ABSTRACT

Inventorship disputes appear to be proliferating. This is not surprising in light of the 1993 relaxation of the standards for joint inventorship. Although the vast majority of claims fail, the handful of cases indicating successful inventorship claims can be quite lucrative, which makes it reasonable to expect the upward trend in number of cases to continue. Moreover, the lack of clarity on certain key aspects of inventorship law is apt to encourage further claims. This article begins, as a cautionary tale of sorts: an analysis of the unclear aspects of inventorship law. This includes the as yet unresolved variations in caselaw as to the basic standard for inventorship and as a result what can serve as a basis for an inventorship claim and the fact that even under the predominant standard ambiguities exist over what and how a contribution can be adequately shown. It then proceeds to analyze four common situations that can present inventorship problems, and suggests practical steps to minimize exposure and create a solid documentary record to defeat any later inventorship claims.
AVOIDING THE “FIFTH BEATLE” SYNDROME: PRACTICAL SOLUTIONS TO MINIMIZING JOINT INVENTORSHIP EXPOSURE

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I. INTRODUCTION

In June, 2006, musician Billy Preston died. In various obituaries, along with chronicling his work with the Rolling Stones and various blues musicians, his participation as keyboardist at the end of the group collaboration between John, Paul, George and Ringo was inevitably mentioned. In this regard, and indeed in the headline of many of the obituaries, Mr. Preston’s brief interaction led him to being described as the “Fifth Beatle.” He was hardly the first person to be described this way. From early band members to self-promoting DJs, famous producers to roadies, Indian gurus and sitar master Ravi Shankar, the appellation has been attached to just about every person with a significant tie to the group. In fact, the claim is so well-known and widespread that a Simpsons episode has the immortal Kwik-E-Mart proprietor, Apu, claiming the title before launching into a butchered send up of Sergeant Peppers’ Lonely Hearts Club Band in front of a horrified Paul and Linda McCartney.

Now, no one really considered Apu a Beatle. Likely, none of the others laying claim to the “Fifth Beatle” moniker were really considered a full member. Certainly, the rights to the core song catalog do not reflect any extra Beatles, with only two co-writing credits on individual songs. But the varied uses of this term speak to one of the undeniable side effects of success in just about any field of creative endeavor—hangers on suddenly emerge, often with aggrandized views of their roles in bringing about that success. Less commonly, though often depicted in stage and screen, someone’s legitimate contribution is not credited or misappropriated—with resulting rancor and often litigation.

Collaborations resulting in patents are no different than other creative endeavors. A line of cases speaks eloquently to the effects of success in sharpening the hindsight of omitted collaborators. Time and again, successful patents lead to claims of inventorship. While inventorship and ownership are technically distinct

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† Available at http://www.jmrpl.com


2 Id.

3 Id.

4 The Simpsons: Lisa the Vegetarian (FOX television broadcast Oct. 15, 1995).

issues, the motivation for claiming inventorship is almost always a cut of ownership and some form of damages (although sometimes it is an effort at rendering a patent invalid, a disgruntled former employee with an axe to grind or a student looking for recognition and a better shot at tenure). While the overwhelming majority of such claims fail, victory for the patentee (or, more often, assignee) always comes at a price. Where documents have been destroyed or where good documentation was never created in the first place, and memories have faded over time, that cost can threaten to outstrip the value of the patent. Moreover, the lucrative results in a few truly egregious situations have encouraged and continue to encourage a plethora of claims. The stakes are likely to only get higher in the future.

The best way to deal with such problems, of course, is to do as much as possible, as early as possible, to guard against the sort of fact situations that give rise to such claims. The goal of this article is to provide a set of suggested practices that seek to minimize errors in naming inventors and bolster the odds of a quick resolution to any dispute. While no set of practices is fool-proof, these should at least empower most practitioners to avoid the most costly and common mistakes.

To underscore the value of these practices, the article begins with an overview of Federal Circuit inventorship law. As shown therein, while most recent cases have adopted a single standard for resolving inventorship issues, there remains a fundamental uncertainty as to what can be an inventive contribution. Even under the predominant standard, several of the underlying determinations are based on essentially open-ended criteria which may have little to no connection to the actual efforts of the named inventors and unnamed collaborators. This further emphasizes the value of avoiding, rather than litigating, co-inventorship problems.

Beyond this general uncertainty, the variety of situations that can result in co-inventorship disputes should give every patent practitioner pause. Without trying to address every potential scenario, this article endeavors to address the four fact patterns (intra-company collaborations, inter-company collaborations, company collaborations with universities, and mentor-student collaborations at universities) that seem to pre-dominate the case law and suggest practical steps which can avoid such disputes from arising, with particular emphasis on the unique attributes of each scenario. Most, if not all, are simply common sense and generally good business practices applied in a novel environment. However, as the case law shows, these practices are often honored mainly in the breach, by parties who find themselves spending time and money on legal assistance to address issues that basic good manner and a slightly elevated sense of ethical conduct likely would have mooted. In this regard, this article is intended as the ounce of prevention that may avoid pounds of future "cure."

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6 See Sewall v. Walters, 21 F.3d 411, 417 (Fed. Cir. 1994). The court noted:

It is elementary that inventorship and ownership are separate issues,... [Inventorship is a question of who actually invented the subject matter claimed in a patent. Ownership, however, is a question of who owns a legal title to the subject matter claimed in a patent, patents having the attributes of personal property.

Id. (quoting Beech Aircraft Corp. v. EDO Corp., 990 F.2d 1237, 1248 (Fed. Cir. 1993)).

II. THE LESS THAN CLEAR LEGAL STANDARDS OF INVENTORSHIP

Indeed, the potential for inventorship claims poses a unique set of challenges to patentees. Although the section authorizing courts to correct inventorship where possible is written in a way that might suggest judicial action is only available in cases seeking to otherwise invalidate a patent,\(^8\) it has been interpreted as providing a basis for a free standing action for correction of inventorship arising under the patent laws.\(^9\) Therefore, these claims can be brought without any prior threat of litigation or communication by the allegedly omitted party—the only prerequisite is notice and an opportunity to be heard.\(^10\) The Federal Circuit has suggested (without having to decide) that such claims may even be brought by an alleged inventor who has no pecuniary interest in the outcome based on the public interest and potential reputational interests in proper inventorship.\(^11\) There is no statute of limitations for claims for correction of inventorship.\(^12\) While a party can be found to be barred from asserting such a claim based on equitable estoppel, the proof required is not ordinarily available.\(^13\) Along with such claims will often come state law actions for unjust enrichment or even fraud, the latter of which may result in a finding the patent is unenforceable due to inequitable conduct.\(^14\) In fact, even if inventorship is ultimately correct, misrepresentations regarding inventorship can still support a finding of unenforceability.\(^15\)

Inventorship cases have a spotty history at the Federal Circuit, with most of the case law arising in the last ten to fifteen years. This shouldn’t be surprising, since until the enactment of amendments to 35 U.S.C. § 116 in 1993\(^16\) one had to be a co-inventor of every claim to be named as an inventor on a patent.\(^17\) However, in some respects the case law surrounding the question of inventorship harkens back to Court

\(^{8}\) See 35 U.S.C. § 256, ¶ 2 (2006) (stating that errors “shall not invalidate the patent in which such error occurred if it can be corrected” and “[t]he court before which such matter is called in question may order correction of the patent on notice and hearing of all parties concerned . . .”).


\(^{10}\) Id. at 1571; 35 U.S.C. § 256, ¶ 2.

\(^{11}\) Chou v. Univ. of Chi., 254 F.3d 1347, 1357–59 (Fed. Cir. 2001).


\(^{13}\) See MCV, 870 F.2d at 1571–74 (noting standard estoppel principles from infringement applied and therefore required notice of the patent proceedings, a misleading misrepresentation and detrimental reliance as well as finding that a party’s “misleading nonchalance about its putative right to co-inventorship” gave rise to estoppel).

\(^{14}\) Univ. of Colo. Found. v. Am. Cyanimid, 342 F.3d 1298, 1298 (Fed. Cir. 2003); Stark v. Advanced Magnetics, Inc., 119 F.3d 1551, 1555–56 (Fed. Cir. 1997) (permitting both correction of inventorship and state law fraud claims to move forward, but cautioning that fraud by named inventors would likely render the patent unenforceable in hands of anyone).

\(^{15}\) See PerSeptive Biosystems, Inc. v. Pharmacia BioTech., Inc., 225 F.3d 1315, 1321–22 (Fed. Cir. 2000).

\(^{16}\) 35 U.S.C. § 116 (2006). 35 U.S.C. § 116 was passed to encourage and reward “team research” and reads in pertinent part:

Inventors may apply for a patent jointly even though (1) they did not physically work together 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.

of Claims practices, the foundations of the doctrine of inequitable conduct, and on one
key evidentiary concept, nineteenth century Supreme Court case law. Two things
are clear from all of this case law: 1) courts are skeptical of such claims; and 2) as a
result, purported co-inventors (or those claiming defects in inventorship) lose such
disputes much more often than they win.

A. The Federal Circuit Has a Well-Established Bias Against Claims of
Joint or Prior Invention.

Well before the Federal Circuit got involved, the Court of Claims had indicated
that claims of joint or prior inventorship should be met with skepticism.\(^\text{1}^\) "[T]he
burden of showing misjoinder or nonjoinder of inventors is a heavy one and must be
proved by clear and convincing evidence."\(^\text{19}\)

The rule rests on important policy considerations.... [T]here
is... [a] strong temptation for persons who consulted with the
inventor and provided him with materials and advice, to reconstruct,
so as to further their own position, the extent of their contribution to
the conception of the invention. In these circumstances, it would be
inappropriate to permit a lower standard than clear and convincing
evidence.\(^\text{20}\)

Additionally, the issuance of a patent creates a presumption that inventorship
is correct.\(^\text{21}\)

Hess itself is a good example of why caution must be exercised in analyzing
inventorship claims. This case actually grew from prior litigation in which the
validity of the balloon catheter patents held by Advanced Cardiovascular Systems
were asserted to be invalid for non-joinder of Mr. Hess as an inventor.\(^\text{22}\) Mr. Hess
then sought to intervene and was initially dismissed.\(^\text{23}\) Mr. Hess then proceeded to
lodge an independent action for such correction.\(^\text{24}\)

As reported in the case, Mr. Hess was a representative of a materials company
who advised the named inventors about the properties and characteristics of the
company's products for potential use in making a balloon catheter.\(^\text{25}\) The product, in
turn, was used in the first embodiments of the invention and was mentioned in the

\(^{18}\) Hess v. Advanced Cardiovascular Sys., Inc., 106 F.3d 976, 980 (Fed. Cir. 1997).
\(^{19}\) Id. (quoting Garrett Corp. v. United States, 422 F.2d 874, 880 (Ct. Cl. 1970), cert. denied
400 U.S. 951 (1970)).
\(^{20}\) Id. (noting that the concern with unfounded revisions of a party's involvement is particularly
justified "where, as here, the patent has been outstanding for a considerable time and the patented
device has been successful").
\(^{21}\) Ethicon, 135 F.3d at 1460; see also Bd. of Educ. ex rel Bd. of Tr. of Fla. State Univ. v. Am.
Bioscience, Inc., 333 F.3d 1330, 1337 (Fed. Cir. 2003); Trovan, Ltd. v. Sokymat SA, 299 F.3d 1292,
1301 (Fed. Cir. 2002).
\(^{22}\) Hess, 106 F.3d at 978–79.
\(^{23}\) Id.
\(^{24}\) Id.
\(^{25}\) Id. at 977–78.
specification. Other suggestions by Mr. Hess were used by the named inventors in the course of the development, but either not recited in the patent or not claimed. The district court and ultimately the Federal Circuit found that Mr. Hess was not an inventor, but rather acted more like a salesperson in explaining qualities of a product that was publicly available. Hence, the knowledge provided by Mr. Hess was not inventive. Moreover, he never actually conceived of the final product of the alleged collaboration. It was against this backdrop that the court noted the tendency for omitted persons to re-evaluate their positions through the lens of hindsight, as sharpened by commercial success, and therefore justifying the requirement of clear and convincing evidence to establish co-inventorship.

In evaluating the contributions of Mr. Hess, the Federal Circuit reached back to the Supreme Court's treatment of Samuel Morse in determining the validity of his patent on the telegraph. In the Samuel Morse case, the Federal Circuit noted, the consultation of Mr. Morse with learned persons in a number of fields did not and should not cost him (or any other party) exclusive rights as the true inventor, any more than reading a book on the subject to acquire background information would have. Similarly, although some things and general ideas that Mr. Hess had conveyed to the named inventors made their way into the patent, that information was not itself inventive.

In one other key respect, inventorship law reflects skepticism in the claims of others. Claims of co-inventorship, like claims of prior invention, must be corroborated. Corroboration is subject to a “rule of reason” analysis, based on all relevant and admissible evidence other than the inventor's testimony. The requirement of corroboration to establish prior inventorship has been part of patent law since at least the Barbed Wire Patent Case. Not every aspect of the assertion has to be corroborated, but it must be sufficient to establish inventorship by clear and convincing evidence. Sources of corroboration can include contemporaneous documentation, circumstantial evidence and even the oral testimony of others.

Corroboration is a stringent requirement. In Ethicon, while the lower court had based its determination of inventorship largely on the credibility of the omitted inventor, the key element was the existence of drawings of the embodiment in the patent made by the omitted party in the possession of the named inventors. Few
cases ever present such clear documentation of contribution. By comparison, in *Eli Lilly and Co. v. Aradigm Corp.*, the Federal Circuit reversed a jury verdict of joint inventorship on the grounds of insufficient evidence of a contribution, owing in part to a lack of corroboration for the asserted contribution. In that case, a Lilly employee (Dr. DiMarchi) was one of the named inventors of an artificial form of insulin known as lispro. This compound, patented in May 1996, was then subsequently listed in two dependant claims as a compound for aerosol delivery of insulin with improved bioavailability in a patent filed by Aradigm. Prior to a meeting in July 1996 between Aradigm representatives and Dr. DiMarchi, there was no mention of lispro in the records of Aradigm, yet within six months of the meeting the patent application reciting lispro by name was filed. Nonetheless, despite testimony from Dr. DiMarchi that he spoke about the improved bioavailability of lispro in July, 1996, and that it was his habit to discuss lispro’s characteristics anytime insulin was discussed (as it was at the meeting with Aradigm), the Federal Circuit found this was insufficient evidence of a contribution to the conception of the claimed invention. Rather, the evidence relating to the July meeting only proved a suggestion that lispro be tried, rather than providing insight on the subsequently claimed benefits of using the specific compound. Coupled to the lack of specific recall of Dr. DiMarchi’s statements, and the fact that other scientists described their own meetings with Aradigm more generally, the Federal Circuit found the requisite act of contribution had not been established by clear and convincing evidence. Hence, anyone seeking to attach themselves to a patent has an uphill, if not virtually impossible, struggle.

**B. Why Do Inventorship Claims Persist in the Face of This Bias?**

Against this backdrop, one might wonder why such claims persist and seem to have grown in recent years. The answer is simple—money. In the 1998 *Ethicon* case, the Federal Circuit held that while section 116 had lowered the level of contribution required to be a joint inventor, the presumption that all co-inventors owned a patent in common had not been changed. That is, while a person’s claim to inventorship may rest on a contribution to a single element of a single claim (or two out of dozens as in *Ethicon*), in the absence of an agreement to the contrary, inventor status entitles the individual to equal rights in the patent.

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40 376 F.3d 1352 (Fed. Cir. 2004).
41 *Id.* at 1355–56. In the name of full disclosure, Barnes & Thornburg LLP handled both the trial and appeal of this case for Eli Lilly and Co, while the author was an associate, but the author was not substantively involved in trial strategy or formulating the arguments on appeal.
42 *Id.* at 1355.
43 *Id.* at 1355, 1364.
44 *Id.* at 1363–64.
45 *Id.*
46 *Id.*
47 *Id.*
49 *Id.*
arguably the only sound reading of the first paragraph of section 261 and section 262, which indicate “joint owners” are essentially holders in common of the patent. Although this was a two-judge holding with a spirited dissent by Judge Newman on the question of ownership (a mark of several other cases touching on inventorship issues) no case since has challenged, or really questioned, its holding. This finding of co-ownership, in turn, allowed the omitted inventor, by refusing to consent to an infringement suit, to have the effect of blocking litigation by the inventor of the remaining claims and hence making co-ownership extremely valuable. If this wasn’t enough of an incentive, the holding in University of Colorado Foundation affirming a $53 million unjust enrichment award stemming from misrepresentations of inventorship certainly provided an incentive to bring even marginal claims.

An additional incentive to bringing such claims is the lack of clarity in inventorship law. Although there is a presumption that inventorship is correct, this does not mean all aspects of an inventorship analysis are stacked in the named inventor’s favor. The Federal Circuit’s case law arguably supports several different standards for assessing inventorship. Even within the standard typically used—a substantial contribution to conception of the invention as measured by the issued claims—a number of murky, fact intensive questions remain. Assuming the propriety of measuring contributions by a standard the omitted party had no input or control over, determining inventorship at a minimum requires a court to indulge in the ever-uncertain process of arriving at claim construction. Once this is done and the court sets about comparing the alleged contribution against the construed claims, it is unclear if a party needed to know how its contributions would be used in the ultimate invention at the time of the contribution—that is, whether the party had to conceive of his or her alleged contribution as ultimately claimed or merely show that the claim or element can be traced back to the contributor’s conduct.

1. Is There a Clear Standard for Inventorship?

Most recent cases on inventorship act as if there is a single, set standard for inventorship—“a contribution to the conception of the claimed invention that is not

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51 35 U.S.C. § 262. That section, entitled “Joint owners” states:
In the absence of any agreement to the contrary, each of the joint owners of a patent may make, use, offer to sell, or sell the patented invention within the United States, or import the patented invention into the United States without the consent of and without accounting to the other owners.

Id.

52 Ethicon, 135 F.3d at 1466–68.


54 35 U.S.C. § 282 (presumption of patent validity): 35 U.S.C. § 256 (requiring application from “all parties and assignees” to obtain certificate correcting a patent with a missing inventor). See also Trovan, Ltd. v. Sokymat SA, 299 F.3d 1292, 1301–02 (Fed. Cir. 2002) (holding section 282 presumes that the named inventors “are the true and only inventors”).

insignificant in quality, when that contribution is measured against the dimension of the full invention" by resort to the claims. However, neither section 116 nor all the case law support this narrow view. Indeed, it is arguably contrary to the text of section 116 to focus exclusively on conception, and relying on claims as the sole benchmark of the invention. Thus, there may still be further developments on the basic framework of inventorship in future cases that place an even greater premium on avoiding such situations wherever possible.

In its dominant "contribution to conception" standard, the Federal Circuit is extending a premise from section 102(g) that in determining priority of invention, a prior conception trumps all later inventors so long as the reduction to practice was "diligent." It is on this foundation that conception has been elevated to the "touchstone of invention," which is the justification for using it as the starting point of determining invention. Conception, in turn, 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." Starting from this perspective, it only logically follows that the claims (the actual, practical embodiment of the invention) be used as the benchmark to measure contributions to conception.

In this logical chain, however, lies a potentially fatal flaw. Section 116 does not speak to "conceiving" an invention jointly. Rather, it discusses the idea of "making" an invention jointly. As other case law and even section 102(g) make clear, an invention is not "made" until it is both conceived and reduced to practice. Therefore, it might be possible under the literal text of section 116 to be an inventor based on a contribution to the reduction to practice.

This broader standard has been endorsed by at least two cases. In *Pannu v. Iolab Corp.*, the question of inventorship, raised as a basis for invalidity, centered on contributions to a replacement "intraocular lens," for use to replace failed natural lenses (such as might happen from cataracts). In remanding for further consideration, the Federal Circuit did not limit the district court's inventorship analysis to contributions to conception, alone; the district court could also consider significant contributions to a reduction to practice. Similarly, in *Board of

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58 Id. § 102(g).


60 *Trovan*, 299 F.3d at 1302 (quoting *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986)).

61 *Trovan*, 299 F.3d at 1302: *Ethicon*, 135 F.3d at 1460.


63 Id. § 102(g); *Dow Chem. Co. v. Astro-Valcour*, Inc., 267 F.3d 1334, 1339–40 (Fed. Cir. 2001).

64 155 F.3d 1344 (Fed. Cir. 1998).

65 Id. at 1346.

66 Id. at 1351. The court also noted that in the event any party is added, it may lead to a violation of the best mode requirement depending on the views of the omitted inventor. Id. at 1351 n.5.
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Education v. American Bioscience, Inc., a dispute arose over the inventorship of a series of taxol analog compounds. Among other things, a district court had awarded inventorship based on the supposed use of confidential techniques to reduce the claimed compounds to practice. The Federal Circuit rejected this on the grounds that the techniques were not claimed in the patent and had not been shown to be necessary to producing the compounds in question. Nonetheless, the panel did state that if the assistance of the creator of the techniques had proven necessary to make previously conceived compounds, he “might have been a coinventor.” Thus, at least under some circumstances there would seem to be a basis for expanding inventorship beyond contributions to conception.

Of course, it would be an error to read too much into Pannu. Many claims are only constructively reduced to practice by virtue of filing a patent application. In doing so, the patent attorney may add details or limitations that the inventor’s subjective conception did not embrace or recognize as significant aspects of the invention. Moreover, the language employed may not track what the inventor would have originally used to describe the invention. This sort of disconnect is why in the context of claim construction, an inventor’s testimony is generally given little or no weight, and inventors are not even required to be able to describe their inventions in the terms employed in patent claims.

While such a failure of description may seem far-fetched, it is at the heart of Solomon v. Kimberly-Clark Corp. In that case, during the course of a deposition the named inventor identified a particular prototype structure as reflecting her inventive feminine hygiene product. The prototype in question, though, lacked a “depression” as that claim term had been construed. The defendant asserted that these claims were invalid due to a defect of inventorship, with an implicit assertion that the patent attorney who supplied the remaining elements should have been named as an inventor, and could not claim the omission was accidental. Ultimately, the Federal Circuit affirmed the court below in rejecting this claim as

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67 333 F.3d 1330 (Fed. Cir. 2003).
68 Id. at 1332–33. Taxols, and the related taxotere compounds at issue in this case are derived from yew trees and have proven useful in cancer treatments. Id.
69 Id. at 1341.
70 Id. at 1341–42 n.6.
71 Id. at 1342.

72 Alternatively, however, one can at least harmonize American Bioscience with most cases: if the technique in question was truly necessary, then arguably the invention could not be completely conceived of—that is, have both a structure and a method of production—without the technique. Id. at 1341–42 (discussing Burroughs Wellcome Co. v. Barr Labs., Inc., 40 F.3d 1223, 1229 (Fed. Cir. 1994)). However, Pannu has no such limitation of necessity and even American Bioscience is internally contradictory on this issue. Compare Pannu v. Iolab Corp, 155 F.3d 1341, 1351 (Fed. Cir. 1998) with Am. Bioscience, 333 F.3d at 1341–42.
73 Etheron, Inc. v. U.S. Surgical Corp., 135 F.3d 1456, 1465 (noting that “a layman, untrained in the language of the patent law, may reasonably err in interpreting claim language”); see also Markman v. Westview Instruments, Inc. (Markman I), 52 F.3d 967, 971 (Fed. Cir. 1995) (en banc), aff’d on other grounds, (Markman II), 517 U.S. 370 (1996) (rejecting inventor’s testimony on subject of “inventory”).
74 Markman I, 52 F.3d at 985.
75 216 F.3d 1372 (Fed. Cir. 1999).
76 Id. at 1376.
77 Id. at 1380–81.
there was no evidence of inventorship by a third party, rather than a disconnect between the inventor’s understanding of her invention and the legally construed scope of the same.\(^7\) The Federal Circuit, concerned with the policy implications of converting patent lawyers into inventors, also stated that any broadening of the idea by the attorney was simply the job of counsel rather than a basis for finding a defect of inventorship.\(^7\) The panel also noted the general lack of value of an inventor’s subjective views to claim scope, owing in part to the significant changes that might take place from an inventor’s initial conception through issuance.\(^8\)

While noble in its desire to protect both patent attorneys from rampant conflicts of interest and inventors from having their patents invalidated anytime counsel is not named a co-inventor, *Kimberly-Clark* raises significant questions about the soundness of the prevailing standard for determining inventorship. If claims are not to be interpreted based on the understanding of inventors, and are not even expected to be written in language inventors can necessarily comprehend, then the logic of measuring the existence and substance of a party’s contributions by the claims loses most, if not all, of its intuitive force. Moreover, in light of *Solomon* and *Markman*’s recognition of the reality that claims are routinely amended and altered in ways that reflect the thinking of patent attorneys and patent examiners rather than the original conception of the inventor, by the time of final issue a claim set may bear little to no resemblance to the work done by the original collaborative team.\(^8\) In effect, a legitimately omitted inventor is placed in the position of first translating his or her contribution into claim language (or claim language into terms more closely approximating his or her own subjective understanding of the technology) and then establishing the significance of the same while the named inventor is not expected to appreciate the significance of any aspect of the claim in the first instance.

Additionally, section 116 does not by its terms require a contribution to any particular claim. In fact, it states that joint inventors do not each have to “make a contribution to the subject matter of every claim of the patent.”\(^8\) On the one hand, this had the intended result of removing the prior requirement of joint inventorship of every claim in a patent. As written, however, there is no legal lower threshold on the number of claims that a party needs to have made a contribution to. Additionally, section 116 is technically about inventorship status at the time of filing the application, not subsequent amendments. Even if the statute was therefore read as requiring a contribution to at least one claim to support the naming of an inventor in an application, it may not technically require a contribution to an ultimately

\(^7\) Id. at 1381–82.
\(^7\) Id. at 1382.
\(^8\) Id. at 1379-80 (quoting *Markman v. Westview Instruments, Inc.* (*Markman I*), 52 F.3d 967, 985 (Fed. Cir. 1995)).
\(^8\) Id. at 1379. The court, quoting *Markman I*, stated:

Commonly the claims are drafted by the inventor’s patent solicitor and they may even be drafted by the patent examiner in an examiner’s amendment (subject to the approval of the inventor’s solicitor). While presumably the inventor has approved any changes to the claim scope that have occurred via amendment during the prosecution process, it is not unusual for there to be a significant difference between what an inventor thinks his patented invention is and what the ultimate scope of the claims is after allowance by the PTO.

*Id.* (quoting *Markman I*, 52 F.3d at 985).
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issued claim to support inventorship. Nonetheless, the Federal Circuit has drawn the line at basing inventorship on cancelled claims—although it has permitted alleged misrepresentations about the inventorship of the claims as filed to support a finding of inequitable conduct. 83

While the foregoing demonstrates that the current standards are not as monolithic as recent cases might suggest, it should not be read as rejecting the prevailing “contribution to conception” regime in its entirety. Using claim language at least places some meaningful boundaries on the question of inventorship—otherwise, the inquiry could devolve into a game of “but for” causation on a par with “[f]or want of a nail . . . the Kingdom was lost.” 84 Although claim construction may not always lead to a perfect assessment of whether a contribution was significant from the perspective of a general collaboration, it will generally lead to a meaningful assessment of the significance of a contribution to the overall value of the patent as a piece of personal property consistent with section 261—assuming, of course, the claim construction is correct. Moreover, while the extremes of situations like Kimberly-Clark exist, they are rare. Patent attorneys normally aspire to speak in the *lingua franca* of inventors, rather than purely as technocratic attorneys. Most purportedly omitted inventors are all too ready to assert contributions reflected in the claims, and can find experts to support their assertions. Hence, given the focus of this article on practical assistance rather than construction of a hypothetical ideal for assessing inventorship, for the duration of this article it is assumed that the Federal Circuit’s prevailing standard of a significant contribution to conception will be applied to any inventorship dispute. 85

2. Assuming Contributions To Conception Are All That Count Leaves Certain Issues Unresolved.

If a “not insignificant” contribution to the conception of an invention is assumed to be the only way to be an inventor, the precedent of the Federal Circuit includes at least two further areas of uncertainty for anyone bringing or defending an action for correction of inventorship. The first is the Federal Circuit’s embrace of claim construction as the basis for determining the scope of the conception of the invention. 86 While nominally a question of law, the rampant uncertainty over claim construction generally and the underlying malleability of language does nothing to discourage unscrupulous parties coming to an invention after the fact from asserting inventorship. At the same time, adopting this framework may very well defeat

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83 Bd. of Educ. v. Am. Bioscience, Inc., 333 F.3d 1330, 1342 n.7 (Fed. Cir. 2003) (“Nonetheless, it is the granted patent with the limited claims that is before us, and any possible inventorship with respect to the cancelled claims is not at issue here.”); PerSeptive Biosystems, Inc. v. Pharmacia BioTech., Inc., 225 F.3d 1315, 1322 (Fed. Cir. 2000) (rejecting assertion that narrowing claims in prosecution made any misstatements regarding inventorship immaterial).

84 United States v. Chhien, 266 F.3d 1, 7 (1st Cir. 2001) (analogizing to The Real Mother Goose 82–104 (1916)).

85 Fina Oil & Chem. Co. v. Ewen, 123 F.3d 1466, 1473 (Fed. Cir. 1997) (noting a joint inventor must contribute in some significant manner to the conception of the invention); see also Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1575 (Fed. Cir. 1996).

86 See Trovan, Ltd. v. Sokyamat SA, 299 F.3d 1292, 1304–05 (Fed. Cir. 2002).
otherwise valid claims owing to the potential disconnect between technical language and patent language, a gulf recognized by the Federal Circuit as discussed above.

The second great uncertainty lies in statements by the Federal Circuit suggesting a contribution must not only be made by the omitted inventor, but "conceived" by that person.\textsuperscript{87} This phrase, found in a number of cases but never squarely endorsed by the court, could be read as nothing more than a statement that the contribution must be inventive in some sense. Another interpretation,\textsuperscript{88} however, is that "conception," means no more and no less than the formation in the mind of the purported inventor of a mental image of the contribution as it would be used in the invention as ultimately claimed. Under this interpretation, the supply of a "lump of clay" would never, in itself, be an inventive contribution. While certainly a permissible reading of the cases, this theory would ultimately seem to encourage parties to stave off inventorship disputes through clever claim drafting rather than encourage the public policy of encouraging "team research" at the heart of enacting 35 U.S.C. § 116.

\textbf{a. The First Step of Analysis, Claim Construction, Is Never Entirely Certain.}

The fact that both claim construction and inventorship are questions of law likely informed the choice of the Federal Circuit to clarify in \textit{Trovan} that the first step in an inventorship analysis is claim construction.\textsuperscript{89} Per \textit{Trovan}, once that is accomplished the omitted individual’s contributions are to be measured against the claims as construed.\textsuperscript{90} In doing so, the \textit{Trovan} court did not confront the reality that claim language may or may not reflect the language chosen by the omitted individual—or the named inventors, for that matter.\textsuperscript{91} No one, apparently, felt compelled to address how \textit{Solomon} and \textit{Markman I}’s discussion of the disconnect between named inventors and their patent counsel, might carry over to parties that were not even part of the patent prosecution process.

This use of claim construction as the one means to get at the scope of the invention for determining inventorship also seems misplaced as a matter of timing. Conception necessarily predates the drafting of claims in final, allowable form. This process may take years and multiple amendments, none of which an omitted individual would be privy to. In view of \textit{Solomon}, moreover, it is plain that there is a distinct possibility that the invention may be subjectively “conceived” by the inventor (whether named or not) in a manner that is very different from the final definition of the invention found in the claims.\textsuperscript{92} This protocol therefore places a purported omitted inventor and ultimately the court considering a correction matter in the position of first construing the claim as granted, then attempting to extrapolate

\textsuperscript{87} See Ethicon, Inc. v. U.S. Surgical Corp., 135 F.3d 1456, 1460 (Fed. Cir. 1998) (citing Burroughs Wellcome Co. v. Barr Lab., Inc., 40 F.3d 1223, 1227-28 (Fed. Cir. 1994)).

\textsuperscript{88} First advanced, to the author’s knowledge, by Donald Knebel, partner, Barnes & Thornburg LLP, in 2005.

\textsuperscript{89} \textit{Trovan}, 299 F.3d at 1302.

\textsuperscript{90} Id.

\textsuperscript{91} See \textit{Solomon} v. Kimberly-Clark Corp., 216 F.3d 1372, 1379-80 (Fed. Cir. 1999) (quoting Markman v. Westview Instruments, Inc. (Markman I), 52 F.3d 967, 985 (Fed. Cir. 1995)).

\textsuperscript{92} Id.
Avoiding the “Fifth Beatle” Syndrome

backwards from that construction and place those terms in the context of the language employed at the time of the supposed contribution and determine if a substantial contribution has been shown by clear and convincing evidence.

Trovan itself points to the problems with such an approach. One source of the dispute was the alleged contribution of the attachment of wires to an integrated circuit in a manner so as to provide support to the circuit.\[^{93}\] The Federal Circuit, having construed the term to require some measure of, but not sole, support, then remanded for the lower court to determine exactly who contributed to this idea as it found the prior record unclear.\[^{94}\] However, what was left unaddressed was how this interpretation of the claim term would or would not relate to the language employed in the records of the named and purported inventors. Indeed, the case itself suggests the panel was drawing a distinction the inventors and those associated with the project did not.\[^{95}\] Given that the subjective intent of the inventor is irrelevant to claim construction, moreover, the court would arguably commit error in even considering the materials the parties might have that would otherwise steer the court to using the same language used in the course of the collaboration.\[^{96}\] If the dictates of cases such as Eli Lilly & Co. v. Aradigm Corp. were followed, any deviation between the construed language and the language employed in the materials purporting to prove the contribution could be used as a basis for denying a true inventor relief.\[^{97}\]

While this may seem to favor the named inventor, the sheer unpredictability of claim construction may encourage frivolous claims. No one at this late date could argue that claim construction is a predictable and orderly application of legal principles to particular facts. While the vision of both judges and all interested parties applying the same principles of law to claim construction to arrive at consistent, foreseeable results was central to the Federal Circuit’s determination that claim construction should be resolved solely as a matter of law,\[^{98}\] the courts’ handling of claim construction issues are far more fractured. Additionally, given that the

\[^{93}\] Trovan, 299 F.3d at 1301, 1305.
\[^{94}\] Id. at 1306–10.
\[^{95}\] Id. at 1306–7 n.1.
\[^{96}\] Solomon, 216 F.3d at 1379–80 (quoting Markman I, 52 F.3d 967, 985 (Fed. Cir. 1995)). Indeed, consulting such material would suggest that claims are to be construed like contracts rather than statutes, the proposition rejected en bane by the Federal Circuit in Markman I. Id. On the other hand, it would be no less improper to consult the inventors’ materials to ensure that the court was using the correct language in context than considering the accused device to inform the claim construction discussion—which has recently been endorsed by the Federal Circuit. Wilson Sporting Goods Co. v. Hillerich & Bradshy Co., 442 F.3d 1322, 1327, 1330–31 (Fed. Cir. 2006); Lava Trading, Inc. v. Sonic Trading Mgmt., LLC, 445 F.3d 1348, 1350 (Fed. Cir. 2006).
\[^{98}\] See Markman I, 52 F.3d at 978–79.

[Competitors] may understand what is the scope of the patent owner’s rights by obtaining the patent and prosecution history—the undisputed public record—and applying established rules of construction to the language of the patent claim in the context of the patent. Moreover, competitors should be able to rest assured, if infringement litigation occurs, that a judge, trained in the law, will similarly analyze the text of the patent and its associated public record and apply the established rules of construction, and in that way arrive at the true and consistent scope of the patent owner’s rights to be given legal effect. Id. at 979 (citation omitted).
Federal Circuit, in *Phillips v. AWH Corp.*,99 has now indicated that a court may use any relevant source of evidence in any order,100 and courts have suggested the accused device can be considered as part of the discussion,101 it is plain that reasonable minds can arrive at vastly different claim constructions for any given purpose.

While parties are not permitted to twist language like a “nose of wax” on claim construction, with meanings altering as the needs arise, the goals of the parties necessarily inform their respective positions and focus in claim construction.102 This is as true in inventorship disputes as any other context, although the pressures are not necessarily the same as in a typical infringement claim. In an infringement setting, the plaintiff/patentee is generally (but certainly not always) seeking a broad “ordinary meaning” for claim terms and the defendant seeks a narrow meaning drawn from the preferred embodiment in the specification. In inventorship disputes, if the specification mentions the purported contribution specifically, it would behoove the omitted individual to find a means plus function element to which the contributions might be the corresponding structure. *Ethicon* would then provide a roadmap to declaring the existence of co-inventorship.103 An omitted co-inventor may also want to generally broaden the scope of claim language to introduce the possibility of alternative contributions. Of course, this might open the patent to charges of invalidity on written description, best mode and similar issues by third parties.104 To avoid this sort of possibility, and to ensure that the named inventors are the only true inventors a party defending against a claim of co-inventorship might be inclined to take a narrow view of claim scope—a strategy that might ultimately limit or destroy the value of the patent in blocking competitors. Avoiding such complications would obviously be in an inventor’s best interest.

*b. What Does the Contribution Have To Be—A Lump of Clay, or a Finished Statue?*

If contributions to conception are all that matter and claim construction is to be used to gauge those contributions, there is still a vexing question that should give pause to all parties facing potential inventorship issues. On the one hand, the case law is clear that a party need not conceive of the invention as a whole in order to be a co-inventor.105 However, less clear is whether a contributor needs to “conceive” of

99 415 F.3d 1303 (Fed Cir. 2005).
100 See id. at 1324.
103 *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.2d 1456, 1463 (Fed. Cir. 1998) (“The contributor of any disclosed means of a means-plus-function claim element is a joint inventor as to that claim, unless one asserting sole inventorship can show that the contribution of that means was simply a reduction to practice of the sole inventor's broader concept.”).
104 See, e.g., *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 n.5 (noting need for reconsideration of best mode if other inventors added).
105 See, e.g., *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997) (“One need not alone conceive of the entire invention, for this would obviate the concept of joint inventorship.”).
anything beyond a general idea.\textsuperscript{106} To put it in a different light, does the purported co-inventor need to have the general intent that their contribution be used in solving the overall joint goal, or the specific intent that his contribution be used in a particular fashion as reflected in the claims?

The latter view, championed in the case of Eli Lilly & Co. v. Crabtree,\textsuperscript{107} stems from statements in cases like Hess\textsuperscript{108} and Caterpillar Inc. v. Sturman Industries, Inc.\textsuperscript{109} that the party in question failed to establish a “conception” of some kind. Similarly, in Stern v. Trustees of Columbia University\textsuperscript{110} and American Bioscience,\textsuperscript{111} the court noted the lack of conception on the part of the purported inventors as one factor in rejecting the claims.\textsuperscript{112} Judge Newman has gone farther than this and suggested that a failure to ever arrive at a conception of the final invention (assumedly not the first, per Fina Oil), should remove any question of co-inventorship.\textsuperscript{113} However, the former comments have not been central to the determination of any case, and Judge Newman’s comments were voiced in dissent. Therefore, the question remains whether a collaborator has to be aware of how his or her contribution would fit in the final invention in order to make a substantial contribution to the conception of the invention.

This may seem like idle speculation, but consider a hypothetical. A doctor has a general idea that she would like to countersink a bone screw so that it is braced by and flush with a plate. She collaborates with a biomedical engineer who recognizes that a variety of methods may be employed. If the engineer provides a previously known plate and screw assembly, even if it is in an overall novel combination, then

\textsuperscript{106} See id. at 1473 (stating the general rule that “a joint inventor must contribute in some significant manner to the conception of the invention.”); Burroughs Wellcome Co. v. Barr Labs., Inc., 40 F.3d 1223, 1229 (Fed. Cir. 1994) (“[E]ach inventor must contribute to the joint arrival at a definite and permanent idea of the invention as it will be used in practice” without specifying a conception in the mind of the contributor.) of Hess v. Advanced Cardiovascular Sys., Inc., 106 F.3d 976, 981 (Fed. Cir. 1997) (Mr. Hess’s contributions to the inventions did not constitute the conception necessary to establish co-inventorship.); Bd. of Educ. v. Am. Bioscience, Inc., 333 F.3d 1330, 1340 (Fed. Cir. 2003) (invention does not require conception and there is no evidence that FSU’s inventors conceived any of the claimed compounds. Having in mind specific portions of a claimed compound is not the same as conceiving the compound with all of its components.).

\textsuperscript{107} 224 F. App’x 962 (Fed. Cir. 2007), affg 485 F. Supp. 2d 982 (S.D. Ind. 2006). The author played a significant role in drafting the successful summary judgment briefing on this issue and Eli Lilly & Co.’s response brief on appeal based in part on discussions regarding the necessity of “conception” of a contribution with Donald Knebel.

\textsuperscript{108} Hess, 106 F.3d at 981 (Mr. Hess’ contributions to the inventions did not constitute the conception necessary to establish co-inventorship.).

\textsuperscript{109} 387 F.3d 1358, 1379–80 (Fed. Cir. 2004) (“We conclude that the district court clearly erred in finding that . . . Mr. Sturman presented clear and convincing evidence that he also conceived the idea of [the invention].”). Again, this arose in the context of a sole, rather than joint, inventorship, claim, so the scope of the statement is unclear. Id.

\textsuperscript{110} 434 F.3d 1375, 1378 (Fed. Cir. 2006).

\textsuperscript{111} Am. Bioscience, 333 F.3d at 1340.

\textsuperscript{112} Id.

Aeromed Corp. v. Sofamor Danek Group, Inc.\textsuperscript{114} and Hess\textsuperscript{115} would indicate the engineer is not an inventor. If the engineer suggests a novel structure, though, and it is described in the written description and a means plus function element relates to it, Ethicon\textsuperscript{116} would support a finding of inventorship. But if the claim recited a bone plate specifically for spinal applications, and the engineer had only conceived of his apparatus for use in long bone treatments, the question arises as to how to treat the contribution. A strict reading of Fina Oil might suggest the lack of a “joint arrival” at the final invention and hence no joint invention, as by the time of the final invention the engineer’s vision had been bypassed.\textsuperscript{117} At the same time, there is no doubt in this hypothetical that the novel structure was a significant contribution to the final invention and would hence meet the other definition in Fina Oil and similar cases.\textsuperscript{118} Hence, the question remains whether a contribution to conception must itself be accompanied by a conception on the part of the contributor that can be found in the final claim.

Case law has not provided a satisfactory solution to date, and strong arguments exist on both sides. On the one hand, failing to require a mental impression of the actual contribution as ultimately claimed might open a Pandora’s Box of potential inventors and raise questions such as: does every sort of facilitation of a collaboration including the provision of supplies, the procurement of samples or oversight management and scheduling merit inclusion as an inventor?; where does the line get drawn? Similarly, setting the bar too high for a definitive mental definition of the contribution reflected in the claims may provide a perverse incentive in claim drafting. It would be in the best interest of applicants to craft an application to fully disclose the contribution of an unnamed party, then claim in a way that differed from the party’s contribution as provided/conceived. Plainly, such a result would not further the public policy underlying the passage of section 116 and “team research,” but parties seeking to avoid including minimal contributors as co-owners might very well see such a path as worthwhile. This uncertainty should, yet again, encourage parties to take all steps necessary to avoid inventorship disputes, as this highly subjective area could tilt a close case.

\textsuperscript{114} 253 F.3d 1371, 1381 (Fed. Cir. 2001) (holding that although the combination of old elements was patentable, there was not sufficient evidence to support that an individual's contribution of one of the old elements was an inventive conception, and thus he was not a co-inventor).

\textsuperscript{115} Hess v. Advanced Cardiovascular Sys., Inc., 106 F.3d 976, 980–81 (Fed. Cir. 1997) (holding Mr. Hess' contributions to the inventions, specifically, suggesting a particular product, teaching how it could be used, and making other suggestions about how to make the invention, "did not constitute the conception necessary to establish co-inventorship").

\textsuperscript{116} Ethicon, Inc. v. U.S. Surgical Corp., 135 F.3d 1456, 1464 (Fed. Cir. 1998) (noting there was not sufficient evidence to show that an individual's contribution "was simply a reduction to practice of the broader concept of using any detaining means commensurate with the scope of [the] claim," and thus that individual was entitled to co-inventor status).

\textsuperscript{117} Fina Oil & Chem. Co. v. Ewen, 123 F.3d 1466, 1473 (Fed. Cir. 1997).

\textsuperscript{118} Id.
C. Certain Actions, Standing Alone, Are Never Inventive.

While the foregoing illustrates the difficulties inherent in all inventorship disputes, there are, fortunately, a number of certainties. The case law has provided enough guidance to state that particular conduct, even if corroborated, is not inventive. While that is plainly less comforting than any attempt at categorizing what is inventive, at least it permits companies and practitioners some measure of security about what actions can be taken without risk of co-inventorship claims arising. Note, however, that these actions have ordinarily been analyzed in isolation of other factors, so it is less clear how a combination of such acts along with other indicia of inventorship might be viewed.

Perhaps the most obvious condition that is not inventive is a contribution by a party with no knowledge of the ultimate project.\textsuperscript{119} Hence, a person may be called on to provide advice as to a discrete problem or aspect of a development without becoming an inventor so long as he or she is not aware of the target of the research. Hence, vendors and consultants would not ordinarily be inventors. Similarly, under the dominant paradigm for assessing inventorship, contributions that are not reflected in the issued claims cannot support a finding of inventorship.\textsuperscript{120} At the same time, as shown by *PerSeptive Biosystems*, it is incumbent on applicants to be scrupulous in how such interactions are described to avoid the specter of inequitable conduct allegations.\textsuperscript{121}

Similar to the unknowing consultant is the one who simply provides knowledge or skill known to persons of ordinary skill in the art. This is again linked to the *O'Reilly v. Morse* and *Hess* line of cases, which seek to avoid rewarding parties whose contributions theoretically could have been gleaned from any competent source in the art, including prior art references as well as consultations with such individuals.\textsuperscript{122} Related to this consultation idea as well is the idea, endorsed in *Stern*, *Caterpillar* and *Sewall*, that merely providing the skill set of a person of skill in the art in carrying out the directions of another is not inventive.\textsuperscript{123} As discussed below, in the context of corporate collaborative efforts this can be a tough line to draw, both because it can be hazy as to how much direction was given and the natural inclination of parties to want to be inclusive as a way of building camaraderie or

\textsuperscript{119} See, e.g., *Ethicon*, 135 F.3d at 1460 ("One who simply provides the inventor with well-known principles or explains the state of the art without ever having 'a firm and definite idea' of the claimed combination as a whole does not qualify as a joint inventor.").

\textsuperscript{120} See *Bd. of Educ. v. Am. Bioscience, Inc.*, 333 F.3d 1330, 1342 n.7 (Fed. Cir. 2003).

\textsuperscript{121} It is conceivable, although we express no opinion on that matter, that other persons may have had an inventorship role with respect to the subject matter that was cancelled. Nonetheless, it is the granted patent with the limited claims that is before us, and any possible inventorship with respect to the cancelled claims is not at issue here.

\textsuperscript{122} See *Hess v. Advanced Cardiovascular Sys.*, Inc., 106 F.3d 976, 981 (Fed. Cir. 1997) (quoting *O'Reilly v. Morse*, 56 U.S. (1 How.) 62, 111 (1853)).

\textsuperscript{123} *Stern v. Tys. of Columbia Univ.*, 434 F.3d 1375, 1378 (Fed. Cir. 2006); *Caterpillar Inc. v. Sturman Indus.*, Inc., 387 F.3d 1358, 1377-78 (Fed. Cir. 2004); *Sewall v. Walters*, 21 F.3d 411, 416 (Fed. Cir. 1994).
team unity. Nonetheless, merely serving as the “pair of hands” for the real inventor is not itself inventive.

Because of the emphasis placed on conception, the case law has also made it clear that simply carrying out that conception through the application of skill in the art is not sufficiently inventive. This extends to either the actual execution of a design or confirmation of usefulness of an invention. For example, in both Sewall and Acromed, the putative inventor was found to have simply executed on the conception of another.124 As mentioned above, Pannu and American Bioscience suggest an exception might exist for actions that effectively make the conceived invention possible.125 However, no case has ever proven inventorship on such a basis, so a well-documented conception should generally end the claim of any person whose conduct came after that date.

Similar to the execution of a design is the proof that the invention is useful. Such steps are necessarily important to commercial exploitation, but are not inventive if they come after conception. For example, as recited in Burroughs Wellcome Co. v. Barr Labs., Inc,126 the National Institute of Health (“NIH”) was the first to conclusively establish that azidothymidine (“AZT”) had an inhibiting effect on the HIV/AIDS virus.127 However, before it ever submitted its AZT samples to the NIH, Burroughs Wellcome had conceived its use as an HIV inhibitor, conducted some limited testing and had even filed a British patent application setting forth a variety of potential uses.128 In the face of such clear evidence of conception, the proof of the compound’s utility was not inventive.129

Finally, merely being entangled in the same project or the same field is not inventive of a particular invention. While this may seem simple, a reputation of dominance in the field of taxol research was the primary basis for a district court to name a Florida State University professor an inventor in American Bioscience.130 Similarly, in Trovan, a party who was the named inventor on one patent attempted to rest his claim of inventorship in a second patent on the “common subject matter” of the two.131 Similarly, claims have been predicated on ownership agreements or the inclusion of a putative inventor as a contributor to group publications.132 While any of these may be some evidence of corroboration of an otherwise inventive contribution, the case law has found these acts are not themselves adequate to

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124 Sewall, 21 F.3d at 416; Acromed Corp v. Sofamor Danek Group, Inc., 253 F.3d 1371, 1380 (Fed. Cir. 2001).
125 Pannu v. Iolab Corp., 155 F.3d 1344, 1351 (Fed. Cir. 1998); Am. Bioscience, 333 F.3d at 1342.
126 40 F.3d 1223, 1230 (Fed. Cir. 1994).
127 Id.
128 Id.
129 Id.
130 Am. Bioscience, 333 F.3d at 1341 (“Much of FSU’s appeal brief is devoted to extolling Holton’s scientific accomplishments, the implication being that he must be an inventor of the three claimed compounds.”).
131 Trovan, Ltd. v. Sokymat SA, 299 F.3d 1292, 1303–04 (Fed. Cir. 2002).
establish inventorship. Hence, if all a claimant has is a reputation in the field or a patent on something similar, the claim should be rejected at the summary judgment stage at the latest.

III. COMMON PROBLEM SCENARIOS AND HOW TO AVOID THEM

One fairly effective way to avoid co-inventorship problems is to lock all potential creators of inventions in individual cells with no contact with the outside world. Like never plugging a computer into a network to avoid viruses, though, this cure is likely worse than the disease as it would likely destroy, rather than encourage creative output. It is also likely illegal in several states as a form of false imprisonment and violation of workplace regulations. Therefore, collaborative relationships are going to be formed, creating the potential for inventorship disputes.

Four scenarios often give rise to questions regarding inventorship. Each creates slightly different potential pitfalls and suggests various steps that can minimize inventorship issues. First, a company may develop an invention entirely in-house, which is unlikely to result in a claim as long as all inventors are still employed by the company, but may set the stage for problems after any omitted or improperly included party leaves the company. In the second scenario, when companies collaborate, each is often sensitive to issues of protecting their existing confidential information, but not always as cognizant to define the collaboration and address ownership of the results. There also is a tendency for both sides to draft any patent applications without consultation of the other party, which can result in disputed information being patented. Third, when companies reach out to academics, the clash of the scientific model of open discussion and the private sector concern with protecting intellectual property can result in a number of misunderstandings and seemingly conflicting representations in documents and publications, which can later give rise to sharp disputes over who really did what after the fact. Finally, the relationships of students and mentors in academic settings are a fertile ground for claims of misappropriation or nonjoinder if the parties do not make their interests and intent clear from the outset of the relationship.

A. Intra-Company Collaborations—The Greatest Possible Control, but Still Significant Potential for Errors.

Intra-company collaborations are precisely the sort of “team research” that section 116 was amended to cover. While many hands make light work, and team building is at the core of many business philosophies, adhering to inventorship standards imposes a calculus that many employers might find troubling. In the realm of scientific publications, this is solved by giving co-authorship credit to everyone associated with a project leading to a scientific paper in the name of “team science.” This may be acceptable in the academy, and that is a matter of debate, but the term for it in patent parlance is “misjoinder.” Likewise, while a failure to

\[\text{See Donald Kennedy, Multiple Authors, Multiple Problems, SCIENCE, Aug. 8, 2003, at 733 (noting the legal and practical dilemmas inherent in joint authorship of academic research papers).}\]
give credit properly on a publication might create tension in an entity, naming too few individuals and hence committing nonjoinder may limit or ruin the commercial value of a patent.

To date, misjoinder has not posed a significant threat to patent holders. Where truly erroneous inventorship has been present, it has typically arisen in the context of outright theft or misappropriation such as Frank’s Casing Crew and University of Colorado Foundation. The latter case, as detailed above, led to an award of damages; the former, led to a finding of unenforceability. By comparison, an honest mistake or dispute as to inventorship should not lead to such findings.

Nonetheless, allegations of intentional misjoinder are easy to envision, and difficult to avoid in the right circumstances. For example, assume that a design team tenders an invention disclosure form. The corporation, per policy, lists all members of the team as inventors, and has each sign an oath to that effect, without ensuring who contributed what. As a result, despite a number of changes in prosecution the named inventors remain the same throughout. Only after departing the company does a team member, now working for a rival, claim that in fact he or she knew that his or her sole contribution was administrative but signed the oath anyway—perhaps, for example, to net a year-end bonus or merely to protect their internal status.

A lack of proper investigation can also lead to nonjoinder. Often times, the party leading a team is responsible for submitting reports and invention disclosures, but may not know exactly who did what. If help was provided from sources outside the immediate team, moreover, there may be a pressure to downplay or eliminate reference to those sources. When the omitted employee discovers the error, it may prove to be in his or her best interest to assert co-inventorship status.

If this seems far-fetched, consider the case of Checkpoint Systems v. All-Tag Security SAS. In this case, three individuals (two corporate officers and a consultant) had consistently indicated that the consultant, who assigned the patent to Checkpoint, was the sole inventor. Subsequently, one of the declarants formed and eventually sold All-Tag, and at various times employed the consultant. When Checkpoint later sued All-Tag, All-Tag obtained summary judgment based largely on statements of the three declarants that inventorship was incorrect. The Federal Circuit ultimately reversed and remanded the issue of inventorship for trial, but nonetheless found the flatly contradictory statements were sufficient to create a

131 Frank’s Casing Crew & Rental Tools, Inc. v. PMR Techs., Ltd., 292 F.3d 1363, 1376–77 (Fed. Cir. 2002) (holding patent acquired by individuals lacking legitimate inventorship claim was unenforceable even if inventorship corrected).

132 Univ. of Colo. Found., Inc. v. Am. Cyanamid Co., 342 F.3d 1298, 1302–03 (Fed. Cir. 2003) (describing copying of article by true inventors into application naming American Cyanamid employee as sole inventor).

133 See, e.g., PerSeptive Biosystems, Inc. v. Pharmacia BioTech., Inc., 225 F.3d 1315, 1321 (Fed. Cir. 2000) (noting that the basis for ruling was not a good faith disagreement over inventorship).

134 412 F.3d 1331 (Fed. Cir. 2005).

135 Id. at 1333–34.

136 Id. at 1334.

137 Id. at 1335–36.
question of fact.\textsuperscript{141} There is no doubt that there are former employees with better cases out there—it is simply a matter of time before their cases come to light.

So, what is a conscientious in-house or outside patent counsel to do? Initially, make sure every employee understands their rights and responsibilities vis-à-vis the company. Make it company policy that any inventions relating to the company’s business or the employee’s job duties, as well as anything created using company time or resources, is automatically subject to a duty of assignment. This will at least minimize some of the incentive to “remember” inventing something later. In drafting such a policy, it is not wise to assume inventions will always come from the research and development process—they may be improvements in production processes, business methods, or simply ingenious ways to address seemingly mundane tasks. Remember, Post-Its were developed by a secretary at 3M almost by accident.

In keeping with this broad understanding of the entity’s ownership interest and potential sources of intellectual property comes a need for employee education on the basics of inventorship. It needs to be explained that invention requires something more than showing up for the team picture and something less than inventing a cure for cancer all by yourself. This should be coupled with requiring, as part of the initial invention disclosure process, as much detail as possible about who did what, so that in drafting the initial application counsel can make a somewhat enlightened evaluation of inventorship on a claim by claim basis.

This effort cannot end here, although it does at many entities. When the claims are changed in any significant manner, it may be necessary to re-evaluate inventorship. Under the general rule that inventorship is exclusively measured by the issued claims,\textsuperscript{142} the cancellation of claims should also be of special concern. If nothing else, once the examiner has indicated allowance, counsel should make an effort to verify that the claims that will issue name no more and no less than the true inventors.

One effective method for ensuring the involvement of employees and documenting the understanding of the individuals in question at the time of invention is to break the claim elements out into a grid or chart.\textsuperscript{143} The members of the team can then be asked to indicate who did what, either limited to their own actions or inclusive of the team of the whole. Conflicts or blank spots then suggest areas to follow up on and get further information, whereas the collective documents also create a solid record to counteract later versions of events.

This sort of effort is apt to be unpopular with some employees, especially at companies that do not provide monetary incentives for patents. While linking monetary awards directly to patents creates an incentive for compliance, it also creates an incentive to cut others out of the process. An alternative is to provide rewards for ingenuity and improvements, without linking them directly to the issuance of a patent. By making compliance with patent procedures a component in evaluating performance relative to such rewards, though, the entity could create an incentive to obtain the information necessary to a comprehensive evaluation without

\textsuperscript{141} Id. at 1338–39.
\textsuperscript{142} See Bd. of Educ. v. Am. Bioscience, Inc., 333 F.3d 1330, 1342 n.7 (Fed. Cir. 2003).
\textsuperscript{143} The author first saw this technique in a document prepared by Ronald Henderson, partner, Barnes & Thornburg LLP, while Mr. Henderson was working as in-house counsel for a large entity.
creating the same perverse incentives to omit potential inventors to benefit one party.

Ultimately, a company's success in avoiding inventorship issues with its own employees is largely a matter of communication and emphasis. Entities that understand the importance of patents will also tend to understand the need for good, clear records of inventorship. Those who do not understand, seek patents at their peril.

B. Inter-Company Collaborations—Clarifying Intentions and Ownership Is Key

At some point, every corporate entity will find itself addressing problems with persons other than its own employees. Whether in an overt joint development or informal discussions with vendors and customers, just about any interaction may give rise to a patentable innovation. Similarly, the difficulties associated with ensuring proper inventorship and ownership of the resulting patent can intrude and create difficulties in future interactions or suits to enforce the patent against third parties.

As with intra-company collaborations, one of the key issues is understanding the breadth of circumstances that can give rise to an inventive collaboration. No matter how far-fetched the possibility seems, companies should take efforts to clarify their position with any person or entity allowed on the premises. Companies are typically sensitive enough to request non-disclosure agreements, but less common is to clarify the parties' position regarding intellectual property. If an attempt is made, moreover, it is often limited to discussions of ownership and duties to prosecute, rather than addressing any issues regarding a party's position on inventorship.

To the extent possible, parties should eliminate this blind spot in their approach to collaborations. If a company has appraised its employees of how to deal with potential inventions and inventors on internal projects, it should not be difficult to similarly inform potential collaborators. If a company routinely seeks patents and will aggressively do so in all phases of its operations, there is nothing wrong with putting others on notice of this fact. If the company has a policy of only disseminating patent applications to named inventors, that too should be made clear. In this manner an allegedly omitted inventor's claims of ignorance of the process involved or the entity's interests as a basis for tolling the statute of limitations are undercut.

It is also generally in a party's interest to enter into a formal joint development agreement wherever it appears likely an innovative process, method or product will result. This would not only be in the context of pure research projects but also in applied problem solving. While adopting a policy of entering such agreements will not guard against the unforeseeable breakthrough, and may slow down some projects initially, it will provide a framework for understanding how patent issues, and specifically inventorship, will be handled. The existence of a joint development agreement will also prevent the use of either side's private prior work on the subject matter of the collaboration from being asserted under as part of an obviousness claim.\textsuperscript{144}

Avoiding the “Fifth Beatle” Syndrome

Upon entering such a joint development or similar collaboration, monitoring and record-keeping become critical. Some might look at the result in *Eli Lilly v. Aradigm* and suggest that the best way to avoid inventorship disputes is to keep no records at all. However, this overlooks the fact that good records of inventorship may avoid litigation in the first instance and in any event are more apt to result in summary judgment or a trial verdict in a party’s favor. Moreover, in the absence of an agreement that only one party can seek a patent on the subject matter of the collaboration, there is no way of telling in advance which party may be placed in the position of proving inventorship by clear and convincing evidence.

As with the purely intra-company situation, in the event one side identifies a potential innovation it becomes important to clarify who thinks they contributed to it. If it is apparent that despite the collaborative nature of the project only one side truly acted inventively there is no legal obligation to provide the other side access to the patent application or otherwise notify them of the prospect that a patent may issue. However, even in this situation it would be advisable to get some sort of consent from the other side acknowledging the disclosure and waiving any claim to disclosed invention, setting up an estoppel defense. As the best way to ensure such an agreement can be obtained is by providing clear documentation of just who contributed what and how, this again argues in favor of detailed record keeping.

C. Corporate—Academic Collaborations—Avoiding Informality and Clarifying Ownership

Several prominent inventorship cases center on the interaction of academic or non-profit institutions with corporations. Although many universities have become more sensitive to the value of patents and innovations generally (as shown in the creation of private licensing companies or business incubators affiliated with the academic institution) this does not necessarily translate to a higher level of sensitivity among academics regarding the value of patents. As noted above, the academic impulse is often to be over-inclusive on collaborative publications so as to ensure that all receive credit for the project. Such an attitude, while noble, could prove fatal to obtaining a meaningful, valuable patent. Hence, such collaborations are ones in which all parties with a financial interest in the outcome would do well to ensure that the researchers understand the different standards for academic credit and inventorship.

The collegial spirit reflected in naming all participants as authors creates another problem for inventorship. Academic institutions and parties collaborating with them often work on a fairly informal basis, without documenting many steps or ensuring that a particular task has been approved under the joint development agreement. However, a joint development agreement only shields inventions from certain types of obviousness challenges if the invention arises from the written subject matter of the joint development agreement, so general collaborations will not

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146 See *MCV, Inc. v. King-Seeley Thermos Co.*, 870 F.2d 1568, 1571-74 (Fed. Cir. 1989).
147 See e.g., *Univ. of Colo. Found. v. Am. Cyanimid*, 342 F.3d 1298 (Fed. Cir. 2003).
have this protection. Similarly, on the issue of inventorship the lack of formality can make determinations as to contributions to conception very difficult to measure.

Ultimately, though, the biggest issue in such collaborations is ensuring the academic institutions involved understand the fact that a patent is likely to be sought on anything they develop or help to develop. One of the interesting factual aspects of the University of Colorado case is that the actual inventors had no apparent intent to seek a patent, but rather were simply planning on publishing their findings in a medical journal. There is little doubt that the $53 million subsequently awarded to the University of Colorado Foundation far exceeded any license that entity might have required of American Cyanimid. This award effectively eliminated American Cyanimid's profits from the patent, something no license would have done. Given this alternative, there is no downside to honestly apprising a party of the intent to seek patents, particularly where there is reason to believe the other side does not routinely engage in patent practice and if the private entity is funding the research in question. Documenting this also makes it much more difficult for the academic institution to assert that any sort of fiduciary responsibility was created or that the private entity owed some duty to inform the academic institution of its patent activities.

In contrast with development operations, one other source of significant corporate interaction with non-profit organizations and universities is in viability studies or testing. In this context, Burroughs Wellcome lays out the key to avoiding improper claims of inventorship. There, the party did what it could before enlisting the NIH to ensure AZT was useful for inhibiting HIV/AIDS. By filing a patent application before involving the NIH, Burroughs Wellcome could indisputably show conception and a reduction to practice (albeit a constructive one). While this would be an unnecessary expense every time a collaboration is about to be entered, making such a filing or otherwise creating a fixed record of the status of a project before the introduction of a collaborator makes sense anytime one party has made substantial investments in a project prior to introducing a second party to the remaining issues.

D. Students and Mentors—Distinguishing Instruction and Assistance from Invention

The student-teacher relationship is inherently one of trust, especially in the context of advanced research. Students trust their instructors to serve as professional mentors and help shape their careers. Research professors similarly trust their students to execute assigned tasks and use the best of their abilities to attempt to further large scale goals. A failure by either can result in disastrous consequences to reputation and the research at issue.

149 Univ. of Colo. Found., Inc., 342 F.3d at 1302–03.
150 Burroughs Wellcome Co. v. Barr Labs., Inc., 40 F.3d 1223, 1230 (Fed. Cir. 1994).
151 Id. at 1230.
152 Id. at 1230–31.
Avoiding the “Fifth Beatle” Syndrome

The historic measuring stick for academic institutions and professors was publications, not patents. However, the growing sensitivity of academic institutions to the value of patent rights has also made research resulting in patents of value to a student and/or professor’s value. In doing so, however, the system may create incentives for each party to a collaboration to overstate their role, either to assist in furthering their careers or strictly for pecuniary gain. Cases such as Chou, American Bioscience and Stern all speak to the powerful nature of such incentives.153

In the first instance, therefore, the institution must make an effort to be as professional with students performing lab work as it would be with other employees. While the institution may have a uniform patent policy, it must endeavor to ensure it is communicated clearly to all students. To minimize the risk of future disputes, the ownership position of the institution and its criteria for assessing inventorship should be made clear.

Like most sizeable companies, moreover, disconnects tend to develop between academic institutions’ legal personnel and persons who actually engage in research. To avoid this, it would be advisable to request quarterly or at least biannual updates on research projects, including any developments that may be ready for patenting. Many grant agencies require such reports as it is, so this should not be an undue burden on these institutions. As discussed above in the context of companies, such efforts would create a better documentary record than is often currently available for assessing conception and reduction to practice as well as the value of individual’s contributions.

The major focus of much academic research is, and likely will continue to be, the issuance of academic papers. To the extent the impulse to include all pertinent researchers as “authors” cannot be checked, it would make these articles much more valuable in the context of inventorship if they accurately depicted the contributions of the various parties to the greatest degree possible. Hence, if a particular example was run by a researcher, out of many similar such tests, credit should be given where due in explicit terms, rather than to the team as a whole. Unless and until papers begin to reflect that reality, they will be of little to no use on their own in assisting with inventorship issues.

Even such convoluted articles may indirectly assist in creating a solid record of inventorship, however. One of the obvious triggers for filing a patent application is the submission of a work for publication, as the resulting publication will form the basis of a 102(b) bar to obtaining a patent.154 A similar concern exists with “poster presentations” and similar less permanent works in light of In re Klopfenstein.155 In making a legal review of either the publication or other materials to determine if an

153 Chou v. Univ. of Chi., 254 F.3d 1347, 1359–60 (Fed. Cir. 2001) (noting that each defendant has an economic stake in the validity of the patents at suit, and hence the correct designation of inventors); Bd. of Educ. ex rel Bd. of Tr. of Fla. State Univ. v. Am. Bioscience, Inc., 333 F.3d 1330, 1338 (Fed. Cir. 2003) (noting that “because the issuance of a patent creates a presumption that the named inventors are the true and only inventors, the burden of showing misjoinder or nonjoinder of inventors is a heavy one and must be proved by clear and convincing evidence”); Stern v. Trs. of Columbia Univ., 434 F.3d 1375, 1378 (Fed. Cir. 2006) (noting that contribution to one claim is sufficient to be a co-inventor, and thus have an ownership interest in the patent).
155 380 F.3d 1345, 1350–52 (Fed. Cir. 2004) (finding that poster presentations qualified as “printed publications” for purposes of 102(b) bar).
invention is disclosed, the academic institution should also strive, just as a company would with an invention disclosure form, to determine who actually did what and how important that contribution was. While the resulting record is apt to be privileged and hence unlikely to be produced in most cases, it could be invaluable in avoiding or minimizing the risk of incorrect inventorship and fending off baseless claims.

To further minimize the risk of either over or under-appreciating the contributions of students, when a patent application is drawn up it could and should be circulated to as many identifiable participants in the study or research as possible, rather than just the named inventors. This could be done by review of the research reports as well as academic papers. Again, the actual process could mirror that of private entities, with a grid allowing the person to identify what they believe they contributed along with any documentation of the same. It could also be accompanied with a declaration of no contribution, so as to create a record to support a defense of estoppel. Owing to the transient nature of students, this might impose a greater burden on the institution, but one which pales next to the cost of a trial. This would, if nothing else, start the statute of limitations running in most states and likely create a basis for asserting laches or estoppel as to any state law claims, hence decreasing the odds of an adverse damage award.

IV. CONCLUSION

Inventorship is a thorny issue with few clear rules. The increasing value of patents and the increasing appreciation of that value are likely to fuel ever more inventorship disputes in the future. However, taking simple steps—the most important of which is being forthright about the intent to seek a patent—will go a long way in either avoiding or at least minimizing the risk that such a dispute will lead to disastrous consequences for any person or entity.