insignificant contribution to conception).

¹⁵⁰ *Id.* at 977.

¹⁵¹ *Id.*

¹⁵² *Id.*

he “did no more than a skilled salesman would do in explaining how his employer’s product could be used to meet a customer’s requirements.”¹⁵³

By contrast, in *Pannu v. Iolab Corp.*,¹⁵⁴ two alleged joint inventors made significant contributions to the conception of an intraocular lens used in cataract surgeries.¹⁵⁵ In this case, an alleged joint inventor, Pannu, filed a patent application relating to an intraocular lens that reduced snagging in the human eye.¹⁵⁶ Pannu met with a second alleged joint inventor, Link, who suggested that the lens could be manufactured from a single piece of plastic.¹⁵⁷ Pannu subsequently filed a continuation-in-part (CIP) patent application to reflect the single piece design with the snag-resistant elements.¹⁵⁸ Link attempted to assert that he was the sole inventor of the patent.¹⁵⁹ The court determined that Pannu was also at least a joint inventor because he made a significant contribution to conception.¹⁶⁰ The Court reasoned that Pannu “was doing more than simply providing Link with well-known principles or explaining the state of the art; he was contributing his ideas concerning the snag-resistant elements to a total inventive concept.”¹⁶¹

C. CORROBORATION

The third element of joint inventorship is corroboration. Corroboration is not a technical requirement of joint inventorship.¹⁶² Rather, it serves an important evidentiary function for resolving inventorship disputes.¹⁶³ The overall purpose of corroboration is to prevent fraudulent inventorship claims.¹⁶⁴ Although the corroboration element does not appear in the joint inventor

¹⁵³ *Id.* at 981.

¹⁵⁴ 155 F.3d 1344 (Fed. Cir. 1998).

¹⁵⁵ *See id.* at 1351.

¹⁵⁶ *Id.* at 1346 (stating that prior to meeting with a second joint inventor, Lin, “Pannu filed a patent application directed to an improved posterior intraocular lens that reduced snagging [in the human eye] by placing a circular loop at the end of the positioning and supporting members [of the lens]”).

¹⁵⁷ *Id.*

¹⁵⁸ *Id.*

¹⁵⁹ *Id.* at 1347.

¹⁶⁰ *Id.* at 1351.

¹⁶¹ *Id.*

¹⁶² *See* *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994) (because conception is a mental act, courts require corroborating evidence to prove conception).

¹⁶³ *See id.* (an inventor must prove conception by corroborating evidence, “preferably by showing a contemporaneous disclosure”).

¹⁶⁴ *See* *Weaver v. Houchin*, 467 F. App’x 878, 880 (Fed. Cir. 2012) (quoting *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1170 (Fed. Cir. 2006)).

statute, it is well-established in Federal Circuit case law.¹⁶⁵ The Federal Circuit has stated that, “[b]ecause [conception] is a mental act, courts require corroborating evidence of a contemporaneous disclosure that would enable one skilled in the art to make the invention.”¹⁶⁶ Thus, corroborating evidence serves as proof of a joint inventor’s contribution to the conception of an invention.¹⁶⁷ Corroborating evidence can be divided into two categories: (1) oral testimony and (2) written records.

1. *Oral Testimony.* Oral testimony can be probative of a joint inventor’s contribution to the conception of an invention. In litigation, the “testimony of one co-inventor cannot be used to help corroborate the testimony of another.”¹⁶⁸ Although the corroborating witness cannot be a joint inventor, the witness must have personal knowledge of the alleged joint inventor’s contribution.¹⁶⁹

When an alleged joint inventor asserts joint inventor status, a court will evaluate his or her testimony under a “rule of reason” analysis.¹⁷⁰ Under a rule of reason analysis, a court will make “[a]n evaluation of *all* pertinent evidence . . . so that a sound determination of the credibility of the [alleged] inventor’s story may be reached.”¹⁷¹ A court will consider corroborating evidence in context and weigh it to determine if “clear and convincing” evidence supports a finding of joint inventorship.¹⁷² Oral testimony from someone other than a joint inventor who has personal knowledge of the alleged joint inventor’s contribution can be helpful in proving joint inventorship.¹⁷³

2. *Written Records.* Written records are also probative evidence of a joint inventor’s contribution to conception. Written records are important because

¹⁶⁵ See, e.g., *Burroughs Wellcome*, 40 F.3d at 1228 (conception is a mental act that requires corroborating evidence to prove); see also *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1466 (Fed. Cir. 1998), 135 F.3d at 1461 (“To show co-inventorship . . . the alleged co-inventor or co-inventors must prove their contribution . . . by clear and convincing evidence.” However, an inventor’s testimony alone cannot rise to the level of clear and convincing evidence. “Thus, an alleged co-inventor must supply evidence to corroborate his testimony.”).

¹⁶⁶ *Burroughs Wellcome*, 40 F.3d at 1228.

¹⁶⁷ See *id.* at 1232 (alleged conception was found to be supported by expert testimony, test data, and a draft patent application).

¹⁶⁸ *Medichem*, 437 F.3d at 1171.

¹⁶⁹ See *Weaver*, 467 F. App’x at 881 (witness’ lack of personal knowledge co-inventor’s contribution was insufficient corroborating testimony to prove inventorship by clear and convincing evidence).

¹⁷⁰ *Ethicon*, 135 F.3d at 1461.

¹⁷¹ *Id.* (alteration in original) (quoting *Price*, 988 F.2d at 1195).

¹⁷² *Id.* at 1464.

¹⁷³ See *Weaver*, 467 F. App’x at 880 (without corroborating evidence, an alleged co-inventor’s testimony alones is insufficient to meet burden to establish co-inventorship).

they can serve as a paper trail for resolving future inventorship disputes.¹⁷⁴ Two preferred types of written records are inventor notebooks and invention disclosure forms.¹⁷⁵ Inventor notebooks are permanently bound books that have pages for documenting contributions to conception and/or reductions to price and are arguably “the most reliable and efficient way[] to document an invention.”¹⁷⁶ There are several guidelines for maintaining an inventor notebook:¹⁷⁷ first, entries should be recorded in a consistent manner and should not be erased or removed.¹⁷⁸ Rather, a line should be drawn through an unwanted entry so that it is still legible.¹⁷⁹ Second, the entries should be signed and dated by at least two witnesses.¹⁸⁰ As with oral testimony, witnesses should have the necessary background to understand the subject matter in the notebook and have personal knowledge of the joint inventor’s contribution.¹⁸¹ Finally, entries should be signed and dated when they are recorded.¹⁸²

Another preferred type of written record is an invention disclosure form.¹⁸³ Invention disclosure forms are an important tool for companies to document and file patent applications.¹⁸⁴ A corporate patent attorney will likely use an invention disclosure form as the basis for writing a patent application.¹⁸⁵ Depending on the company, an invention disclosure form generally contains business, technical, and legal information.¹⁸⁶ The business information generally relates to the potential use or sale of the invention in the market.¹⁸⁷ The technical information can include the subject matter of the invention and examples of related prior art.¹⁸⁸ Finally, the legal information can include where the inventive work was done and who an inventor of the subject matter was.¹⁸⁹

¹⁷⁴ See Rivka Monheit, *The Importance of Correct Inventorship*, 7 J. INTELL. PROP. L. 191, 223–24 (1999) (“[I]f an inventor fears that he may be excluded from a patent application, he should create a paper trail while working with others to demonstrate that ideas were shared and discussed between the joint inventors.”).

¹⁷⁵ See TESKA, *supra* note 4, at 139.

¹⁷⁶ *Id.* at 140.

¹⁷⁷ See, e.g., *id.* at 140–41; DOBRUSIN & KRASNOW, *supra* note 4, at 72.

¹⁷⁸ TESKA, *supra* note 4, at 140.

¹⁷⁹ DOBRUSIN & KRASNOW, *supra* note 4, at 72.

¹⁸⁰ TESKA, *supra* note 4, at 141; DOBRUSIN & KRASNOW, *supra* note 4, at 72.

¹⁸¹ TESKA, *supra* note 4, at 141.

¹⁸² *Id.* at 140–41.

¹⁸³ *Id.* at 139.

¹⁸⁴ *Id.* at 143, 146; DOBRUSIN & KRASNOW, *supra* note 4, at 54.

¹⁸⁵ DOBRUSIN & KRASNOW, *supra* note 4, at 55.

¹⁸⁶ *Id.*

¹⁸⁷ *Id.*

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

Invention disclosure forms are typically completed by non-legal personnel, such as engineers or scientists.¹⁹⁰ Ultimately, attorneys rely on potential inventors to complete an invention disclosure form correctly and accurately.¹⁹¹

In addition to inventor notebooks and invention disclosure forms, there are other written records that can corroborate a joint inventor's contribution. For example, drawings and sketches can serve as corroborating evidence,¹⁹² and such physical exhibits do not need to be corroborated independently.¹⁹³ Rather, only an alleged joint inventor's testimony requires corroboration.¹⁹⁴ Other contemporaneous documents can provide circumstantial evidence of the inventive process for the purpose of corroboration.¹⁹⁵

D. CLAIMS

The fourth and final element of joint inventorship is a contribution to the subject matter of at least one claim of a patent.¹⁹⁶ This element is co-extensive with the contribution element, meaning that a contribution to an invention described in a patent is a contribution to a claim of the patent because the claims define the scope of the complete invention.¹⁹⁷ Although this element is co-extensive with the contribution element, it is presented separately in this Article to reflect the joint inventor statute.¹⁹⁸ Section 116 states in relevant part, “[i]nventors may apply for a patent jointly even though . . . each did not make a contribution to the subject matter of every claim of the patent.”¹⁹⁹ The Federal Circuit has held that a joint inventor must make a contribution to the conception of the subject matter of a claim.²⁰⁰ An inventorship determination by a court requires:

¹⁹⁰ *Id.*

¹⁹¹ *See id.* (allowing sketches drawn by an alleged co-inventor to sufficiently coordinate a claim of joint ownership).

¹⁹² *See Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1464–65 (Fed. Cir. 1998) (finding alleged joint inventor's sketches of sophisticated technical concepts to be sufficient corroborating evidence of conception).

¹⁹³ *See Price v. Symsek*, 988 F.2d 1187, 1195 (Fed. Cir. 1993) (finding that independent “‘corroboration’ is not necessary to establish what a physical exhibit before the board includes”).

¹⁹⁴ *Id.*

¹⁹⁵ *Ethicon*, 135 F.3d at 1461; *Knorr v. Pearson*, 671 F.2d 1368, 1373–74 (C.C.P.A. 1982) (“[S]ufficient circumstantial evidence of an independent nature can satisfy the corroboration rule.”).

¹⁹⁶ *Ethicon*, 135 F.3d at 1463.

¹⁹⁷ *See Fina Oil*, 123 F.3d at 1473 (to be joint inventor, one must contribute to the conception of the claimed invention).

¹⁹⁸ 35 U.S.C. § 116 (2006).

¹⁹⁹ *Id.* (emphasis added).

²⁰⁰ *Ethicon*, 135 F.3d at 1463.

(1) “a construction of each asserted claim to determine the subject matter encompassed thereby” and (2) a comparison of “the alleged contributions of each asserted co-inventor with the subject matter of the properly construed claim.”²⁰¹

One caveat in determining whether a contribution appears in a claim of a patent is the “means-plus-function claim.” Generally, a means-plus-function claim recites a “means” for performing some specified function.²⁰² The scope of a means-plus-function claim is limited to the “means” disclosed in the specification of the patent application.²⁰³ Therefore, a “contributor of any disclosed means of a means-plus-function claim element is a joint inventor as to that claim,” unless the contribution is merely a reduction to practice of a broader concept.²⁰⁴

For example, in *Ethicon, Inc. v. U.S. Surgical Corp.*, the invention at issue concerned a surgical instrument that claimed a detaining means used to trigger a retracting spring.²⁰⁵ Choi, who was asserting joint inventorship, contributed to one of the two detaining means disclosed in the specification of the patent.²⁰⁶ Yoon, who was asserting sole inventorship, could not show that Choi’s contribution to one of the detaining means was a reduction to practice of the broader concept of using *any* detaining means.²⁰⁷ The court found that Choi was a joint inventor because he contributed to the conception of one of the disclosed means in the specification for detaining the retracting spring.²⁰⁸

V. JOINT INVENTORSHIP FRAMEWORK

The following is a step-by-step framework for determining joint inventorship. The framework is also illustrated in Appendix A²⁰⁹ and can be used as a tool in conjunction with this Article. Further, it may be helpful to reference Appendix A while reading this section to fully understand the process of determining joint inventorship.

The “Four Cs” of joint inventorship serve as the key elements of the framework. Collaboration, contribution, and corroboration are all inventor-

²⁰¹ *Trovan, Ltd. v. Sokymat SA*, 299 F.3d 1292, 1302 (Fed. Cir. 2002).

²⁰² 35 U.S.C. § 112.

²⁰³ *Id.*

²⁰⁴ *Ethicon*, 135 F.3d at 1463.

²⁰⁵ *Id.*

²⁰⁶ *Id.*

²⁰⁷ *Id.* at 1464.

²⁰⁸ *Id.*

²⁰⁹ See *infra* Part VII.

focused elements that require critical input from inventors. The questions asked by an attorney, the records that inventors maintain, and the understanding of each inventor are important factors for making a complete and accurate joint inventorship determination.²¹⁰ The claims element is an attorney-focused element that requires diligence in determining a claim's scope and the respective contributions of each joint inventor.²¹¹ An interactive relationship between an attorney and joint inventors can be helpful in making these determinations.

Although the claims element is primarily attorney-focused, joint inventors should also be aware of the effect that the patent application process has on claim scope.²¹² The process of obtaining a patent can be long and iterative. It involves negotiation and compromise between the attorney and the patent examiner to determine acceptable claim coverage. Thus, claims are often amended to be narrower or broader in scope as part of the process.²¹³ This, in turn, can alter joint inventorship. Accordingly, attorneys and inventors should consult the final version of the claims to determine if the contributions of the listed inventors appear in the claims.²¹⁴

STEP A. DETERMINE IF THE ALLEGED JOINT INVENTOR COLLABORATED WITH THE OTHER JOINT INVENTORS

The first step in determining joint inventorship requires an attorney to determine whether an alleged joint inventor collaborated with the other joint inventors.²¹⁵ To make this determination, the attorney should first decide where the inventive effort took place. If the inventive effort occurred in-house, then the collaboration element may be satisfied if the joint inventors worked toward a common goal under a common direction.²¹⁶

²¹⁰ See Murphy, *supra* note 28, at 226 (noting that in an inventorship determination, an attorney should obtain all relevant documents from potential inventors, such as laboratory notebooks, and should ask all those involved with the inventive effort what role they saw each other play).

²¹¹ See Dzeguze, *supra* note 59, at 652, 656 (suggesting that claims undergo multiple amendments during prosecution and thus, can affect the status of listed inventors and omitted individuals).

²¹² See *id.* (stating that claims in their final allowable form likely define an invention that is very different from the invention as originally conceived by the inventors due to amendments made to the claims during the process of obtaining a patent).

²¹³ See *id.* at 654 (noting that prior case law suggests that claims are routinely amended to reflect the thinking of attorneys and patent examiners rather than the original conception of the inventor).

²¹⁴ See *id.*

²¹⁵ 35 U.S.C. § 116 (2006).

²¹⁶ See *Gen. Motors Corp. v. Toyota Motor Co.*, 667 F.2d 504, 507 (6th Cir. 1981) (joint inventorship found where inventors worked in-house on the same project for the same company).

For example, suppose Alice and Ben work together at ABC Recliners, Inc. Alice works on the twelfth floor of the building and Ben works on the third floor. Assume that Ben conceives a new and improved reclining chair frame as part of a new project for the company. Unbeknownst to Ben, Alice conceives a new cross-member for the frame that Ben conceived as part of the same project for ABC Recliners, Inc. Alice had no interaction with Ben—neither by e-mail, phone, nor in-person contact. Although Alice did not interact with Ben, Alice and Ben may have collaborated because they worked toward a common goal (the improved chair frame project) under the common direction of ABC Recliners, Inc.²¹⁷

Absent a common direction and goal, an alleged joint inventor cannot be completely ignorant of another joint inventor's work and satisfy the collaboration element.²¹⁸ Rather, there must be "some quantum of collaboration or connection" between joint inventors.²¹⁹ Here, it becomes important to determine who the alleged joint inventors interacted with, what type of interactions occurred, and the frequency and duration of those interactions.

STEP B. DETERMINE IF THE ALLEGED JOINT INVENTOR MADE A SIGNIFICANT CONTRIBUTION TO THE CONCEPTION OF THE INVENTION

The second step in determining joint inventorship requires an attorney to determine: (1) whether the alleged joint inventor made a contribution to the conception of the claimed invention, and (2) whether that contribution is significant when measured against the complete invention.²²⁰ First, an attorney should determine if the alleged joint inventor contributed to the conception or the reduction to practice of the invention. In determining whether a contribution to conception occurred, the attorney should determine whether only ordinary skill was necessary to physically build/create the invention, without extensive research or experimentation, before the alleged joint

²¹⁷ *See id.* (the case law suggests that joint inventorship should be interpreted broadly when the invention is part of a "concerted effort underwritten and directed" by the employer).

²¹⁸ *See Kimberly Clark Corp. v. Procter & Gamble Distrib. Co.*, 973 F.2d 911, 917 (Fed. Cir. 1992) (no joint inventorship where alleged joint inventor conceived an improvement years after another inventor's work; where alleged joint inventor worked alone and was unaware of the earlier work done by the other inventor).

²¹⁹ *Id.*

²²⁰ *See Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1358–59 (Fed. Cir. 2004) (a person is a joint inventor only if he contributes to the conception of the claimed invention, where that contribution is not insignificant in quality when measured against the full invention).

inventor's contribution was made.²²¹ If more than ordinary skill was necessary to physically build/create the invention before the contribution was made, then the contribution may be one to conception.²²²

For example, let us assume again that Alice and Ben work together to develop a new and improved reclining chair. The chair is an improvement over the prior art because it uses a new frame design. Ben conceived the new frame and Alice conceived a new reclining lever to be used in conjunction with the new frame because existing levers could not be used to make the chair recline. The combination of the new reclining lever and the frame involved extensive research and experimentation. Here, Alice may have contributed to the conception of the improved reclining chair because before Alice contributed the reclining lever, more than ordinary skill was necessary to build the complete chair (i.e., more than ordinary skill was necessary to make the new chair recline).²²³ Even though Alice did not contribute to the conception of the new frame, the complete invention is an improved reclining chair.

As another example, let us assume that, in contrast, Alice used an existing reclining lever in conjunction with the new frame. The combination of the existing lever and the new frame did not involve any extensive research or experimentation. Here, Alice likely did not contribute to the conception of the improved reclining chair because before Alice made her contribution, only ordinary skill was necessary to build a complete reclining chair (i.e., the use of an existing reclining lever in combination with the new frame likely involved the exercise of ordinary skill).²²⁴

On the other hand, if a reduction to practice is necessary to conceive an invention, then that reduction to practice may satisfy the contribution element.²²⁵ This would constitute the SCRP situation discussed in Part IV.²²⁶

²²¹ See *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994) (if only ordinary skill is necessary to build an invention (i.e., reduce an invention to practice), then conception is likely complete because conception requires that an inventor have a sufficiently clear idea in his or her mind of the invention that only ordinary skill is necessary to reduce the invention to practice).

²²² *Id.* ("Conception is complete only when the idea is clearly defined in the inventor's mind that only ordinary skill would be necessary to reduce the invention to practice." (internal citation omitted)).

²²³ *Id.*

²²⁴ *Id.*

²²⁵ See *id.* at 1228–29 (holding that reduction to practice may satisfy the contribution element only when conception is otherwise incomplete); see also *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1206 (Fed. Cir. 1991) ("In some instances, an inventor is unable to establish a conception until he has reduced the invention to practice through a successful experiment.").

²²⁶ See *supra* Part IV.B.

Remember that SCRP is most likely to occur in the unpredictable arts, such as the chemical and biotechnology fields.²²⁷

For example, suppose Alice and Ben worked *together* to develop a new material for reclining chair frames. Before commencing experimentation, the two did not have an idea of the chemical structure of the new material, or an operative method of making it. Subsequently, they performed extensive experiments with different additives until a final compound for the frame material was formed. The compound was patented by ABC Recliners, Inc. Here, Alice and Ben are likely joint inventors because they each contributed to the simultaneous conception and reduction to practice of the claimed compound.²²⁸

The next step in determining joint inventorship requires an attorney to determine whether an alleged joint inventor's contribution is significant when measured against the complete invention.²²⁹ Because there is no bright-line test for determining whether a contribution is significant, the attorney should make several inquiries to eliminate contributions that are insignificant.

Inquiry #1. First, an attorney should determine whether an alleged joint inventor's contribution is merely carrying out the experiments or instructions of another joint inventor.²³⁰ If so, then the contribution is likely an insignificant one. For instance, in the improved recliner example, suppose that Alice performed an impact test on the new chair frame that Ben conceived. Ben had already performed a similar impact test and discovered that the frame required two additional cross-members for strength. Alice performed the same test as Ben and made a similar discovery. Here, Alice likely made an insignificant contribution to conception because she performed an experiment that Ben had already performed with a similar outcome.²³¹ Similarly, if Ben instructed Alice to perform the impact test because he was concerned about the overall strength

²²⁷ See *Burroughs Wellcome*, 40 F.3d at 1229 (stating that in some cases, the unpredictability of the field results in conception occurring when a reduction to practice occurs (e.g., a successful experiment)).

²²⁸ See *id.* (citing *Fiers v. Revel*, 984 F.2d 1164, 1169 (Fed. Cir. 1993) (stating that the “[c]onception of a chemical substance includes knowledge of both the specific chemical structure of the compound and an operative method of making it”).

²²⁹ *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1359 (Fed. Cir. 2004).

²³⁰ See *Stern v. Trustees of Columbia Univ.*, 434 F.3d 1375, 1378 (Fed. Cir. 2006) (the court finding that simply performing an experiment that had already been done was insufficient evidence to show co-inventorship); see also *Acromed Corp. v. Sofamor Danek Grp., Inc.*, 253 F.3d 1371, 1381 (Fed. Cir. 2001) (finding that simply following the instructions of a superior was insufficient to establish a significant contribution to the work).

²³¹ *Stern*, 434 F.3d at 1378.

of the frame, then Alice's contribution would likely be insignificant because she merely performed an experiment that Ben instructed her to perform.²³²

Inquiry #2. Second, an attorney should determine if the alleged joint inventor's contribution is merely suggesting a desired end without any contribution to a means to achieve that end.²³³ If the contribution merely suggested a desired end, then it is likely insignificant.²³⁴ For instance, if Alice merely suggested to Ben that the new frame needed an improved reclining lever, then Alice's contribution is likely insignificant absent a contribution to creating an improved reclining lever.²³⁵

Inquiry #3. Third, an attorney should determine whether an alleged joint inventor's contribution is a well-known concept.²³⁶ If so, then it is likely insignificant. Contributing well-known concepts can include suggesting the use of known materials or applying known design features.²³⁷ Consider the improved recliner example where Alice contributed a new reclining lever to be used in conjunction with the new chair frame that Ben conceived. If the reclining lever that Alice conceived is already well-known by other reclining chair designers, or if it is disclosed in a magazine or textbook, then Alice's contribution of the reclining lever is likely insignificant.²³⁸

Inquiry #4. Fourth, an attorney should determine whether an alleged joint inventor's contribution is merely an explanation of the "current state of the art."²³⁹ If so, then the contribution is likely insignificant. For example, assume now that instead of Alice designing a new reclining lever, she tells Ben about current frame designs used by other reclining chair companies. Here, Alice likely made an insignificant contribution to conception of the new frame design

²³² See *Acromed*, 253 F.3d at 1381 (suggesting that following the instructions of a superior to perform an act, without more, is an insignificant contribution to conception).

²³³ *Garrett Corp. v. United States*, 422 F.2d 874, 881 (Ct. Cl. 1970); *Regents of the Univ. of Cal. v. Synbiotics Corp.*, 29 U.S.P.Q.2d (BMA) 1463, 1466–67 (S.D. Cal. 1993).

²³⁴ *Synbiotics*, 29 U.S.P.Q.2d (BMA) at 1466–67.

²³⁵ *Id.*

²³⁶ *Nartron Corp. v. Schukra U.S.A., Inc.*, 558 F.3d 1352, 1356–57 (Fed. Cir. 2009); *Caterpillar Inc. v. Sturman Indus., Inc.*, 387 F.3d 1358, 1378 (Fed. Cir. 2004).

²³⁷ See *Nartron*, 558 F.3d at 1357–58 (alleged joint inventor's contribution of an extender to a seat was well-known in the prior art at the time of the invention and therefore, was insignificant); see also *Caterpillar*, 387 F.3d at 1378 (alleged joint inventor's contribution of materials known from the prior art was an insignificant contribution to conception).

²³⁸ See *Nartron*, 558 F.3d at 1357–58.

²³⁹ *Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976, 981 (Fed. Cir. 1997) (alleged joint inventor's contribution of explaining what was available in the marketplace and how a product worked was an insignificant contribution to conception).

because she merely described to Ben the current state of frame designs for reclining chairs.²⁴⁰

Inquiry #5. Finally, an attorney should determine what the “quality” of an alleged joint inventor’s contribution is compared to the overall claimed invention.²⁴¹ To make this determination, an attorney should determine what the focus of the invention is. If the focus of the invention recited in the patent application is on something other than the contribution that the alleged joint inventor made, then the contribution may be insignificant.²⁴² In determining the focus of the invention, an attorney should consider the specification of the patent application in addition to the claims.²⁴³ For instance, in the improved recliner example, if the primary focus of the specification and the claims is on the new frame design that Ben conceived, then Alice’s contribution of an improved reclining lever may be insignificant.²⁴⁴

STEP C. DETERMINE IF THE ALLEGED JOINT INVENTOR’S CONTRIBUTION IS CORROBORATED

The third step in determining joint inventorship requires an attorney to determine whether an alleged joint inventor’s contribution is corroborated.²⁴⁵ As discussed previously, the corroboration element serves an evidentiary function for resolving inventorship disputes.²⁴⁶ Thus, even if an alleged joint inventor’s contribution is not corroborated, he or she may still be named as a joint inventor on a patent application. However, it will be difficult to prove joint inventorship if the inventorship of the patent is disputed later. Nevertheless, at the outset, an attorney should determine whether an alleged joint inventor’s contribution is recorded in an inventor’s notebook or an invention disclosure form (or both).²⁴⁷ If the contribution is recorded in an

²⁴⁰ *See id.*

²⁴¹ *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1358 (Fed. Cir. 2004); *see also Nartron Corp.*, 558 F.3d at 1356–57 (contribution to conception of an invention must be “not insignificant in quality, when that contribution is measured against the dimension of the full invention”).

²⁴² *See Nartron Corp.*, 558 F.3d at 1358 (extender for a seat was insignificant contribution to invention which focused on the function of a control module for the seat).

²⁴³ *See id.* (the court turned to the specification of the patent application to determine what the primary focus of the invention was).

²⁴⁴ *Id.*

²⁴⁵ *See, e.g., Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994) (“Because [conception] is a mental act, courts require corroborating evidence of a contemporaneous disclosure that would enable one skilled in the art to make the invention.”).

²⁴⁶ *See id.*

²⁴⁷ *See TESKA, supra* note 4, at 139 (stating that documentation such as an inventor’s notebook or an invention disclosure form can be used to prove the “how and when” of conception and

inventor's notebook, then at least two people who are not joint inventors, but have personal knowledge and an understanding of the contribution should sign the notebook entry.²⁴⁸ Also, the entry should be signed and dated in close proximity to the time the entry was recorded.²⁴⁹

If the contribution is not recorded in an inventor's notebook or an invention disclosure form, an attorney should determine whether there are physical exhibits such as drawings or prototypes that can serve as corroborating evidence of an alleged joint inventor's contribution.²⁵⁰ Next, an attorney should determine whether there are any witnesses (who are not joint inventors but have personal knowledge and an understanding of the alleged joint inventor's contribution) who could offer oral testimony to corroborate the contribution.²⁵¹ Finally, an attorney should determine if there is any other corroborating evidence, such as written evidence of the inventive process.²⁵²

STEP D. DETERMINE IF THE ALLEGED JOINT INVENTOR'S CONTRIBUTION APPEARS IN A CLAIM OF THE PATENT

The final step in determining joint inventorship requires an attorney to determine whether an alleged joint inventor's contribution appears in a claim of a patent.²⁵³ As mentioned previously, this step is co-extensive with the contribution step. However, because the patent application process is iterative, attorneys should consult the *final* version of the claims in a patent application to determine whether an alleged joint inventor's contribution appears in a claim.²⁵⁴

reduction to practice to ultimately defeat (pre-date) other prior references and patent applications from competitors).

²⁴⁸ See *id.* at 140–41 (stating that notebook entries should be signed by at least two witnesses who actually read and understand the technical subject matter in the notebook).

²⁴⁹ See DOBRUSIN & KRASNOW, *supra* note 4, at 72 (suggesting that because of the long lapse of time in patent scenarios, inventors should quickly record their discoveries in an inventor notebook).

²⁵⁰ See, e.g., *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1464–65 (Fed. Cir. 1998).

²⁵¹ See 467 F. App'x at 881 (witness' lack of personal knowledge was insufficient corroborating testimony).

²⁵² See *Knorr v. Pearson*, 671 F.2d 1368, 1373 (C.C.P.A. 1982) (stating that circumstantial evidence, such as evidence of the inventive process, is sufficient to corroborate a claim of co-inventorship).

²⁵³ See 35 U.S.C. § 116(a) (2006) (“*Inventors may apply for a patent jointly even though . . . each did not make a contribution to the subject matter of every claim of the patent.*” (emphasis added)).

²⁵⁴ See Dzeguze, *supra* note 59, at 656 (suggesting that claims undergo multiple amendments during prosecution and thus, can affect the status of listed inventors and omitted individuals).

For example, in Alice's and Ben's improved recliner, if the new reclining lever that Alice conceived is not recited in any of the claims, then Alice does not qualify as a joint inventor because the claims define the scope of the complete invention.²⁵⁵ By contrast, if the claims are amended as a result of the application process and the new reclining lever is subsequently added to a claim, then Alice qualifies as a joint inventor because she contributed to the claimed invention.²⁵⁶ Therefore, an attorney should bear in mind that amending claims may affect the status of other joint inventors or potential joint inventors who are not listed on the patent application.

An attorney should also be aware of any means-plus-function claims used in the patent application. If a patent application claims "a means for" performing some specified function and a contribution is made to a means disclosed in the specification, then a contribution may have been made to that means-plus-function claim.²⁵⁷

In the improved recliner example, assume that the patent application claims "a means for reclining" and the specification discloses two different levers as means for reclining. If Alice contributed to the conception of either of the two levers disclosed in the specification, then Alice may have contributed to the means-plus-function claim.²⁵⁸ However, if Alice merely contributed to the reduction to practice of the broader concept of using *any* lever as a means for reclining, then she likely did not contribute to the means-plus-function claim.²⁵⁹

VI. CONCLUSION

Determining joint inventorship is a fact-intensive process. The step-by-step joint inventorship framework can be used to help attorneys navigate the minutia of facts that make up a joint inventorship determination. This framework suggests a methodical and systematic inquiry through each of the 'Four Cs' of joint inventorship: collaboration, contribution, corroboration, and claims. Although the inquiries set forth in this Article are not dispositive, they are helpful in determining joint inventorship.

²⁵⁵ See 35 U.S.C. § 116 (2009).

²⁵⁶ See *id.*

²⁵⁷ See *Ethicon*, 135 F.3d at 1463 (alleged joint inventor's contribute to a means for restricting a trocar disclosed in the specification was contributed to a means-plus-function claim).

²⁵⁸ *Id.*

²⁵⁹ *Id.* at 1464.

VII. APPENDIX A

