

# Rescuing the Invention from the Cult of the Claim

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[Draft – Comments, Suggestions Welcome]

Patent law is certainly a specialized field but I didn't think it would be a cult. Yet despite the fact that the term 'invention' appears in many critical locations in the patent statute, we have been taught, perhaps brainwashed, to give the term zero substantive impact. Substantive use of the invention has been purged from patent doctrine and instead every substantive question in patent law is answered by reference to the claims. Invention still exists but conceptually it is nothing more than a short-hand reference for the claimed subject matter; the invention is just a substance-less label. With that substitution modern patent law has become a formal, seemingly objective, claim centric system. From a realist perspective, perhaps I shouldn't care about this sleight of hand – if in fact the system worked as promised, but it doesn't. Despite its promise of precision and uniformity, our modern invention-less system is anything but precise and uniform especially in the critical areas of claim interpretation and disclosure.

I argue the trouble stems from our trivial vision of the invention. When correctly viewed, invention is a substantive concept. This does not mean that we have to abandon our peripheral claiming system; peripheral claiming and a substantive vision of invention are quite compatible. The invention is the principal actor while the claims are just the administrative proxies for the invention. The invention is simply the set of embodiments conceived and reduced to practice by the inventor and both disclosure and claim interpretation ensure the fidelity of the claim as a proxy for the invention. If a claim is a fence and your invention is your property, then disclosure ensures that the fence is put in the right place; the claim covers only your invention. Subject matter can be claimed only if the disclosure can corroborate the inventor's conception and reduction to practice of that subject matter. When claims comply with the disclosure requirement, then we can rely on the claims as tools. Novelty and infringement can be determined not by direct reference to the invention but rather by reference to its proxy – the claims. This gives disclosure a unified coherent purpose and it gives claims meaning. The patent system with that substantive vision of the invention is not only the system I think Congress intended but it is also a more precise and stable system than the one we are using today.

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## Contents

I. Introduction .....	2
II. The Invention is a Limit but Which Invention Are You Referring To? .....	8
III. Trivial Invention .....	11
A. The Trivial Vision of the Invention .....	11
B. The Imprecision of Meaningless Claim Interpretation .....	14
C. Incoherence & Instability of Disclosure.....	16
D. Claim Scope Inaccuracy & Trivial Invention .....	21
IV. Substantive Invention .....	23
A. Substantive Vision of the Invention.....	25
B. The Claim’s Duty of Fidelity to the Substantive Invention .....	27
C. Is There a Separate Enablement Requirement after <i>Ariad</i> ? .....	30
D. Meaningful Claims; Claims as Proxies for the Invention.....	31
E. Broad Documented Conception Allows Broad Claims.....	32
F. The Invention, Its Principle & Claiming the Future Before It Arrives.....	35
G. Diagram & Deposit: A Picture is Worth How Many Embodiments?.....	37
H. Can DOE extend beyond the Invention?.....	38
V. Conclusion .....	38

## I. Introduction

When vehement disagreement persists among otherwise reasonable people some unnoticed difference in assumptions is often to blame. Until those assumptions are identified, discussed and reconciled, progress is often impossible. Currently there are serious problems in patent law that I think fit that description.

During the course of the past decade there have been ongoing debates about both claim interpretation and the disclosure requirements. Despite two high profile en banc opinions from the Court of Appeals for the Federal Circuit, disagreement, confusion, and lack of coherence still remain. Ostensibly, for claim interpretation, the battle lines were drawn over the various sources that could be used to interpret claim language.<sup>1</sup> For disclosure, the fight focused on statutory comma placement and grammar.<sup>2</sup> Yet I think there is something much deeper going on. This article argues that the confusion and disagreement is not fundamentally about which sources to use or the placement of commas, instead the problem is a fundamental ambiguity and disagreement over the most important and ignored concept in patent law: the invention.

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<sup>1</sup> See *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

<sup>2</sup> See *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1367 (Fed. Cir. 2010)(J. Linn dissenting).

To the casual student of patent law, the invention would indeed appear to be quite important. A quick glance to the patent statute reveals that the term is used more than 250 times. In fact, the central issue in patent law, the grant of exclusive rights, is explicitly granted to the “patented invention.”<sup>3</sup> Likewise the all-important novelty requirement asks whether the “invention was known or used before.”<sup>4</sup> Surely this term must be well explored and understood. Even a quick check of the courts suggests that invention is relevant. Of the past five years of published opinions from the Federal Circuit, eighty percent of the patent cases use the term the “invention.”<sup>5</sup>

Yet despite its ubiquitous usage, patent law never actually defines this term. A substantive discussion of the invention is nowhere to be found in modern patent doctrine or scholarship.<sup>6</sup> Consult any modern treatise or casebook and you won’t find the term explored.<sup>7</sup> The indices of these books show hundreds of pages devoted to discussing novelty and to infringement, yet no entry exists for the invention, the concept at the statutory center of these requirements. With modern patent law, a lawyer will litigate a patent and a judge will preside over that litigation and no one ever needs to ask substantively what was the invention.<sup>8</sup> Despite the clear language in the statute, patent law has become an invention-less system. For all practical purposes the invention is no longer a relevant substantive legal concept. And it’s not just that we have forgotten about the invention; it has been actively purged from our thinking.

At the time the 1952 Patent Act was drafted, *one* usage of the term ‘invention’ had become problematic - the court created requirement of invention. The drafters of the 1952 Act, rightfully in my opinion, did not incorporate that requirement into 1952 codification. Instead they replaced it with what we now know as the requirement of obviousness. Importantly, they still retained more than 250 other uses of the invention. Their entire focus was the one troublesome usage and it was excised from the statute. I have no quibble with that change.

Unfortunately despite its replacement in the new statute, courts of that era refused to acknowledge the change. They held onto that troublesome usage and continued to refer to the requirement of invention rather than the newly minted statutory requirement of obviousness. A struggle ensued between those that were following the new statute, generally the patent bar, and those that stubbornly held onto the older terminology, most notably the Supreme Court.

The drafters of the new act, with the support of the patent bar, undertook a rhetorical campaign to reeducate patent lawyers and judges and to purge the requirement of invention from the patent lexicon. Judge Giles Rich, one of the founders of modern

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<sup>3</sup> 35 U.S.C. § 271(1).

<sup>4</sup> 35 U.S.C. § 102(a).

<sup>5</sup> Search of Lexis database using CAFC database searching first for case from 7/12/2005 through to 7/12/2010 containing “patent” and “35 U.S.C.” and at least of one “validity” or “invalidity” or “valid” or “invalid” or “infringement” or “non-infringement.” That Lexis search returned 524 cases. Of those 426 also contained the term “invention.”

<sup>6</sup> Recent work by TJ Chiang has focused on the term and that is to be applauded but he ultimately concludes that there can be no right definition of the invention and therefore it should just be vehicle for a realist judge to impose his or her policy choices. I don’t think that is correct -- the invention is a well defined term in patent doctrine and it must be considered.

<sup>7</sup> See any major treatise or casebook on patent law.

<sup>8</sup> This may change after the Federal Circuit pronouncement in *Ariad v. Lilly*

patent law, metaphorically “open[ed] [a discussion of modern patent law] with prayers and a burnt offering [suggesting that] [a]n appropriate burnt offering would be all of the textbooks on patent law which talk about the requirement of ‘invention.’”<sup>9</sup> In large part the purge was successful though remnants of that battle still haunt patent law today.<sup>10</sup> Nonetheless generally, patent lawyers now rightfully talk about obviousness rather than the requirement of invention. The patent bar has been taught to avoid using the term; it is a relic from an older, subjective and likely dysfunctional patent system.

But as with any zealous purge, things often go astray; there is collateral damage. In modern patent law the prohibition on uttering the invention has been too successful; the important distinction between the requirement of invention and the invention is perhaps just too subtle to be noticed. Instead modern patent law just doesn’t discuss the term at all. Despite the explicit language of the statute and despite evidence that the purge should never have culled *all* usages of the term, the modern patent bar has too obediently followed their teachers.

But before getting bent out of shape worrying that the statute has been overtly co-opted, patent lawyers, approaching calmly with pacifying smiles, would quickly interject that there is no need for alarm. Independent of the historic path that lead to our current patent system, we have now a coherent, functioning patent system that operates without any need to directly address the invention. They would explain that modern patent law has evolved into a peripheral claiming system.<sup>11</sup> Like the metes and bounds of a real property deed<sup>12</sup>, peripheral claims define a patentee’s exclusive boundaries.<sup>13</sup> One can think of them as “conceptual fences.”<sup>14</sup> And, they would say, because we are using claims, little if any mention needs to be made of the invention as a substantive concept. And indeed modern patent doctrine answers all substantive questions by reference to the claims.<sup>15</sup> As described by one of the leading modern treatises, “the claim defines the invention for purposes of both patentability and infringement.”<sup>16</sup> And, they would add, because we can rely on the precise and accurate claims to define the invention, we need not ever focus directly on the perhaps less precise, subjective invention itself. In other words, independent of *why* we have stopped using the invention substantively, defenders

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<sup>9</sup> Giles S. Rich, *Why and How Section 103 Came to Be*, in NONOBVIOUSNESS - THE ULTIMATE CONDITION OF PATENTABILITY 1:201 (John F. Witherspoon ed., 1980). Indeed at the time the 1952 Patent Act was being drafted Giles Rich had good reason to worry about how invention was being misused in patent law. See *infra* for discussion of the problems with *the requirement of invention* and how the usage of the invention in any form was purged as a result.

<sup>10</sup> The recent *KSR v. Teleflex* case over obviousness can be seen in part as a remnant of that battle between the new statutory standard of obviousness and the older requirement of invention and especially how the levels compare to each other.

<sup>11</sup> Tun-Jen Chiang, *Fixing Patent Boundaries*, 108 MICH. L. REV. 524 (2010) (“Ask any patent lawyer what the most important part of a patent is, and the answer will invariably be ‘the claims.’”); see also Jeannie Fromer on claiming.

<sup>12</sup> See Chris Cotropia, *After-Arising Technologies and Tailoring Patent Scope*, 61 NYU ANN. SUR. AM. L. 155, 156 (2005)(citing *In re Vamco Machine and Tool, Inc.*, 752 F.2d 1564, 1577 n.5 (Fed. Cir. 1985).

<sup>13</sup> See Burk & Lemley, *supra* note 15 at 1747 (“The idea behind peripheral claiming ... was to establish the ‘metes and bounds’ of the invention in a manner analogous to real property deeds.”)

<sup>14</sup> See Burk and Lemely, *Fences*.

<sup>15</sup> Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1145 (2009) (“The cornerstone of that formal system is the claim, which today is the defining characteristic of patent law.”).

<sup>16</sup> Chisum on Patents at § 7.03.

of the status quo would add that our current claim centric system is more precise and just plain better.

In fact the adoption of claims, and in particular peripheral claims, can be viewed as one of the major innovations in patent law's ongoing drive towards "precision" and "accuracy."<sup>17</sup> Similar major milestones are the passing of the 1952 Patent Act and the formation in 1982 of the Court of Appeals for the Federal Circuit. As with the adoption of claims generally, precision and accuracy have been the central goals of these major changes.<sup>18</sup> The 1952 Patent Act was written in hopes of producing "a reasonably understandable set of conditions [that] would contribute greatly to the establishment of a strong and reliable patent system. This increase in reliability and predictability would encourage investment in the notoriously high-risk innovative processes."<sup>19</sup> Uniformity and predictability were the sought after goals. Similarly, in 1982 the Court of Appeals for the Federal Circuit was created with the express purpose of reducing "confusion and uncertainty" in patent law.<sup>20</sup>

Yet despite all that effort, modern patent law looks anything but uniform and precise.<sup>21</sup> Despite the outward appearance of a formal, objective system, modern patent law is running into real problems in critical areas like claim construction and the disclosure requirements. Even with the aid of two highly anticipated en banc cases, these two areas are still unfortunately imprecise, incomplete, incoherent, and even inaccurate.

The problems have reached a point where some have even suggested reconsidering and completely scraping the whole peripheral claiming system. As will be clear below, I agree with a great deal of those evaluations, yet I think the solution, or at least a potential solution worth exploring, is simpler. Judge Howard T. Markey, the first Chief Judge of the Federal Circuit, once remarked that "[w]hen all else fails, read the instructions" and for patent law he noted the "instructions" are the statute.<sup>22</sup>

The patent statute makes clear that the exclusive rights are given to the "patented invention." We must acknowledge that the invention matters. The most important issue in patent law, determining proper claim scope, can be stated simply: figuring out what is the "patented invention." In addition to the plain statutory language, numerous Supreme Court cases have re-emphasized this point by reaffirming that indeed a patent's exclusive

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<sup>17</sup> *Merrill v. Yeomans*, 94 U.S. 568, 573 (1876); see also Karl B. Lutz, *Evolution of the Claims of US. Patents*, 20 J. PAT. OFF. SOC'Y 457, 465 (1938).

<sup>18</sup> See Taylor on Error Analysis for discussion of accuracy versus precision. See also Rochelle Dreyfuss, *On Fed Circ NYU L Rev* (explain difference between precision and accuracy and the desirability of both in a patent system).

<sup>19</sup> Donald W. Banner, *Foreward* in NONOBVIOUSNESS - THE ULTIMATE CONDITION OF PATENTABILITY 1:201 (John F. Witherspoon ed., 1980).

<sup>20</sup> R. Polk Wagner & Lee Petherbridge, *Is the Federal Circuit Succeeding? An Empirical Assessment of Judicial Performance*, 152 U. PENN. L. REV. 1105, 1108 (2003) ("Indeed, as a response to widespread dissatisfaction due to confusion and uncertainty under the decentralized administration of the patent law, the Federal Circuit was created to play this very role.").

<sup>21</sup> See Bessen & Meurer, *Patent Failure*; Lefstin; Janis; Burk & Lemley, *Fences*

<sup>22</sup> Howard T. Markey, *Why Not the Statute?*, 65 J. Pat. Off Soc'y 331, 331 (1983). That advice is sound especially as "the patent laws are entirely statutory. There is no common law of patents." *Id.* Of course Judge Markey noted that there is "some judicial maneuvering within the interstices of the Statute." *Id.* Instead he emphasized that "Our concern here is with plain, simple disregard of the statute-evidenced in the promulgation of some words and phrases that muddy the decisional waters and other words and phrases that render the law as written by congress a nullity. In sum, when it comes to patent cases, the statute is the law-and court opinions containing language and concepts contrary to the statute are unlawful." *Id.*

rights cannot exceed “the invention.” This point alone is worth highlighting: patent law must acknowledge that the invention matters.

Though that acknowledgement is important, it alone doesn’t get us very far. The problem is that there is an important, unresolved, ignored ambiguity in defining the invention. More precisely, there is a critical ambiguity in the relationship between the invention and the claims.

The modern peripheral claiming system is premised on the principle that the subject matter circumscribed by a valid claim is also subject matter of the patented invention. Through that equivalence modern patent doctrine can obey the statutory command to grant exclusive rights in “the patented invention” while administering those exclusive rights by way of the peripheral claims. But an important ambiguity exists; the equivalence can be satisfied with two very different visions of the invention. And these two visions of the invention lead to quite different overall frameworks for the patent system. Many recent debates have remained unresolvable because we haven’t realized that people have been using the term to mean very different conceptual things. And interestingly the differences between these two systems becomes most apparent in claim interpretation and disclosure and as a result it is not surprising that these two areas are the site of the most bitter disagreement.

Patent law has not explicitly addressed or resolved this ambiguity and in fact aspects of both visions appear in different parts of patent doctrine. The ambiguity revolves around the conceptual relationship between the invention and the claims. Are the claims defined with respect to the invention or is the invention defined with respect to the claims? In other words, is the invention the principal concept and the claims are the proxy for administering exclusive rights over the invention *or* are the claims the principal concept and the invention is just a shorthand reference for the claims? These visions are both generally compatible with peripheral claiming and do not openly conflict when applied to novelty, nonobviousness<sup>23</sup> and infringement yet they lead to quite different patent systems especially for claim interpretation and disclosure.

In one view, which I call the trivial vision of the invention, the equivalence between claimed subject matter and invented subject matter is created by fiat. This is the vision that best characterizes modern patent law. The ‘patentable invention’ is simply defined as the subject matter circumscribed by a valid patent claim. By defining the invention this way the equivalence between claimed subject matter and the invention necessarily holds true. The invention becomes a simple shorthand reference for whatever subject matter the patent system allows an inventor to claim. On its face there are appealing aspects of this conceptual view. As mentioned above, historically invention has been a term that has caused a good deal of confusion. By relegating it to its current trivial role perhaps some have hoped to avoid that messy history. Likewise with the claims themselves as the center of attention, the modern patent system appears to be focusing on objective and formal tests rather than subjective ones. As summarized nicely by Jeffrey Lefstin, “[i]n modern patent parlance, ‘the claim, ‘the invention’, and the ‘the patent’ are essentially synonymous.”<sup>24</sup>

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<sup>23</sup> Note that I include nonobviousness for completeness but it does not reference the invention directly. Its statutory language focused on the claimed subject matter.

<sup>24</sup> Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1145 (2009).

In contrast, there is a very different way to view the relationship between the invention and the claims. In this view, the invention is a substantive concept. Here, the invention is simply the set of useful solutions to some pressing problem created by the inventor. In more technical language, the invention is the set of embodiments that the inventor has conceived and reduced to practice. In this view, the inventor invents an invention and the patent act just determines if *that* invention (or some subset of it) is patentable. If it is, then the inventor is granted exclusive rights over that patentable invention. Note that the invention is the central player here. The exclusive rights from a patent cannot exceed what was actually invented by the inventor – the invention is a critically important substantive limit to patent rights.

Claims are still important in this system but they are important because they are the *administrative proxies for the invention*. The whole purpose of using a formal claiming system (or any proxy system) is efficiency; it allows most day-to-day questions to be resolved by referencing the objective claims rather than direct reference to the perhaps more subjective invention. Such a system works only when the claims are an *accurate proxy* for the invention and that constraint cannot be just presumed to be fulfilled. Something must ensure the fidelity of that proxy relationship. In patent law that role is fulfilled by the disclosure requirements. A claim complies with the disclosure requirement of § 112 ¶ 1 if the specification can corroborate that (as of the filing date) the inventor invented the claimed subject matter. When a claim complies with that requirement, patent law can rest assured that the claimed subject matter is in fact invented subject matter. In this system, the equivalence between claimed subject matter and invented subject matter is a conclusion reached by complying with the disclosure requirements. In the trivial vision of invention, the equivalence is assumed before any statutory provisions are applied to the claims.

These two visions of the invention are quite different. In the trivial vision, the claims and the invention are equivalent by definition whereas in the substantive vision the claims and the invention are equivalent by result of compliance with the disclosure requirement. Both visions exist to some degree in modern patent law. For example the law of inventorship, the *who* and *when* of patent ownership, is generally framed using something akin to a substantive vision of the invention. Yet that vision remains isolated to inventorship. For the majority of patent law like infringement and validity, the trivial vision of the invention reigns. And despite its initial appeal of objectivity and certainty, this trivial vision of the invention is deeply problematic.

Despite its stated goals of precision and accuracy, the trivial vision has failed at both. Especially in its interpretation of claims and disclosure, the trivial vision of the invention has created a patent system that is imprecise, incomplete, incoherent, and inaccurate. With the trivial view, claims do not represent any external thing; they are just boundaries of exclusion. They have no other meaning and as a result judges have very little context with which to weigh opposing theories of interpretation other than as questions that settle the ultimate question.

Similarly, as to disclosure, the trivial vision of invention appears incoherent. It puts the focus of disclosure on enablement yet an orthodox application of the trivial vision appears unable to allow for claims that encompass after arising technology. Likewise, the trivial vision is incomplete. An orthodox application of the trivial vision of the invention would find the statutory requirement of “a written description of the

invention” redundant with the requirement to write original claims. And perhaps uncomfortable with the reach of the trivial system or perhaps signaling their preference for the substantive view, the Federal Circuit reaffirmed the existence of a separate written description requirement. And though that case shows discontent with the trivial view, the opinions themselves did little to outline or suggest a successor framework. Lastly, the modern trivial vision of the invention is just plain inaccurate. An exploration of the statute itself and historic patent cases demonstrate that the invention must be a substantive and not a trivial concept.

By adopting instead the substantive view of the invention, patent law can move toward its ultimate goals. It can improve both precision and accuracy. It is particularly notable because the invention is principally a subjective concept and yet by harnessing it the patent system can gain objective precision. By formally affirming that patent law must have a substantive vision of the invention, a number of the problems listed for the current system disappear. This vision of the invention gives a very natural and unified reading to the disclosure requirements. The specification must be detailed enough to corroborate the invention of the claimed subject matter. The substantive view of the invention, and in particular the concept of the principle of invention, can also resolve the emerging paradoxes relating to after arising technology. The substantive view aids claim interpretation because it gives claims *meaning*. In this system, the subject matter within a claim represents the invented subject matter. As a result judges are given context and meaning by which to distinguish plausible from implausible claim interpretations; if the four corners of the document corroborate the invention of the claimed subject matter then that suggested claim interpretation is plausible.

The following explores these ideas in more detail. Section II highlights that the invention matters but that there are two choices for its definition: a trivial and substantive view of the invention. Section III describes the trivial vision of the invention and details its shortcomings. Section IV describes the substantive vision of the invention and its promise.

## II. The Invention is a Limit but Which Invention Are You Referring To?

A few historical anecdotes might suggest that an article exploring the invention in patent law is a doomed expedition to find El Dorado. Up until the 1950s the terms was being used in very confusing ways. The invention “came to be used to refer to the thing invented and also to some vague quality necessary to patentability.”<sup>25</sup> Patent law was structured so that an “invention (in the concrete sense) [might be found] unpatentable because it is not an invention ( in the abstract sense).”<sup>26</sup> These usages were confusing and were leading to “muddy thought.”<sup>27</sup>

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<sup>25</sup> See also Giles S. Rich, *Why and How Section 103 Came to Be* in PRINCIPLES OF PATENTABILITY IN NONOBVIOUSNESS – THE ULTIMATE CONDITION OF PATENTABILITY 2:9 (John F. Witherspoon ed. 1980).

<sup>26</sup> Giles S. Rich, *The Vague Concept of “Invention” as Replaced by Section 103 of the 1952 Patent Act*, 46 J. PAT. OFF. SOC. 855, 876 (1964)

<sup>27</sup> Giles S. Rich, *The Vague Concept of “Invention” as Replaced by Section 103 of the 1952 Patent Act*, 46 J. PAT. OFF. SOC. 855, 876 (1964)



Of these two usages, it was the abstract sense that was causing troubles in the 1940s. That “requirement of invention” was “that ‘beautiful uncertainty in the law’ from which the patent bar made its living – practicing what was essentially a mystery.”<sup>28</sup> Judge Learned Hand commented that “[the requirement of invention] is ... as fugitive, impalpable wayward, and vague a phantom as exists in the whole paraphernalia of legal concepts.”<sup>29</sup> And indeed then-patent attorney Giles Rich was enlisted by Congress to help draft the 1952 Patent Act which was driven towards reform in large part by “the greatest technical weakness of the patent system... the lack of a definitive yardstick as to what is invention.”<sup>30</sup> The solution ultimately adopted by the drafters of the 1952 Act was to “get away from this troublesome term altogether.... Let’s not use [the term invention] at all and say what we really mean, and speak in terms of a requirement for patentability.”<sup>31</sup> From that the now familiar requirement of obviousness was codified in 35 U.S.C. § 103. It avoided all reference to the requirement of invention.

With that change one might expect that the remaining concrete usage of ‘the invention,’ referring to the thing invented, would have come out from behind the shadow of its confusing, vague, now-exiled distant relative. Yet despite being labeled the concrete usage, it too appears confusing. It is not clear whether the invention provides any substantive limit to the reach of a modern patent. For example in a recent paper Ted Sichelman noted that

despite the black-letter rule that an inventor ‘can lawfully claim only what he has invented and described,’ courts and the Patent Office typically allow patent claims that are of much broader scope than what is actually disclosed in a patent application. Specifically, a patent will usually disclose just one or a few ‘embodiments’ of the invention in the patent’s specification, but will often claim thousands of different embodiments in a claim.<sup>32</sup>

Robin Feldman similarly notes that “the patent system allows an inventor to reach to far more than what the inventor has actually done.”<sup>33</sup> And Janice Mueller argued that the patent system generally “has always provided more in terms of patent scope than merely those embodiments expressly disclosed by the inventor in her application.”<sup>34</sup> Purportedly even “Judge Learned Hand observed long ago, a claim that covers only the thing invented is a weak claim indeed.”<sup>35</sup> From these passages one

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<sup>28</sup> Giles S. Rich, *Why and How Section 103 Came to Be* in PRINCIPLES OF PATENTABILITY IN NONOBVIOUSNESS – THE ULTIMATE CONDITION OF PATENTABILITY 1:205 (John F. Witherspoon ed. 1980).

<sup>29</sup> *Harries v. Air King Products Inc.*, 183 F.2d 158, 162 (2nd Cir. 1950)

<sup>30</sup> Giles S. Rich, *Why and How Section 103 Came to Be* in PRINCIPLES OF PATENTABILITY IN NONOBVIOUSNESS – THE ULTIMATE CONDITION OF PATENTABILITY 1:207 (John F. Witherspoon ed. 1980).

<sup>31</sup> Giles Rich, *Why and How Section 103 Came to Be* in PRINCIPLES OF PATENTABILITY IN NONOBVIOUSNESS – THE ULTIMATE CONDITION OF PATENTABILITY 1:209 (John F. Witherspoon ed. 1980).

<sup>32</sup> Ted Sichelman, *Commercializing Patents*, 62 *Stan. L. Rev.* 341, 356 (2010)(citing *O’Reilly v. Morse*, 56 U.S. (15 How.) 62, 121 (1853) for the black letter rule).

<sup>33</sup> Robin Feldman, *The Inventor’s Contribution*, 2005 *U.C.L.A. J. L. & Tech.* 6, 24.

<sup>34</sup> Janice M. Mueller, *The Evolving Application of the Written Description Requirement to Biotechnological Inventions*, 13 *BERKELEY TECH. L.J.* 615, 651 (1998).

<sup>35</sup> Dan L. Burk & Mark A. Lemley, *Is Patent Law Technology-Specific?*, 17 *BERKELEY TECH. L. J.* 1155, 1202-05 (2002). (citing *Philip A. Hunt Co. v. Mallinckrodt Chemical Works*, 177 F.2d 583, 585 (2d Cir. N.Y. 1949). It is not clear that from the cited portion supports of the opinion that Learned Hand felt that a patent needed to extend beyond the invention. Judge Hand noted that “An applicant for a patent must make

might get the impression that the invention, whatever it might be, is irrelevant to the ultimate scope of a patent.

Some time ago Ed Kitch tried to explain in part the discrepancy. He similarly noted the horn book rule that “the inventor may not claim more than he has invented, and the claim marks the outer bounds of his rights.”<sup>36</sup> Yet he explained that “[w]e tend to think of an invention as the thing an inventor has made or accomplished, and the rule seems to imply the inventor is confined to that. But the rule is misleading, because the invention as claimed in the patent claims and the physical embodiment of the invention are two quite different things.”<sup>37</sup> In other words the problem was that we might generally use the term ‘the invention’ to describe the specific embodiment physically constructed by the inventor in some settings and yet the scope of exclusion, tied to the patentable invention, is generally not limited to that one specific embodiment. Others have similarly noted that the invention is used differently within patent law.<sup>38</sup> While more recently others have even tried to rely on the ambiguity as an universal policy lever capable of modulating claim scope.<sup>39</sup>

We should not be content with such confusion. The invention matters in patent law and it is a limit. After all “the patent laws are entirely statutory.”<sup>40</sup> And the statute defines the exclusive rights of a patent as covering the “patentable invention.”<sup>41</sup> The Supreme Court has clearly reaffirmed this point: “[The patentee] can lawfully claim only what he has invented....”<sup>42</sup>, “[I]t is clear that the party cannot entitle himself to a patent for more than his own invention.”<sup>43</sup>, “No one is entitled to a patent for that which he did not invent ....”<sup>44</sup>, “A claim broader than the actual invention of the patentee is, for that very reason, upon the principles of the common law, utterly void, and the patent is a nullity”<sup>45</sup>, “the most material [objection is] that the claim is broader than the invention.”<sup>46</sup> The Court has noted the “principle which forbids a patentee to assert a

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'a written description' of 'his invention or discovery' 'in such full, clear, concise, and exact terms as to enable any person skilled in the art to make, construct, compound, and use the same;' and he must 'particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery.' If the claims were limited to the 'concise and exact terms' in which the specifications ordinarily describe a single example of the invention, few, if any, patents, would have value, for there are generally many variants well-known to the art, which will at once suggest themselves as practicable substitutes for the specific details of the machine or process so disclosed.” Philip A. Hunt Co. v. Mallinckrodt Chemical Works, 177 F.2d 583, 585 (2d Cir. N.Y. 1949). He was just saying that claims extend beyond the one particular embodiment detailed in the specification. As the claims, especially the structural claims prevalent during that time, are part of the specification often a specification that details one embodiment can in fact disclose many others as the claims themselves can corroborate that the inventor actually invented than the one particular embodiment.

<sup>36</sup> Ed Kitch, Nature and Function at 268.

<sup>37</sup> Ed Kitch, Nature and Function at 268.

<sup>38</sup> See Paul Janicke, The Varied Meanings of “Invention” In Patent Practice: Different Meanings in Different Situations (1970); TJ Chiang, Abstractions.

<sup>39</sup> See TJ Chiang, Abstractions.

<sup>40</sup> Howard T. Markey, *Why Not the Statute?*, 65 J. Pat. Off Soc’y 331, 331 (1983).

<sup>41</sup> 35 U.S.C. § 271.

<sup>42</sup> O’Reilly v. Morse, 56 U.S. 62, 120-121 (1854).

<sup>43</sup> Evans v. Eaton, 20 U.S. 356, 430 (1822).

<sup>44</sup> Agawam v. Jordan, 74 U.S. 583, 602 (1869)

<sup>45</sup> Wyeth v. Stone, 30 F. Cas. 723, 727 (C.C.D. Mass. 1840)(Justice Story)(sitting on a district court; this is not a Supreme Court case but it is Justice Story).

<sup>46</sup> Morey v. Lockwood, 75 U.S. 230, 240 (1869).

right to more than he has actually invented.”<sup>47</sup> In short, from the explicit words in the statute to numerous Supreme Court opinions, the invention matters. We cannot ignore its existence nor can we presume it means whatever we want it to mean. We cannot faithfully discuss anything about the scope of patents without first making clear our definition of the invention. It would be an important advance itself if lawyers and scholars simply were explicit about what they mean by the invention every time they used the term.

Yet simply acknowledging the existence of the invention only gets us so far. Even accepting that both the statute and Supreme Court precedent inextricably link the invention with a patent’s grant of exclusive rights, there remains a critically important ambiguity. That ambiguity is the focus of the rest of this article.

There are two very different ways by which a patent system could ensure that indeed ‘the patentable invention’ and the patent’s exclusive reach were coextensive. It all depends on how one defines the invention and in particular how one defines the relationship between the invention and the claims. In one way, the invention is given a trivial definition based on allowable claims. Patent law first decides what scope of exclusive rights to grant and then it defines that scope as the patentable invention. Supreme Court precedent and the statute are inherently respected though it may occur to us why the Supreme Court would emphasize such a trivial point.

Alternatively, the invention is a substantive concept and that the patent system itself ensures that the claims never exceed this separately defined thing called the invention. I think this latter definition is the right one yet unfortunately the former definition is the one primarily used in modern patent law. The next two sections describe these two visions of the invention. They highlight that many of our current problems in claim interpretation and disclosure are linked to the trivial view of the invention and that these same problems are avoided with the substantive view.

### **III. Trivial Invention**

This section describes the trivial view of the invention. It describes the statutory and precedential basis for this view and the overall patent system that it generates, and the section concludes by highlighting the failings and pitfalls of this system.

#### **A. The Trivial Vision of the Invention**

As suggested above, modern patent law has sought to improve its accuracy and precision by developing a formal, objective framework for patent law.<sup>48</sup> Part of that movement was removing the messy requirement of invention from patent law. Certainly patent doctrine recognized that many valid uses of the term invention remained. It

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<sup>47</sup> *Ensten v. Simon, Ascher & Co.*, 282 U.S. 445, 452-53 (1931).

<sup>48</sup> Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1143-45 (2009)

acknowledged the existence of ‘the invention’ in the statute but it did not give the term any real substance.

For example Judge Giles Rich recounting the drafting of the 1952 Patent Act stated that “[o]ne apparent thought ... was to stop talking about whether a thing is or is not an ‘invention,’ to take anything presented as an invention, and then to determine its patentability according to a standard which Congress was to declare [in the 1952 Act]”<sup>49</sup> In short, as used throughout the 1952 Act, one interpretation of the invention simply assumed that “there is always an invention – and the issue is its patentability.”<sup>50</sup> In other words, your invention is whatever you claim it to be.<sup>51</sup>

And indeed there is some support for the proposition. For example the statute itself states that a patent’s claims should “particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention.”<sup>52</sup> The Supreme Court has highlighted this language stating “[u]nder the statute it is the claims of the patent which define the invention.”<sup>53</sup> Other Supreme Court cases similarly emphasize that “the claims made in the patent are the sole measure of the grant....”<sup>54</sup> And that “[t]he claim is the measure of [the patentee’s] right to relief.”<sup>55</sup> From these cases a long line of Federal Circuit cases state the “bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.”<sup>56</sup> These cases have been interpreted to suggest that all attention should be on the claims because they define the invention; the invention has no substantive existence other than as a shorthand for the subject matter that a patentee can claim.

With that trivial view, the peripheral claim forms the “cornerstone” of the modern patent system.<sup>57</sup> Every substantive aspect of patent law is controlled by the claims. In short, modern patent practice replaces every usage of the invention with the claimed subject matter.<sup>58</sup> As described by one of the leading modern treatises, “the claim defines the invention for purposes of both patentability and infringement.”<sup>59</sup> For all of these

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<sup>49</sup> See also Giles S. Rich, *The Vague Concept of ‘Invention’ as Replaced by Section 103 of the 1952 Patent Act* in PRINCIPLES OF PATENTABILITY IN NONOBVIOUSNESS – THE ULTIMATE CONDITION OF PATENTABILITY 1:407 (John F. Witherspoon ed. 1980).

<sup>50</sup> See also Giles S. Rich, *Why and How Section 103 Came to Be* in PRINCIPLES OF PATENTABILITY IN NONOBVIOUSNESS – THE ULTIMATE CONDITION OF PATENTABILITY 3:306 (John F. Witherspoon ed. 1980).

<sup>51</sup> Janice M. Mueller, *The Evolving Application of the Written Description Requirement to Biotechnological Inventions*, 13 BERKELEY TECH. L.J. 615, 638 (1998) (“By claiming human insulin-encoding cDNA at the time they filed the application for the '525 patent, UC conveyed to the art that the human cDNA was something it had invented. This is all that written description requires.”)

<sup>52</sup> 35 U.S.C. § 112 ¶ 2.

<sup>53</sup> *Altoona Publix Theatres, Inc. v. Am. Tri-Ergon Corp.*, 294 U.S. 477, 487(1935)

<sup>54</sup> *Aro Mfg., Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 339 (1961).

<sup>55</sup> *McClain v. Ortmyer*, 141 U.S. 419, 424 (1891)

<sup>56</sup> *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)(citing *Aro Mfg., Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 339 (1961)); see also Chris Cotropia, *After-Arising Technologies and Tailoring Patent Scope*, 61 NYU ANN. SUR. AM. L. 155 (2005).

<sup>57</sup> Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1145 (2009)

<sup>58</sup> See DONALD CHISUM, CHISUM ON PATENTS § 8.01(2008).

<sup>59</sup> *Id.* at § 7.03.

central questions in patent law, the focus is now on the claims.<sup>60</sup> Claims are “the sole measure of the invention.”<sup>61</sup>

From that trivial vision of invention a semi-coherent framework for the patent system emerges. The invention is defined as the subject matter that the patent system allows an inventor to claim. This conceptual view of the invention lends itself to the modern objective, formal view of the patent system.<sup>62</sup> In this view, the purpose of the patent system is information generation.<sup>63</sup> The patent system is seen as a quid pro quo exchange where exclusive rights are given in exchange for the disclosure of useful information.<sup>64</sup> Through that disclosure, patent law feeds the overall “storehouse”<sup>65</sup> of human knowledge and it achieves its constitutional goal of “promoting progress in the useful arts.”<sup>66</sup>

The focus then is on the claims and whether they are patentable or not. Congress, through the patent statute, “has ... established the balance” between incentives and costs.<sup>67</sup> The patent bargain as laid out in the patent statute provides the right incentives so that “progress” from disclosure is properly balanced against the inevitable costs of granting exclusive rights.<sup>68</sup> In this view, the patent statute and its respective requirements of patentable subject matter, utility, novelty, nonobviousness, and disclosure are seen as a series of tests that check to ensure that a patent’s exclusive rights are commensurate with the information disclosed. Critically note that claim interpretation then becomes a central issue in applying any of these tests. If the tests regulate claim scope, we cannot apply the test unless patent law first interprets the scope of the claims in question.

In general, these tests are relatively independent and can be applied in any order. If a claim can surmount all five requirements then the claim is valid. But the framework itself does suggest a conceptual order to these requirements. Patentable subject matter,

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<sup>60</sup> See Dan L. Burk & Mark A. Lemley, *Fence Post or Sign Posts? Rethinking Patent Claim Construction*, 157 U. PENN. L. REV. 1743, 1744 (2009) (“In modern American patent doctrine, we define what the patentee owns not by what she actually built or disclosed, but by what she claimed.”).

<sup>61</sup> See Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1145 (2009); see also *id.* at 7 n. 24 (noting the modern “synonymy of the claims and invention.”).

<sup>62</sup> Although he has not used these terms explicitly, Timothy Holbrook (I think) has advocated for a slightly different conceptual definition of the invention. Rather than being the claims themselves, the invention is the enabled subject matter. In other words, ‘the invention’ that corresponds to a patent specification is all the subject matter that is enabled by that specification. As to its substantive reach, his possession based patent system differs little from the modern system and he, like the pure claim centric system, he finds no need for a disclosure requirement in addition to enablement. In short, his system does not change the substantive reach of the claim centric system but it does try to provide a more coherent framework for a patent system with that substantive reach. Timothy Holbrook Possession in Patent Law 59 S.M.U. L. Rev. 125, 125 (2006) (“what you can prove to have invented is limited by your enabling disclosure but what you enable is not limited by what you invented.”)

<sup>63</sup> Ted Sichelman, Commercializing Patents Stan L. Rev. (“the traditional patent, whose quid pro quo is the disclosure of new and non-obvious information”).

<sup>64</sup> See *Kewanee Oil Co., v. Bicron*, 416 U.S. 470, 480-81 (1974)

<sup>65</sup> *Id.*; see also Timothy Holbrook Possession in Patent Law 59 S.M.U. L. Rev. 125, 131 (2006).

<sup>66</sup> U.S. Cons. Art. I § 8 Cl. 8.

<sup>67</sup> *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1361 (Fed. Cir. 2010)(J. Rader dissenting)

<sup>68</sup> See Rebecca S. Eisenberg, Patent and the Progress of Science: Exclusive Rights and Experimental Use, 56 U. Chi. L. Rev. 1017, 1020 (1989)(describing various incentives that the patent system is thought to create).

utility, novelty, and nonobviousness check to see if the right *type* of information has been disclosed and claimed by the patentee. And the disclosure requirements<sup>69</sup> weigh the value of the disclosed information. The disclosure requirements regulate how broadly beyond the prior art a patentee can claim.

This gives a quick survey of the framework that emerges from a trivial view of the invention. It does appear to benefit from heavy reliance on formal and objective tests<sup>70</sup> yet as suggested above it certainly does not appear to be delivering on the goals of precision, uniformity or accuracy.<sup>71</sup> And as will be clear below, I think the substitution of the claimed subject matter for the invented subject matter can make sense in certain parts of patent law. It makes sense for novelty, obviousness, and infringement purposes. Yet modern patent law also makes the substitution for the disclosure requirement. “The invention is, for purposes of the ‘written description’ inquiry, whatever is now claimed.”<sup>72</sup> Similarly the “invention” that must be enabled is that defined by the particular claim or claims of the patent or patent application.”<sup>73</sup> And it is in the disclosure requirements and claim interpretation that the modern patent system has run into serious problems. The modern trivial vision of the invention has led to imprecision and lack of uniformity in claim construction. And it produced disclosure doctrines that are incoherent, unstable, and inaccurate. The next section outlines the specific problems that have emerged with claim interpretation and the disclosure requirements with the modern system.

## B. The Imprecision of Meaningless Claim Interpretation

As every substantive issue in patent law depends on the claim language, it follows that claim interpretation and claim construction impact every substantive question. Interpreting claims is not particularly easy under the best of circumstances and yet in its drive for precision and uniformity, patent law must aim for relatively easy, repeatable interpretations. Yet both doctrinally and as an empirical matter, claim interpretation is not meeting this goal of uniformity.

In recent years doctrinal controversies have appeared over the proper methodology for interpreted claims. Five years ago, the Federal Circuit took up one of these controversies en banc in *Phillips v. AWH Corp.*<sup>74</sup> The controversy developed

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<sup>69</sup> See also Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1167 (2009) (“Disclosure is therefore different from infringement, anticipation, or nonobviousness.”).

<sup>70</sup> Timothy Holbrook, *Possession in Patent Law* 59 S.M.U. L. Rev. 125, 157 (2006) (“A patent should not cover more than what the inventor possessed in an objective sense.”); Janice M. Mueller, *The Evolving Application of the Written Description Requirement to Biotechnological Inventions*, 13 BERKELEY TECH. L.J. 615, 622-23 (1998) (“Examination for enablement inquires whether those of ordinary skill would have been able to make and use the claimed invention without undue experimentation, based on the teachings of the application. This standard is a completely objective one; the ‘intent’ or subjective view of the inventor is not relevant in determining whether the level of enabling disclosure is reasonably commensurate with the scope of the claims.”).

<sup>71</sup> See *supra*.

<sup>72</sup> *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1564 (Fed. Cir. 1991)

<sup>73</sup> 3-7 Chisum on Patents § 7.03

<sup>74</sup> *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc).

because of a split in the Federal Circuit’s claim interpretation caselaw. One line of cases emphasized the specification as the most important source for resolving claim interpretation issues. Meanwhile another line cases, most notably *Texas Digital*, developed. It voiced concern over the “reading limitations from the specification into the claim[s].”<sup>75</sup> The *Texas Digital* line of cases worried that if the specification is granted unfettered control over the claim interpretation process, then if a patentee described only one or a very limited number of specific embodiments then their claims would be similarly limited to those specific embodiments.

In a sense, *Phillips* resolved some of the controversy. It answered some questions, like the relevant sources for information for claim interpretation and the relative weight and priority among them. After *Phillips* it is clear that amongst sources the specification is the most important in claim interpretation. The court held that “claims ‘must be read in view of the specification, of which they are a part.’ ... [T]he specification ‘is always highly relevant ... [and] [u]sually, it is dispositive; it is the single best guide to the meaning of a disputed term.”<sup>76</sup> In addition, *Phillips* downgraded the importance of dictionaries and treatises. These were labeled as extrinsic evidence that were to be consulted only if the intrinsic evidence like the specification still left some ambiguities.

Thus, in a sense, *Phillips* settled the immediate methodological conflict and reaffirmed the order of importance for interpretive sources. Yet at the same time that *Phillips* reasserted the importance of the specification in claim construction, it also reaffirmed the dangers, aired previously in *Texas Digital*, “of reading limitations from the specification into the claim...”<sup>77</sup> In other words, it resolved the immediate, procedural conflict but it did nothing to resolve the conceptual conflict that had created the procedural conflict. The court acknowledged that reconciling these two “can be difficult...” yet, ultimately reassuring us that the line can be “discerned with reasonable certainty and predictability...” Ultimately it has proved very hard to distinguish between these two. There appears to be an “inherent tension ... as to whether a statement [in the specification] is a clear lexicographic definition or a description of a preferred embodiment.”<sup>78</sup>

In addition to this persistent doctrinal confusion, there is also empirical evidence that claim interpretation is just not a uniform process. “[C]ourts seem unable to agree on what particular patent claims mean.”<sup>79</sup> The promise of certainty made by peripheral

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<sup>75</sup> *Id.*

<sup>76</sup> *Id.* at 1315 (quoting *Markman* and *Vitronics* respectively).

<sup>77</sup> *Id.*

<sup>78</sup> *See E-Pass Techs., Inc. v. 3COM Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003); *see also LG Elecs., Inc. v. Bizcom Elecs., Inc.*, 453 F.3d 1364, 1374 (Fed. Cir. 2006)(rev’d on other grounds); Joseph Scott Miller, *Enhancing Patent Disclosure for Faithful Claim Construction*, 9 *Lewis & Clark L. Rev.* 177, 205 (2005); *see also* Tj Chiang *Levels of Abstraction* 13; *See, e.g., Merges & Duffy*, *supra* at note 23, at 803; Robert Unikel & Douglas Eveleigh, *Protecting Inventors, Not Fortune Tellers: The Available Patent Protection for After-Developed Technologies*, 34 *AIPLA Q.J.* 81, 88 n.9 (2006) (“How one can read claims ‘in light of the specification’ but yet avoid importing limitations from the specification has never been adequately explained, perhaps because these ostensibly contradictory tenets of claim construction cannot be reconciled.”).

<sup>79</sup> Lemley *Burk Fenceposts or Signposts* 1744.

claiming, the 1952 Patent Act and the CAFC appear “to be an illusion.”<sup>80</sup> In short, the modern peripheral claiming system “isn’t working.”<sup>81</sup>

I argue that problem is closely tied to the trivial vision of the invention. In the modern invention-less system, conceptually the claims have no meaning outside of their definition of the exclusive rights. The outer scope of the claims is determined by enablement and with enablement the claims only need to be “roughly commensurate” with the enabled subject matter. There is no doubt that moving the boundaries of claims matters (it is often outcome determinative) yet nothing helps to tell a judge where precisely to draw the line. It is not surprising then that “courts define the scope of legal rights not by reference to the invention but by reference to semantic debates over the meaning of words chosen by lawyers.”<sup>82</sup>

By emptying the invention of any substantive content, modern patent law has removed meaning from the claims ; it is now a meaningless exercise. Interpretation in modern patent law takes the actual claim language and replaces it with more (hopefully more precise) language.<sup>83</sup> *Phillips* did give a methodology for claim construction but those instructions are empty of content. We know what sources to consult but we still don’t know what we are doing. We know that claims matter but we don’t know what they represent. We still do not have a coherent picture of what the claims represent because in the formalist modern view claims do not represent anything but their function as boundaries for exclusion.<sup>84</sup>

### C. Incoherence & Instability of Disclosure

Claim interpretation is not the only problem area. The closely related area<sup>85</sup> of the disclosure requirements are also in chaos. The disclosure requirement is found in 35 U.S.C. § 112 ¶ 1<sup>86</sup> and it requires that the patent specification ... contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same ....<sup>87</sup>

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<sup>80</sup> Lemley Burk Fenceposts or Signposts 1745.

<sup>81</sup> Lemley Burk Fenceposts or Signposts 1744.

<sup>82</sup> Lemley Burk Fenceposts or Signposts 1746.

<sup>83</sup> Lemley Burk Fenceposts or Signposts 1746.

<sup>84</sup> See Mueller quote of Giles Rich.

<sup>85</sup> See Christopher Cotropia, *What is the “Invention”?* (unpublished manuscript on file with author). See also *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc)(noting the “close kinship between the written description and the claims is enforced by the statutory requirement that the specification describe the claimed invention in ‘full, clear, concise, and exact terms.’”).

<sup>86</sup> For ease of discussion 35 U.S.C. § 112 ¶ 1 will refer only to non-best mode portion of the statute.

<sup>87</sup> 35 USC § 112 (2008).



Nearly this exact language has existed in the patent statute since 1836. This provision regulates how far into the future a patentee can claim.<sup>88</sup> Two sub-requirements are found in this language: the written description requirement and enablement.

Enablement is generally seen as “uncontroversial”<sup>89</sup> and the more important of the two<sup>90</sup> as it ensures that the grant of exclusive rights is “commensurate” with the “contribution” or “teaching” of a patent’s disclosure. It is the primary regulator that “embodies the quid pro quo of the patent system that an inventor’s exclusive rights be commensurate with the benefits conferred on society by his disclosure.”<sup>91</sup>

The other requirement is the written description requirement and it is far more controversial. It is generally tied to the requirement that the specification contain “a written description of the invention.” Using the standard approach of substituting ‘the claimed subject matter’ for every instance of ‘the invention,’ this requirement is interpreted as requiring “a written description of [the claimed subject matter].” When interpreted in this way this requirement appears to serve only a public notice function. It is not a limit on originally filed claims but does restrict claim amendments and reissued claims. This public notice aspect of written description is generally not contested.<sup>92</sup> The controversy surrounding the written description requirement surrounds its application to originally filed claims. For originally filed claims there is no public notice problem; from reading the original application others can see what the patentee intends to claim. Yet the written description requirement has been used to invalidate originally filed claims – and that is the source of the controversy. That usage suggests that the written description requirement involves more than just public notice and it stands as a puzzle for the trivial-invention orthodoxy.

The usage of written description requirement outside the confines of its public notice role has been called “misguided”<sup>93</sup> and an “unmitigated disaster.”<sup>94</sup> Numerous articles have criticized the written description.<sup>95</sup> It is accused of creating “a welter of confused and confusing precedent that not only defies restatement but renders analysis and synthesis distinctly unmanageable.”<sup>96</sup> Commentators worry that it “only allows very

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<sup>88</sup> Kevin Emerson Collins, *Enabling After-Arising Technology*, 34 J. CORP L. 1083, 1086 (2009)(“ the disclosure doctrines of enablement and written description — operate[] prospectively, restricting the reach of patent claims [to] technologies that are nonobvious in relation to the prior art.”).

<sup>89</sup> Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1153 (2009)

<sup>90</sup> *Id.*; see also *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956,982 (Fed. Cir. 2002) (Rader, J., dissenting from denial of rehearing en banc).

<sup>91</sup> See Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1182 (2009)

<sup>92</sup> Though has been argued to be redundant with the prohibition on introducing new matter.

<sup>93</sup> *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 560 F.3d 1366, 1380 (Fed. Cir. 2009)(J. Linn concurring “that the majority opinion is supported by our precedent” but arguing that the precedent should be overruled en banc).

<sup>94</sup> Harris A. Pitlick, *The Mutation on the Description Requirement Gene*, 80 J. PAT. TM. OFF. SOC’Y 209, 222 (1998)

<sup>95</sup> See Janis, *supra* note 51; Christopher M. Holman, *Is Lilly Written Description a Paper Tiger?*, 17 ALB. L.J. SCI. & TECH. 1 (2007); *University of Rochester v. G.D. Searle & Co. Inc.*, 375 F.3d 1303 at 1315-21 (Fed. Cir. 2004)(listing articles critical of the written description requirement)

<sup>96</sup> Robert L. Harmon, *Must a Patent Describe an Accused Infringement?*, 85 J. PAT. TRADEMARK OFF. SOC’Y 153, 154 (2003).

narrow patents, so narrow and easily dodged as to be almost worthless.”<sup>97</sup> In particular many have worried that the requirement is an industry specific “elevated”<sup>98</sup> or “super”<sup>99</sup> enablement requirement that applies disproportionately in biotechnology. And that for biotechnology it threatens to alienate both “business and science communities” as it “no longer reflects the realities of scientific contribution”<sup>100</sup> and “if followed” would be an “unmitigated disaster ... [that] has the potential for causing untold havoc in the biotechnology field.”<sup>101</sup>

Jeffrey Lefstin has put his finger on the root cause of these objections: Hostility to the written description requirement derives fundamentally from the belief that written description is incompatible with the modern claim. The claim is the abstract legal creature at the heart of modern patent law, and the cornerstone of the conceptually ordered system pursued by formalist thinkers. For those who seek a conceptually ordered system of patent law, written description plays no role in a rational modern system

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The controversy was so heated that, until quite recently, there were serious questions whether patent law did contain a written description requirement separate from enablement.<sup>103</sup> The Federal Circuit en banc took up that question in *Ariad v. Eli Lilly*, a highly anticipated case that drew twenty five amicus briefs.<sup>104</sup> Despite all the criticism surrounding the modern written description doctrine and despite two dissenting opinions, the majority opinion, garnering the support of nine out of the eleven judges, “reaffirm[ed] that § 112, first paragraph, contains a written description requirement separate from enablement...”<sup>105</sup> The majority found the requirement in the statutory language that the “specification shall contain a written description of the invention.”<sup>106</sup> The court interpreted that language to require a description that “clearly allow[s] persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.”<sup>107</sup> Alternatively, the majority held that “the test for sufficiency is whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.”<sup>108</sup> Between these two alternate tests, the court admitted that with the later test “’possession’ ... has never been

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<sup>97</sup> Michael Delmas Plimier, *Genentech, Inc. v. Novo Nordisk University of California v. Eli Lilly and Co.*, 13 BERKELEY TECH. L. J. 149, 161 (1998).

<sup>98</sup> Arti K. Rai, *Intellectual Property Rights in Biotechnology: Addressing New Technology*, 34 WAKE FOREST L.REV. 827, 835 (1999).

<sup>99</sup> Burk & Lemley, *supra* note 1, 1152–54.

<sup>100</sup> Janice M. Mueller, *The Evolving Application of the Written Description Requirement to Biotechnological Inventions*, 13 BERKELEY TECH. L.J. 615, 615–16 (1998).

<sup>101</sup> Harris A. Pitlick, *The Mutation on the Description Requirement Gene*, 80 J. PAT. TM. OFF. SOC'Y 209, 222 (1998).

<sup>102</sup> Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1157 (2009)

<sup>103</sup> *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1341-42 (Fed. Cir. 2009)(en banc)

<sup>104</sup> *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1342 (Fed. Cir. 2009)(en banc)

<sup>105</sup> *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1340 (Fed. Cir. 2009)(en banc)

<sup>106</sup> 35 U.S.C. § 112 ¶ 1 (2008).

<sup>107</sup> *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2009)(en banc)

<sup>108</sup> *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2009)(en banc)

very enlightening”<sup>109</sup> and it concluded with a summation that relied more on the former test. The court held that

[y]et whatever the specific articulation, the test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art. Based on that inquiry, the specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed.<sup>110</sup>

Yet beyond reaffirming its existence, the opinion the opinion does little to quell its critics or to provide a conceptual framework that explains the contours of the requirement. Just as with *Phillips*, *Ariad* settled the immediate doctrinal issue but did little beyond that. The dissents from Judge Linn<sup>111</sup> and Rader<sup>112</sup> and even the concurrence by Judge Gajarsa show that despite the majority opinion, the underlying dispute still exists.

In addition to these problems with written description, there are serious problems with enablement.<sup>113</sup> There are serious issues relating to after arising technology and whether the specification needs to enablement one embodiment of the claimed subject matter or enable the full scope of the claim.

For example, there is conceptual and doctrinal confusion surrounding the enablement requirement and its relation to after arising technology.<sup>114</sup> Claims are often construed to cover embodiments made with technologies that were created after the patent was filed. For example, imagine inventing the chair and disclosing how to make a chair out of wood. You are granted a patent with a claim to the chair. Imagine that soon thereafter carbon fiber is invented and someone starts manufacturing chairs not from wood but instead from carbon fiber. Though it is made from carbon fiber, it is still a chair and thus should infringe your patent. In that scenario, your patented invention includes a chair made from carbon fiber yet you certainly did not enable carbon fiber chairs in your specification because that technology had not yet even been invented by

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<sup>109</sup> *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2009)(en banc)

<sup>110</sup> *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2009)(en banc)

<sup>111</sup> *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1367 (Fed. Cir. 2010)(J. Linn dissenting)(“In my view, there is no justification for reading the statute, beyond the priority context suggested by 35 U.S.C. § 120, as requiring anything other than a written description sufficient to enable a skilled artisan to make and use the invention particularly pointed out and distinctly recited in the claims.”)

<sup>112</sup> *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1361 (Fed. Cir. 2010)(J. Rader dissenting)(“The Constitution of the United States gives Congress, not the courts, the power to promote the progress of the useful arts by securing exclusive rights to inventors for limited times. Art. I, § 8, cl. 8. Yet this court proclaims itself the body responsible for achieving the ‘right balance’ between upstream and downstream innovation. The Patent Act, however, has already established the balance by requiring that a patent application contain ‘a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same.’ In rejecting that statutory balance in favor of an undefined ‘written description’ doctrine, this court ignores the problems of standardless decision making and serious conflicts with other areas of patent law. Because the Patent Act already supplies a better test, I respectfully dissent.”)

<sup>113</sup> See Lefstin, *supra* note 35 at 1181 (“the enablement doctrine faces fundamental difficulties as a coherent or complete doctrine of patent scope. . .”).

<sup>114</sup> See Chris Cotropia, *After-Arising Technologies and Tailoring Patent Scope*, 61 NYU ANN. SUR. AM. L. 532 (2005)(“ An ‘after-arising’ technology is a technology that ‘come[s] into existence after the filing date of a[] [patent] application.’”(citing *In re Hogan*, 559 F.2d 595, 605 (C.C.P.A 1977)).

you or anyone else.<sup>115</sup> Scholars and patent judges are divided on how to sort out this apparent paradox. Some have argued that enablement requires the claim to be enabled as of its filing date while infringement is measured at the time of infringement.<sup>116</sup> Thus, a broad claim will be valid if it enables the claimed subject matter as “it was understood at the filing date”<sup>117</sup> and yet it can still “cover” all variants covered by claim (even later developed ones) interpreted as of the date of infringement.<sup>118</sup> Other scholars disagree arguing that claim language for validity and infringement should be interpreted consistently and therefore using one single temporal frame of reference<sup>119</sup> and as a result the idea that claims could expand later “would have to be rejected.”<sup>120</sup>

Similarly the issue is not entirely settled in the courts. It is clear that it is an error to require a patentee to “enable nonexistent technology”<sup>121</sup> as that would “impose an impossible burden on inventors and this on the patent system.”<sup>122</sup> But it is less clear whether such claim can later be interpreted more broadly for infringement purposes. In *Chiron*, the Federal Circuit did not have to reach the issue as the claim invalidity of the claims was affirmed but the Court acknowledged “a dilemma”<sup>123</sup> whether that claim should be interpreted “according to meaning [of the disclosure]”<sup>124</sup> or “construe the term [according to the later meaning that is] broader than the disclosure.”<sup>125</sup> At least one judge made it clear that he would not later interpret the claim more broadly. The “proper approach ... is to constru[e] claims ... as they would have been understood by one of skill in the art at the time of the invention, and not construing them to reach the as-yet-undeveloped technology that the applicant did not enable.”<sup>126</sup>

Outside of problems related to after arising technologies, enablement has other major issues. There is a “split” in Federal Circuit cases over the amount of disclosure required to satisfy enablement.<sup>127</sup> Some cases state that “enabling any embodiment [within the scope of a claim] satisfies the enablement requirement regardless of the

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<sup>115</sup> See Lemley & Burk, *supra* note 1 at 1764; Lefstin *supra* note 35; Chris Cotropia, *After-Arising Technologies and Tailoring Patent Scope*, 61 NYU ANN. SUR. AM. L. 532 (2005); Kevin Emerson Collins, *Enabling After-Arising Technology*, 34 J. CORP L. 1083 (2009); Robin Copper Feldman, *Rethinking Patenting in Biospace*, 79 S. CAL. L. REV. 1, 3 (2005) (“Modern case law reflects confusion over whether the footprint of an invention includes things unknown at the time of the invention.”)

<sup>116</sup> See ROBERT P. MERGES & JOHN F. DUFFY, PATENT LAW AND POLICY: CASES AND MATERIALS 299-300 (3d ed. 2002)(describing this as the “Temporal Paradox”).

<sup>117</sup> See ROBERT P. MERGES & JOHN F. DUFFY, PATENT LAW AND POLICY: CASES AND MATERIALS 299-300 (3d ed. 2002)(describing this as the “Temporal Paradox”).

<sup>118</sup> See ROBERT P. MERGES & JOHN F. DUFFY, PATENT LAW AND POLICY: CASES AND MATERIALS 299-300 (3d ed. 2002)(describing this as the “Temporal Paradox”).

<sup>119</sup> See Mark A. Lemley, *The Changing Meaning of Patent Claim Terms*, 104 Mich. L. Rev. 101, 120 (2005).

<sup>120</sup> Mark A. Lemley, *The Changing Meaning of Patent Claim Terms*, 104 Mich. L. Rev. 101, 120 (2005).

<sup>121</sup> *Chiron* 363 F.3d at 1255. Note that the invalidity of the non-original claim in *Chiron* was supported by the failure to comply with the written description requirement.

<sup>122</sup> *In re Hogan*, 559 F.2d 595 at 606 (C.C.P.A. 1977); see also *Chiron* 363 F.3d at 1254. (“[A] patent document cannot enable technology that arises after the date of application. The law does not expect an applicant to disclose knowledge invented or developed after the filing date.”)

<sup>123</sup> *Chiron* 363 F.3d at 1258.

<sup>124</sup> *Chiron* 363 F.3d at 1258.

<sup>125</sup> *Chiron* 363 F.3d at 1258.

<sup>126</sup> *Chiron* 363 F.3d at 1263 (J. Bryson concurring).

<sup>127</sup> Bernard Chao, *Rethinking Enablement in the Predictable Arts: Fully Scoping the New Rule*, 2009 STAN. TECH. L. REV. 3 at 12 available at <http://stlr.stanford.edu/pdf/chao-rethinking-enablement.pdf>.

breadth of the claims.”<sup>128</sup> This was described by Robin Feldman as “the one embodiment doctrine.”<sup>129</sup> In contrast, in the unpredictable arts many cases held that “a single embodiment might not be sufficient to enable broad claims because [cases dealing with the unpredictable arts] required a correspondingly more detailed disclosure to show that a person of ordinary skill in the art could use or practice the claimed invention.”<sup>130</sup> Recently the Federal Circuit has adopted the more stringent requirements from the unpredictable arts and applied them in the predictable arts. Now “disclosing a single embodiment will not automatically satisfy the enablement requirement.”<sup>131</sup> This new “full scope” requirement for the predictable arts appears irreconcilable with those earlier cases.

Furthermore, in more theoretical work has started to question whether it is even possible to satisfy the new “full scope” doctrine for enablement.<sup>132</sup> Other scholars agree<sup>133</sup> arguing that “a literal application of the ‘full scope’ rule would invalidate *every* patent in existence.”<sup>134</sup> “To require a specification teach how to build every claimed embodiment is thus to demand the impossible.”<sup>135</sup> The overall result is, as put by Robin Feldman, “a wealth of contradictory opinions and unworkable doctrines”<sup>136</sup> that lack “a comprehensive vision of the problem or how to solve it.”<sup>137</sup>

#### D. Claim Scope Inaccuracy & Trivial Invention

This section discusses the inaccuracy of a pure claim centric framework rather than its imprecision.<sup>138</sup> Though colloquially interchangeable, in scientific measurement theory accuracy is distinct from precision.<sup>139</sup> A bathroom scale is precise if it gives the same reading each time the same physical object is placed on the scale. A measurement is accurate when the value returned for that measurement is consistent with the actual weight of the object. Ideally a bathroom scale would be both precise and accurate, but it could be one and not the other, or neither. The critiques of the trivial vision above

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<sup>128</sup> See also Merges & Nelson, supra note 47, at 845 (1990)(“This [enablement] requirement can at times be applied rather loosely: a specification that describes only one working example of an invention but that supplies less guidance on the subject matter at the fringes of a patent’s claims is often sufficient.”)

<sup>129</sup> Robin Feldman, *The Inventor’s Contribution*, 2005 U.C.L.A. J. L. & Tech. 6, 24.

<sup>130</sup> Bernard Chao, Rethinking Enablement in the Predictable Arts: Fully Scoping the New Rule, 2009 STAN. TECH. L. REV. 3 at 12 available at <http://stlr.stanford.edu/pdf/chao-rethinking-enablement.pdf>.

<sup>131</sup> Bernard Chao, Rethinking Enablement in the Predictable Arts: Fully Scoping the New Rule, 2009 STAN. TECH. L. REV. 3 at 12 available at <http://stlr.stanford.edu/pdf/chao-rethinking-enablement.pdf>.

<sup>132</sup> Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1145 (2009).

<sup>133</sup> See Dan L. Burk & Mark A. Lemley, *Fence Post or Sign Posts? Rethinking Patent Claim Construction*, 157 U. PENN. L. REV. 1743, 1744 (2009);

<sup>134</sup> Tun Jen Chiang, *The Levels of Abstraction Problem in Patent Law* at 18-19.

<sup>135</sup> Tun Jen Chiang, *The Levels of Abstraction Problem in Patent Law* at 19.

<sup>136</sup> Robin Copper Feldman, *Rethinking Patenting in Biospace*, 79 S. CAL. L. REV. 1, 4 (2005)

<sup>137</sup> *Id.*

<sup>138</sup> See Taylor on Error Analysis for discussion of accuracy versus precision. See also Rochelle Dreyfuss, On Fed Circ NYU L Rev (explain difference between precision and accuracy and the desirability of both in a patent system).

<sup>139</sup> See JOHN R. TAYLOR, AN INTRODUCTION TO ERROR ANALYSIS (1982).

focused on the lack of precision. They focused on the lack of uniformity and repeatability of the determinations like claim interpretation and disclosure. Accuracy is different. To argue that something is inaccurate requires first showing that there is a true value for some measurement and that the device in question does not return that true value.

Thus to argue that a pure claim centric patent system would provide inaccurate results requires first arguing that there is a true value or some true limit for the breath of claim scope. And for the patent system the limits are those imposed by the Constitution. And for some there appears no substantive limits from the constitutional directive to grant exclusive rights to “Inventors ... for their discoveries.”<sup>140</sup> Judge Rich commented that

[o]bviously the term ‘invention’ finds its legal roots in the Constitution’s reference to ‘inventors,’ but the Constitution contains no clue as to how one is to determine when a person is an inventor. Therefore, it has always seemed to me utter nonsense to speak of a ‘standard’ in the Constitution because it surely is no standard, in the sense of quality or quantity, simply to say a man must be entitled to be called an inventor, else he cannot have a patent on what he devised.<sup>141</sup>

I disagree. There is a standard imbedded in “Inventors ... for their discoveries.” And though it is an easy hurdle to clear, it is a limit that is missing from the claim centric system and surprisingly it is one that Judge Rich in his remark above presumed to be present.

The Supreme Court has held that the Constitution includes an originality requirement for patent law.<sup>142</sup> The current version of the long-lived treatise *Walker on Patents* states that “[in view of the *Trade-Mark Cases*] . . . it appears that Congress’s authority under the intellectual property clause is limited to the protection of subject matter that is original to the grantee.”<sup>143</sup> Similarly, Thomas Nachbar explains that the *Trade-Mark Cases* require that both patented and copyrighted works “originate with the party claiming the right.”<sup>144</sup> That requirement lies at heart of Congress’s power under the patent copyright clause and is so important that the Court held that for patents that the “question ... of originality is always open to examination.”<sup>145</sup> Furthermore, as a constitutional requirement, originality must be considered for the proper statutory interpretation of the existing patent laws including for the interpretation of the “invention.”<sup>146</sup>

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<sup>140</sup> U.S. Cons. Art I § 8 Cl. 8.

<sup>141</sup> *Giles S. Rich, Why and How Section 103 Came to Be*, in NONOBVIOUSNESS - THE ULTIMATE CONDITION OF PATENTABILITY 1:206 (John F. Witherspoon ed., 1980)

<sup>142</sup> See *In re Trade-Mark Cases*, 100 U.S. 82, 93-94 (1879) (“in regard to inventions, originality is required”); see also Oskar Liivak, *Maintaining Competition in Copying: Narrowing the Scope of Gene Patents*, 107 U.C. DAVIS L. REV. 177 (2005).

<sup>143</sup> MOY, *supra* note at § 1:15.

<sup>144</sup> Nachbar at 281.

<sup>145</sup> *Burrow Giles v. Saroni*, 111 U.S. 53, 60 (1888).

<sup>146</sup> See *Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng’rs*, 531 U.S. 159, 173 (2001) (“the Court will construe the statute to avoid [raising serious constitutional problems] unless such construction is plainly contrary to the intent of Congress”). In addition note that for this proposition, Congress’s broad powers under the commerce clause are not relevant. The current patent statute was

My concern is that a pure claim centric patent system could easily violate this fundamental limit. As suggested above, the only limit on the scope of an originally filed claim would be the enablement requirement. In other words, subject matter could be part of an originally filed patent claim if a person of skill in the art *could* make and use the claimed subject matter. That requirement alone is not enough to ensure that subject matter original to the inventor is claimed.

For example “consider the case where the specification discusses only compound A and contains no broadening language of any kind. This might very well enable one skilled in the art to make and use compounds B and C.”<sup>147</sup> In other words, with enablement alone one could claim compounds B and C. Yet nothing suggests that the patentee even thought of or conceived compounds B or C. In a pure claim centric system with a *could* standard governing enablement, nothing prevents claims from reaching non-original subject matter.

Luckily, modern patent law has pulled back from such a system. Both the post-*Ariad* written description requirement and the full scope doctrine of enablement seem to be aiming to prevent precisely those claims that extend beyond subject matter original to the inventor.

As reaffirmed in *Ariad*, in addition to enablement, patent law also has a written description requirement that requires either proves that “[the inventor] invented what is claimed.”<sup>148</sup> Or alternatively “conveys ... possession of the claimed subject matter as of the filing date.”<sup>149</sup> As long as the written description requirement prevents claims to subject matter that was not invented by the inventor, the patent system will not violate the originality requirement. The question then arises, if the modern, trivial vision of the invention is incompatible with a constitutionally required limitation, what vision of the invention will replace it. The next section answers that question.

#### IV. Substantive Invention

This section argues that the trivial view of invention is plain wrong. In the correct view the invention is a concept that exists prior to the filing of a patent. Inventors provide utility because they solve problems. The thing invented by an inventor is their solution to some problem. That solution is their invention; to use older terminology, the invention is the inventor’s means to some useful end. In modern terminology the invention is the solution conceived and reduced to practice by the inventor. With a substantive view of the invention, a different patent system emerges from the patent stature.<sup>150</sup> Not only does this view improve the accuracy of the patent system but it also improves its precision.

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explicitly enacted under the powers granted by the Patent and Copyright Clause. See S. REP. NO. 82-1979 (1952), reprinted in 1952 U.S.C.C.A.N. 2394, 2396.

<sup>147</sup> In re DiLeone, 436 F.2d 1404, 1405 n.1-(C.C.P.A. 1971); see also Mark D. Janis, *On Courts Herding Cats: Contending with the “Written Description” Requirement (and Other Unruly Patent Disclosure Doctrines)*, 2 WASH. U. J. L. & POL’Y 55, 67 (2000).

<sup>148</sup> *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2009)(en banc)

<sup>149</sup> *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2009)(en banc)

<sup>150</sup> TJ Chiang has described this view as a very similar view of the invention as the “unitary

In this system patent validity is divided into two sections. The first section that should be considered is disclosure. The disclosure requirement is first and foremost is an instruction set for the inventor. It simply says that the inventor should describe their substantive invention in enough detail so that others would be able to make and use *the inventor's invention* by following the specification. Once the patent application is submitted, then disclosure (both what we now call enablement and written description) also enforces the equivalence between the invented subject matter and the claimed subject matter. A claim complies with the requirements of § 112 if the specification can corroborate that the inventor invented the claimed subject matter.<sup>151</sup> This ensures that the claims are indeed good proxies for the invention.<sup>152</sup> After complying with § 112, this system can turn to novelty and non obviousness and ultimately infringement and we need not consider the invention but can rest assured that we can instead administer novelty, non obviousness, and infringement by reference to the claims alone.

Compared to the current system, such an invention centric system improves the uniformity of the disclosure requirements because its gives a very natural reading the § 112 ¶ 1 as a whole. It improves uniformity in claim construction because it gives claims meaning. Claims not only determine boundaries of exclusion but claims represent the invented subject matter. And judges can turn to the specification to see what was in fact invented, this aids uniformity and precision in claim interpretation.

This section will proceed by first elaborating on the support for a substantive view of the invention. It will then outline the overall patent system that this view produces and it shows that, in this view, disclosure serves the important purpose of corroborating the invention of the claimed subject matter. Then the section re-evaluates claim interpretation and shows how this substantive vision of invention gives claim interpretation meaning and therefore uniformity. And the section concludes by showing how a substantive vision of the invention solves the paradoxes surrounding after arising technology.

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invention principle.” TJ Chiang Abstraction 8. And though he introduces this concept he quickly there after dashes any hope of using it. “The problem is that the unitary invention principle is simply untrue. The specification and the claims do not describe the same thing in different ways. They describe entirely different concepts with only tenuous relation to each other. The specification describes a single embodiment. The claim describes an idea.” TJ Chiang Levels of Abstraction 10. Indeed some specifications may describe only one embodiment but both as a matter of doctrine and even efficiency nothing stops a patentee from properly describing an infinite set of embodiments in a specification.

<sup>151</sup> Along similar lines Robert P. Merges & Richard Nelson have found this relation between the specification and the claims to be “built deep into the history of patent law.” Robert P. Merges & Richard Nelson, *On the Complex Economics of Claim Scope*, 90 Colum. L. Rev. 839, 844-45 (1990).

<sup>152</sup> Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1198 (2009) (“Even after claiming assumed primary importance, ‘the Invention’ and ‘the claims’ were distinct concepts in American patent law. One could discuss ‘the invention’ in terms of the inventor’s physical or mental creation, entirely apart from the question of the scope of the inventor’s legal rights. Under such a regime, questions of whether the inventor physically possessed an embodiment of the invention, or whether the inventor mentally possessed the idea behind the invention, are sensible questions. But once the concepts of ‘invention’ and ‘claim’ became essentially synonymous in patent law, the notion of ‘possessing the invention’ became a logical impossibility except as a rephrasing of the ultimate legal conclusion.”)



## A. Substantive Vision of the Invention

The invention, “[t]he thing patented [,] is the particular means devised by the inventor by which [a] result is attained, leaving it open to any other inventor to accomplish the same result by other means.”<sup>153</sup> Importantly, the desired result, the “object” of the invention, is *not* the invention itself and it cannot be claimed as such.<sup>154</sup> The invention is the inventor’s own specific way of solving some relevant problem and that is what the claims can cover. An inventor can claim “the exclusive right to use the means he specifies to produce the result or effect he describes, and nothing more.”<sup>155</sup>

The Supreme Court and patent law generally have further refined this by turning to the notion of conception. In 1874, the Court described “[t]he ‘inventor,’ in patent law, [a]s the person or persons who conceived the patented invention.”<sup>156</sup> More recently the Supreme Court has held that “the word ‘invention’ in the Patent Act unquestionably refers to the inventor’s conception....”<sup>157</sup> Likewise one of the most influential treatises in patent law emphasizes this important link stating “[a]n inventor, in the meaning of the Constitution, is one who has himself conceived the fundamental idea of the invention, and has embodied it in tangible materials. To him and to him only can a patent lawfully be granted.”<sup>158</sup>

It is not surprising that patent law puts such emphasis on conception. Other references to invention or inventor in 35 U.S.C. already focus on conception. For inventorship, patent law determines *who* invented an invention based on conception as “[c]onception is the touchstone of inventorship.”<sup>159</sup> For priority determinations, patent law determines *when* an inventor invents an invention based on conception.<sup>160</sup> Consistent with these cases, determining *what* was invented and therefore *what* (at most) can be claimed must be based on the inventor’s conception. As noted in *O’Reilly*, when the Court turned to “ascertain and settle, what is the thing which was invented,” the Court instructed that “to this end it will be most convenient to begin at its conception ....”<sup>161</sup>

In particular, conception elaborates on the notion of the inventor’s specific means for solving some problem. “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.’”<sup>162</sup> In accord with the discussion above, “[i]t is not sufficient that the result to be obtained be conceived, but it is required that there be conceived and disclosed the means provided to accomplish that result.”<sup>163</sup>

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<sup>153</sup> *Electric Railroad Signal Co. v. Hall Railway Signal Co.*, 114 U.S. 87, 96 (1885).

<sup>154</sup> *Id.*

<sup>155</sup> *O’Reilly*, 56 U.S. at 119.

<sup>156</sup> *Collar Co. v. Van Dusen*, 90 U.S. 530, 563-64 (1874).

<sup>157</sup> *Pfaff v. Wells Electronics*, 525 U.S. 55, 60-61 (1998).

<sup>158</sup> WILLIAM C. ROBINSON, *I THE LAW OF PATENTS* 91 (1890).

<sup>159</sup> See *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227-28 (Fed. Cir. 1994).

<sup>160</sup> See *Marconi Wireless Tel. Co. v. United States*, 320 U.S. 1, 34-35 (1943), *reh’g denied*, 320 U.S. 809 (1943) (“It is well established that as between two inventors priority of invention will be awarded to the one who by satisfying proof can show that he first conceived the invention.”).

<sup>161</sup> 56 U.S. at 68.

<sup>162</sup> *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986); see also *Field v. Knowles*, 183 F.2d 593, 611 (C.C.P.A. 1950).

<sup>163</sup> *Field*, 183 F.2d at 691.

Importantly, conception is complete when “[a]ll that remains to be accomplished in order to perfect the act or instrument belongs to the department of construction, not invention.”<sup>164</sup> It is complete “when [the idea] has assumed such shape in the mind that it can be described and illustrated; when the inventor is ready to instruct the mechanic in relation to putting it in working form.”<sup>165</sup> A conception is complete when an inventor is able to tell the ordinary mechanic both *what* is the specific, complete invention as well as *how* to make and use that invention. These two components are separate but clearly related requirements.

The Federal Circuit has held that “[c]onception requires both the idea of the invention’s structure and possession of an operative method of making it.”<sup>166</sup> For example in *Board of Education ex rel. Florida State University v. American Bioscience, Inc.*, the Federal Circuit determined that a researcher could not be included as an inventor when they had not conceived of the claimed compound itself but had only conceived of a generalized method by which a person of skill in the art, if asked to synthesize the claimed compound, could do so.<sup>167</sup>

As used here, conception provides a vehicle for determining what was invented. On first impression, it may not seem so hard to point out what the inventor created. After all, the inventor built her new mousetrap or created her new drug and isn’t that her invention?<sup>168</sup> Indeed the inventor’s actual physical creation must be something that they conceived, but it has long been rightly thought that the invention can and should, in many cases, extend further than the physical embodiment actually built and should embrace some more abstract notion.<sup>169</sup> The invention is the set of all of the embodiments that the inventor has invented. That is the invention is the set of embodiments that the inventor has conceived and reduced to practice. This abstract concept, this collection of embodiments, is a prerequisite to beginning the patent procurement process and it forms a fundamental and substantive limit to the exclusive rights that may ultimately emerge from a patent.

Applying this substantive vision of the invention, a different patent system emerges. The critical differences will appear in the scope and purpose of disclosure and with claim interpretation. In this system, the patent procurement process exists as a mechanism to “secure exclusive rights” in the invention. The goal is not necessarily just information disclosure. Certainly detailed information (in fact even more detailed than in

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<sup>164</sup> *Mergenthaler v. Scudder*, 11 App. D.C. 264, 1897 C.D. 724 at 731 (D.C. Cir. 1897).

<sup>165</sup> *Cameron v. Brick*, 1871 C.D. 89 at 90 (Comm'r Pat. 1871).

<sup>166</sup> *Amgen, Inc. v. Chugai Pharmaceutical Co., Ltd.*, 927 F.2d 1200, 1206 (Fed. Cir. 1991); see also *Oka v. Youssefyeh*, 849 F.2d 581, 583 (Fed. Cir. 1988).

<sup>167</sup> 333 F.3d 1330 (Fed. Cir. 2003); see also *Fiers v. Revel*, 984 F.2d 1164 (Fed. Cir. 1993).

<sup>168</sup> In patent law not every patentable invention is actually reduced to practice. U.S. patent law also allows what is known as constructive reduction to practice. When the patent applicant describes an invention in enough detail to satisfy the disclosure requirements, then patent law describes the invention as being constructively reduced to practice.

<sup>169</sup> *Tilghman v. Proctor*, 102 U.S. 707 (1880)(holding that Tilghman’s patent “must be sustained as a patent for a process, and not merely for the particular mode of applying and using the process pointed out in the specification.”); Addressing this question some 175 years ago Justice Story lamented that patent law and its sister field of copyright “approach nearer than any other class of cases ... to what may be called the metaphysics of law, where the distinctions are, or at least may be very subtle and refined, and sometimes, almost evanescent.” *Folsom v. Marsh*, 9 F.Cas. 342, 344 (C.C.D. Mass. 1841)(J. Story).

the modern system) is disclosed but that is not the goal per se. Goal is the disclosure of completed inventions.

## B. The Claim's Duty of Fidelity to the Substantive Invention

As conception and thus invention is in large part a mental act, patent law would have to engage in a difficult, subjective inquiry in order to directly ensure that a patent claim had not exceeded the inventor's conception. Indeed when courts now consider conception in the context of inventorship they "require corroborating evidence."<sup>170</sup> In policing overly broad claims, § 112 avoids that subjective inquiry because it requires the specification to objectively provide the needed corroborating evidence of conception. Interpreting a disclosure statute very similar to the modern § 112, the Supreme Court described the relationship between the inventor's conception and the required description of that conception:

An inventor, until he has not only got a *conception*, but has *described* how *that conception* can be so applied and employed as to lead to a result ... has not made his work a part of the useful arts; has not come within the language of this court; nor within the domain of the patent law.<sup>171</sup>

In other words, the inventor must first have conceived of an invention and the inventor must then disclose that conception in the specification. "[The patentee] can lawfully claim only what he has invented and described, and if he claims more his patent is void."<sup>172</sup> And if claims exceed the described invention then those "claims ... must fail."<sup>173</sup>

Importantly, as stated in the *The Telephone Cases*, whether a patentee has come "within the domain of [] patent law" is determined by whether the patentee has described how his specific conception can be applied and employed so "as to lead to a result."<sup>174</sup> This requires more than disclosing general information that in the hands of persons of skill *could* lead to a useful result. Rather the disclosure must tell a person of skill how to make and use *the invention*, the inventor's specific conception.<sup>175</sup> Through the disclosure requirements of § 112, patent law puts the burden on the inventor to convert an otherwise difficult subjective inquiry into an easier objective one.

As discussed above a complete conception has two separate yet interrelated parts and § 112 requires disclosing both of them: the complete vision of the invention as it will hereinafter be used in practice and an operative method of making and using that invention.<sup>176</sup> These two requirements and their overall purpose in documenting

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<sup>170</sup> *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994).

<sup>171</sup> *The Telephone Cases*, 126 U.S. 1, 273-74 (1888)(emphasis added).

<sup>172</sup> *O'Reilly v. Morse*, 56 U.S. 62, 120-121 (1854).

<sup>173</sup> *Mackay Radio & Tel. Co. v. Radio Corp. of America*, 306 U.S. 86, 98 (1939)

<sup>174</sup> *The Telephone Cases*, 126 U.S. 1, 273-74 (1888).

<sup>175</sup> For this reason, a specification that satisfies § 112 constitutes constructive reduction to practice.

<sup>176</sup> Some cases suggest that utility is not part of conception and is instead part of reduction to practice. See *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994). § 112 requires that the specification corroborates the invention. If disclosure of a complete conception falls short of disclosing the

conception are seen in the statutory language. The statute requires the specification to contain a “written description of the invention” and “the manner and process of making and using [the invention].”<sup>177</sup> And it concludes by requiring that those two descriptions to be detailed enough to “enable any person of skill in the art ... to make and use [the invention].”<sup>178</sup> As suggested above in discussing conception, both the “description of the invention” and “the manner and process of making and using [the invention]” are necessary components that allow a person of skill in the art to ultimately practice *the invention*. In this view, the written description portion of § 112 ensures that the specification describes the complete invention as it will be carried out in practice while enablement ensures that the specification describes how to make and use that invention.

There is nothing unfair or onerous in requiring a disclosure of the complete conception and invention. Upon filing the patent application, the inventors swear that they are “the original and first inventor[s] of the process, machine, manufacture, or composition of matter, or improvement thereof, for which [they] solicit a patent.”<sup>179</sup> In other words, they swear that they have in their minds a complete conception of the invention they intend to claim. § 112 quite reasonably requires the patent applicant to simply write down that mental conception. This converts the subjective inquiry of whether the claimed subject matter was conceived by the inventor into the objective inquiry of whether the specification can corroborate the invention of the claimed subject matter. In so doing, consistent with Supreme Court precedent and the Constitution, § 112 objectively prevents patent claims that extend beyond the disclosed invention.

Claims can and do play a central role in this system. But they are important not because the claims *are* the invention but rather because the claims *are* proxies for the invention. In other words, the invention is the central focus but the claims are administrative tools that help administer the patent statute.<sup>180</sup> And for that administrative proxy relationship to work patent law must keep some conceptual distance between the claims and the invention. The law uses such proxies in many places. In agency, the purpose of the principal agent relationship is to allow the principal to delegate decision making to an agent. The agent acts as a proxy for the principal. Similarly, in contracts, the central issue is the agreement between the parties. Often the parties memorialize that agreement in writing and that written document serves as an objective proxy for the more abstract agreement.

Both agency law and contract law benefit from the proxy. Rather than bothering the principal for every decision or rather than needing to plumb the perhaps subjective recollections of a contractual agreement, we can instead rely on the agent or the written document respectively. As part of such a system, both agency law and contract law conceptually keep the principal apart from its proxy even though in day to day operation we might conflate the two. For example, even though in lazier moments we might say that the written document is the agreement, and we might even note that in most circumstances the written document itself can answer most major questions about the

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invention, then § 112 requires more and needs to also disclose utility and the operative invention. Nonetheless, disclosure of the complete conception provides the bulk of the requirements of § 112.

<sup>177</sup> 35 U.S.C. § 112.

<sup>178</sup> *Id.*

<sup>179</sup> 35 U.S.C. § 115.

<sup>180</sup> See Karl B. Lutz, *Evolution of the Claims of US. Patents*, 20 J. PAT OFF. SOC'Y 457 (1938).

agreement, the agreement and the written document are conceptually kept apart. The reason for this separation is simple. For the system to work, for a proxy system to work, the law must monitor that indeed the proxy serves properly as a proxy.

Exactly along these lines, a substantive invention uses claims as proxies for the invention.<sup>181</sup> When the claims precisely and accurately reflect the invention then the claims can be efficiently referenced rather than direct reference to the invention. Yet just as with contract and agency though, patent law needs to keep the invention conceptually separate from the claims. And the patent statute needs to enforce that proxy relationship. Like the duty of loyalty in agency or like the suspicion judges approach purported integration clauses in contract, patent law imposes a duty of fidelity on the claims so that they can function as proxies for the invention. In the patent statute, § 112 ¶ 1 performs this critical function. They require the patentee to prove that they have indeed invented the subject matter that they claim to have invented. In other words the description must be enough detail so that the description itself can corroborate that the inventor indeed invented (meaning conceived and reduced to practice) the claimed subject matter.

Once a patent application complies with that requirement then indeed patent law can make the reference the claims rather than referencing the invention. After complying with § 112 ¶ 1, though novelty asks whether “the invention was known or used before,” patent law can replace the invention with the claimed subject matter. Similarly and perhaps most importantly for public notice reasons, the patent system can also confidently replace the “patented invention” in the infringement context with “the claimed subject matter.” In short, the disclosure requirements of § 112 ¶ 1 ensure that the claims are accurate proxies for the invention while § 112 ¶ 2 ensure that they are precise proxies.

Lastly, note that the trivial vision of the invention can be supported by citation to Supreme Court cases such as *McClain v. Ortmyer* and *Aro Mfg. v. Convertible Top*. Though certainly short quotes from those cases seem to indicate support for the trivial view, more comprehensive passages from those same sections show that these cases are completely consistent and in fact instead reinforce the substantive view of the invention. In *McClain v. Ortmyer* the Supreme Court stated that

Nothing is better settled in the law of patents than that the patentee may claim the whole or only a part of his invention, and that if he only describe and claim a part, he is presumed to have abandoned the residue to the public. The object of the patent law in requiring the patentee to ‘particularly point out and distinctly claim the part, improvement or combination which he claims as his invention or discovery,’ is not only to secure to him all to which he is entitled, but to apprise the public of what is still open to them. The claim is the measure of his right to relief, and while the specification may be referred to to limit the claim, it can never be made available to expand it.<sup>182</sup>

Similarly in *Aro* the Supreme Court stated that

Since the patentees never claimed the fabric or its shape as their invention, and the claims made in the patent are the sole measure of the grant, the

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<sup>181</sup> See Jim Dabney, *KSR: It was not a Ghost*, 24 SANTA CLARA COMP. & HIGH TECH L. J. 131, 146, n. 69, 77, 93 (2007).

<sup>182</sup> *McClain v. Ortmyer*, 141 U.S. 419, 423-424 (1891)

fabric is no more than an unpatented element of the combination which was claimed as the invention, and the patent did not confer a monopoly over the fabric or its shape.<sup>183</sup>

Both of these passages demonstrate that statements like the claims are “the sole measure of the grant” are actually quite straightforward statements. In the substantive view, an inventor may invent quite broadly. Of that invention, the inventor may only disclose a limited number of embodiments in the specification. Of those that are disclosed, the inventor might only claim a subset of those disclosed embodiments. With that in mind, the Court is just making the relatively straightforward statement that no matter how broadly you might have invented, only the embodiments that are claimed will need to comply with the validity portions of the patent statute and only the claimed embodiments can be infringed.<sup>184</sup>

In other words, the Supreme Court precedent that might be used to support the trivial vision of the invention can just as easily (and likely more easily) support the substantive view. And note that the opposite is not true. The trivial vision of the patent cannot be squared with the notion that the invention is that which was conceived by the inventor.

### C. Is There a Separate Enablement Requirement after *Ariad*?

In the past ten years a great deal of attention has been focused on determining whether there is a separate written description requirement in addition to enablement. And even though after *Ariad* the Federal Circuit has held that there is a separate written description requirement, it is still true that it can be very hard to articulate a difference between written description and enablement. Some judges, like Judge Newman, care less about which requirement has been violated and more about ensuring that in the end claims that do not comply with § 112 are invalidated.<sup>185</sup> I think there is a lot of wisdom in that notion. Indeed patent law has been struggling with separating out the various parts of disclosure for quite some time. In 1854, the leading treatise of the time commented that “the statute requisites for a good specification run so much into each other, in their nature and character, and are so blended together that it is difficult to treat of them separately.”<sup>186</sup>

Accordingly, the substantive view of the invention leads to a natural reading of not enablement or written description but instead to the whole of the disclosure requirement in § 112 ¶ 1.<sup>187</sup> The disclosure requirement ensures that the specification can corroborate that the inventor did indeed invent the claimed subject matter. That gives a clear overarching purpose to § 112 ¶ 1 and certainly patent law can elaborate on the details of that but that purpose alone gives clear direction to patentees.

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<sup>183</sup> *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 339-340 (1961).

<sup>184</sup> This leaves question about the doctrine of equivalents aside for the moment.

<sup>185</sup> *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1359 (Fed. Cir. 2010)(J. Newman concurring)(“it is less critical to decide which statutory clause applies in a particular case, than to assure that both requirements are met.”)

<sup>186</sup> GEORGE TICKNOR CURTIS, *THE LAW OF PATENTS* 189 (1854).

<sup>187</sup> Throughout this article disclosure requirement or § 112 ¶ 1 has meant to include the language associated with written description and enablement only. Best mode is not include in these discussions.

Interestingly this interpretation of § 112 ¶ 1 as a whole also helps to highlight one of my criticisms of the *Ariad* opinion. Recall that the en banc rehearing in *Ariad* assumed that patent law contained an enablement requirement. The only question was whether written description existed as a separate requirement from enablement. *Ariad* purportedly answered that question in the affirmative but as this section shows the question after *Ariad* is whether there is an enablement requirement separate from written description?

*Ariad* held that the specification must “show that the inventor actually invented the invention claimed.”<sup>188</sup> As this section has shown, to show that one has invented requires showing that one has conceived. Conceiving “requires both the idea of the invention’s structure and possession of an operative method of making it.”<sup>189</sup> Thus, written description now covers much of what used to be considered enablement. The only portion of enablement not covered by the post-*Ariad* written description requirement is the utility component of enablement and that has always been a less significant portion of enablement than the ‘enable one to make’ component. This flip flopping shows the disarray of disclosure today and underscores the need for a more unified notion of disclosure. The substantive vision of invention provides exactly such a unified vision.

#### **D. Meaningful Claims; Claims as Proxies for the Invention**

The substantive vision and the interpretation of § 112 that it generates can also aid our current troubles with claim interpretation. In a sense the substantive vision shows that compliance with § 112 ¶ 1 and claim interpretation are very closely related. In a recent article, Mark Lemley and Dan Burk suggest that patent law should stop “relying on the illusion of peripheral [claiming]”<sup>190</sup> and its promise of uniformity and certainty. Their concern with the present system is that

we’re not often litigating what the inventor did or what her patent should cover, because we are too concerned with what the lawyers did to define what the invention should cover. We have, in other words, taken our eyes off of the ball. The shift in focus from the invention to the claim language allows both sides to game the process. It permits—and indeed even encourages—overclaiming by patentees, particularly patentees drafting or interpreting claims years after the invention itself. If the focus is on the language of my claims, not the product that I actually built or described, I can interpret that language creatively to claim, in retrospect, to own inventions that I didn’t have in mind when I wrote the patent claims.<sup>191</sup>

Based on these concerns, they advocate a return to central claiming<sup>192</sup> and its reliance on the specification for its description of the invention.<sup>193</sup> They argue that such a move

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<sup>188</sup> *Ariad Pharmaceuticals, Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2009)(en banc)

<sup>189</sup> *Amgen, Inc. v. Chugai Pharmaceutical Co., Ltd.*, 927 F.2d 1200, 1206 (Fed. Cir. 1991); see also *Oka v. Youssefyeh*, 849 F.2d 581, 583 (Fed. Cir. 1988).

<sup>190</sup> Lemley Burk Fenceposts or Signposts 1747.

Lemley Burk Fenceposts or Signposts 1762.

<sup>192</sup> Lemley Burk Fenceposts or Signposts 1799.

<sup>193</sup> Lemley Burk Fenceposts or Signposts 1747.



“will help refocus patent analysis on inventions and not linguistic games.”<sup>194</sup> They temper their policy proscriptions by acknowledging that “dethroning the centrality of the [peripheral] patent claim would require some significant changes to the way the current patent system operates.”<sup>195</sup>

I strongly agree with their emphasis on the invention and yet I don’t think that it necessarily requires any significant statutory reform. In fact, as argued above, the proper interpretation of our current patent system is a system where the invention is the central concept despite also making extensive use of peripheral claims. As argued above, the claims are proxies for the invention and the specification ensures the fidelity of that relationship. This aids claim interpretation. In this view claims represent more than the exclusive boundaries of the patent. Instead, claims represent the invention, the thing conceived by the inventor. And because they represent the invention, the claims can be used to define the exclusive rights of the patentee. By representing a thing, and despite the fact that that thing is abstract, claims are given meaning and stability.<sup>196</sup> By linking claim interpretation so closely to the invention described in the specification, many of the central claiming advantages advocated by Burk and Lemley should appear in a peripheral claiming system as long as the invention is seen as a substantive concept.<sup>197</sup>

In addition to helping uniformity and precision in claim interpretation, the substantive system also helps resolve one of the important issues remaining after *Phillips*. Recall that the court emphasized that on the one hand we should read the “claims ... in view of the specification, of which they are a part”<sup>198</sup> while on the other we should avoid “reading limitations from the specification into the claim...”<sup>199</sup> The substantive vision offers a way to resolve these two. The specification discloses the invention and claims are meant to circumscribe that invented subject matter. Thus, if a specification can corroborate only the conception and reduction to practice of a single embodiment then the claims must be limited to that embodiment. This isn’t reading a limitation into the claims – this is just faithfully interpreting the claims to cover the invention disclosed in the specification. On the other hand some other specification might emphasize one particular embodiment but also disclose other variants. If those variants can corroborate that the inventor invented more broadly than the preferred embodiment, then claims should be allowed to claim more broadly. Both of these are reading the claims in light of the specification.

## **E. Broad Documented Conception Allows Broad Claims**

There may be worries that this need to explicitly disclose embodiments before they can be claimed may lead to excessively narrow claims but that is just not the case.

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<sup>194</sup> Lemley Burk Fenceposts or Signposts 1796.

<sup>195</sup> Lemley Burk Fenceposts or Signposts 1783.

<sup>196</sup> *Netword, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed. Cir. 2001) (“The claims are directed to the invention that is described in the specification; they do not have meaning removed from the context from which they arose.”)

<sup>197</sup> *TJ Chiang Levels of Abstraction* 9 (“Assuming that the claims and the specification describe the same thing, just in different ways, makes claim interpretation easier.”).

<sup>198</sup> *Id.* at 1315 (quoting *Markman* and *Vitronics* respectively).

<sup>199</sup> *Id.*



There are foundational patent law cases that consistently apply this substantive vision of the invention and where a broad conception is disclosed (ie a specification that corroborate the conception of a broad number of embodiments) the inventor can also claim just as broadly. Where an inventor discloses only a very narrow conception, the claims are similarly constrained. *Tilghman v. Proctor*<sup>200</sup> and the English case of *Neilsen v. Harford* are good examples of the former while the Incandescent Lamp Patent case illustrates the latter.

*Tilghman v. Proctor* is an example of a disclosed, broad conception that supports a broad claim. Tilghman invented a process for separating fatty acids and glycerine from fatty bodies by mixing the fatty bodies with water and then subjecting the mixture to a high temperature and high enough pressure to keep the liquid water in the mixture from converting to steam.<sup>201</sup> In his patent application, he disclosed his best mode but yet in critical areas he further noted that his process would work with parameters different from his disclosed best mode. He described variations in vessels that could be employed,<sup>202</sup> and he described variations in temperature that could be employed.<sup>203</sup> The evidence in the case made it clear that Tilghman had indeed conceived a very general process and he had disclosed the specifics of his best mode along with all the numerous variations of his invented process. A broad claim in this case was sustained as Tilghman had conceived a broadly applicable process and he had disclosed the breadth of that conception in his specification.<sup>204</sup>

In addition, the Supreme Court in *Tilghman* spent considerable time discussing the English case of *Neilsen v. Harford* and the broad process claim that was allowed in that case.<sup>205</sup> Neilsen invented a process for improving the performance of blast furnaces by pre-heating the air being pumped into the furnace. He achieved this by placing a receptacle between the bellows and the furnace itself. By externally heating the receptacle, the blast air was pre-heated before even reaching the furnace. The Court notes that Neilsen described a method to practice the invention but also described that “it might also be done in a variety of ways, and at a higher or lower temperature; and that all of them would produce the effect in a greater or less degree, provided the air was heated by passing through a heated receptacle.”<sup>206</sup> Neilsen had conceived of a very broad method applicable “whatever form was adopted for the receptacle”<sup>207</sup> Here again, the Court finds that the specification supports a broad claim because the patentee had disclosed a broad vision of a complete and operable invention.

In other cases, the disclosure of a narrow conception cannot support a broad claim. The Supreme Court’s decision in *The Incandescent Lamp Patent* is particularly illuminating in this respect.<sup>208</sup> In the search for useful incandescent light bulb filaments progress had been made as to the suitable shapes, electrical resistances and even general construction for the filaments. But researchers were still hunting to find the best

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<sup>200</sup> 102 U.S. 707 (1881).

<sup>201</sup> Id. at 712-13.

<sup>202</sup> Id. at 730-31

<sup>203</sup> Id. at 732-33.

<sup>204</sup> Id. at 726.

<sup>205</sup> Id. at 723-27.

<sup>206</sup> Id. at 726.

<sup>207</sup> Id.

<sup>208</sup> 159 U.S. 465 (1885).

materials from which to construct the filaments.<sup>209</sup> The patentees Sawyer and Mann disclosed in the patent that they had reduced to practice filaments made from both carbonized paper and wood carbon.<sup>210</sup> Their first claim though was broad covering a filament constructing from any “carbonized fibrous or textile material.” Their third claim was narrower claiming only filaments “formed of carbonized paper.” *Id.* Commenting on these two claims the Supreme Court noted that “[i]nstead of confining [their claims] to carbonized paper, as they might properly have done, and in fact did in their third claim, they made a broad claim for every fibrous or textile material, when in fact an examination of over 6,000 vegetable growths showed that none of them possessed the peculiar qualities that fitted them for that purpose.”<sup>211</sup>

The Court made it clear that Sawyer and Mann, even with only their two embodiments that were actually reduced to practice, could have in theory claimed more broadly. The Court stated that “if the patentees had discovered in fibrous and textile substances a quality common to them all, or to them generally, as distinguishing them from other materials, such as minerals, etc., and such quality or characteristic adapted them peculiarly to incandescent conductors, such claim might not be too broad.”<sup>212</sup> If their knowledge of these materials allowed them to conceive of the other particular fibrous and textile materials that were suitable as filaments then such a broad claim would be allowed. Envisioning those solutions with specificity is a broad conception and thus allows for broad claims. As discussed above, exactly such a broad disclosed conception, allowed both Neilsen and Tilghman to claim broadly. But Sawyer and Mann were not able to generalize other solutions nor had they reduced to practice a large fraction of the embodiments in the genus. They only reduced to practice those embodiments that they had stumbled upon by trial and error. Their conception was narrow and their broad claim failed as a result.<sup>213</sup>

Importantly, The Incandescent Lamp Patent case does not represent some super-enablement requirement that shackled the emerging lighting industry. It was the application of a well established rule that inventors can claim only what they actually invented. And where researchers are finding solutions to problems by trial and error without being able to generalize other solutions, then conception and invention and consequently claims must be narrow. In many ways, the world of light bulb filaments from the 1880s has many similarities to biotechnology today. Much of biotechnology relies on modern screening methods that in principle resemble the trial and error hunting of Sawyer, Mann and Edison. Conception and reduction to practice often occur simultaneously and it is very hard (at least today) to generalize from the relatively narrow inventions that are conceived by such trial and error screening. As our understanding of lighting improved, such trial and error was no longer the norm and the industry matured into a predictable science. By remaining true to its foundational principles, patent law, even when granting narrow claim scope, played an important role in nurturing that industry. By following those principles now, patent law will similarly allow biotechnology to flourish.

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<sup>209</sup> *Id.* at 471.

<sup>210</sup> *Id.* at 466.

<sup>211</sup> *Id.*

<sup>212</sup> *Id.* at 472.

<sup>213</sup> *Id.* at 477.

## F. The Invention, Its Principle & Claiming the Future Before It Arrives

As suggested above in Section III., one of conceptual puzzles that has been troubling patent scholars is the reach of patent rights into after arising technology.<sup>214</sup> Related to this is the doctrinal question of the proper timing for interpreting claim language – should claims be interpreted at the time of filing or at the time of infringement. As suggested by Mark Lemley, I think claim terms should be *interpreted* at the time of filing.<sup>215</sup> The claims were written at the time of filing for a person of skill in the art so they should interpreted at that time.

But the question quickly arises, if claims are interpreted at the time of filing can claim language ever reach after arising technology? Can it reach technologies that the inventor and the person of skill in the art at the time of filing had not yet even contemplated? If we “[c]hoos[e] to define patent claim terms as they would be understood at the time the patent application was filed means that the literal meaning of patent claims will not expand over time as the meaning of those terms changes.”<sup>216</sup> There will be no more “‘temporal disparity’ between meaning for validity purposes and meaning for infringement purposes, will have to be rejected.”<sup>217</sup> This approach has been found support on the Federal Circuit. In an concurring opinion, Judge Bryson would have interpreted claims “as they would have been understood by one of skill in the art at the time of the invention, and not construing them to reach the as-yet-undeveloped technology that the applicant did not enable.”<sup>218</sup>

This seems to prevent claims from ever reaching after arising technology. “[T]he claim term must be interpreted as it was understood at the patent’s filing and as it is supported by the patent’s specification. These two requirements prevent a patentee, regardless of how the claims are drafted, from capturing after arising technologies within the patent’s literal scope.”<sup>219</sup> For some this apparent narrowness can be avoided by turning to the doctrine of equivalents.<sup>220</sup>

I would argue that the substantive vision of the invention provides a more direct way to literally claim after arising technology. The substantive vision of the invention

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<sup>214</sup> See *supra* notes XX and accompanying text.

<sup>215</sup> See Mark A. Lemley, The Changing Meaning of Patent Claim Terms, 104 Mich. L. Rev. 101, 120 (2005).

<sup>216</sup> Mark A. Lemley, The Changing Meaning of Patent Claim Terms, 104 Mich. L. Rev. 101, 120 (2005).

<sup>217</sup> Mark A. Lemley, The Changing Meaning of Patent Claim Terms, 104 Mich. L. Rev. 101, 120 (2005).

<sup>218</sup> Chiron Corp. v. Genentech, Inc., 363 F.3d 1247, 1263 (Fed. Cir. 2004) (Bryson, J., concurring); see also Mark A. Lemley, The Changing Meaning of Patent Claim Terms, 104 Mich. L. Rev. 101, 120 (2005) for an extended discussion of Chiron.

<sup>219</sup> Chris Cotropia, *After-Arising Technologies and Tailoring Patent Scope*, 61 NYU ANN. SUR. AM. L. 155, 166-67 (2005); see also Chiron Corp. v. Genentech, Inc., 363 F.3d 1247, 1262-63 (Fed. Cir. 2004) (Bryson, J., concurring) (noting that claims cannot be construed “broadly enough to encompass technology that is not developed until later and was not enabled by the original application”).

<sup>220</sup> Mark A. Lemley, The Changing Meaning of Patent Claim Terms, 104 Mich. L. Rev. 101, 120 (2005) (“a patent may be hollow if it does not confer the ability to prevent logical applications of the principle of the invention to new and unforeseen circumstances.”).

supports a related concept the principle of the invention.<sup>221</sup> This has been a concept related to the invention for a very long time.<sup>222</sup> It allowed, and for a time mandated, that a patentee described in more abstract terms how and why the invention worked.

Reading modern caselaw and scholarship this may seem odd. Indeed it has been oft repeated that a patentee need not know why their invention works. It has been argued that “there is no authority for penalizing inventors who fail to disclose the underlying scientific principles of their inventions.”<sup>223</sup> The Federal Circuit has held that “it is not a requirement of patentability that an inventor correctly set forth, or even know, how or why the invention works.”<sup>224</sup>

I don’t quibble with the notion that patent eligibility does not depend on knowing the scientific reasons why an invention works. One can be completely ignorant of the scientific reasons underlying some invention and one can get a patent if that invention is new and nonobvious. But I do quibble with the notion that such ignorance could lead to particularly broad claims.

Knowing the scientific basis for an invention is very important for *broad* claim scope. Through explaining its scientific basis, an inventor can often readily generalize others ways in which to accomplish the same ends. Those broad generalizations, just as in *Tighman and Nielsen*, demonstrate a broad conception and hence broad claims. But as in the *Incandescent Light Case* where an inventor knows that their particular embodiment works but cannot explain or generalize then claims cannot exceed that one embodiment.

Describing embodiments of the invention in terms of the principle is a vehicle by which inventors can invent and claim the future before it arrives. As suggested by Jeffrey Lefstin

[i]f the ‘invention’ is the novel principle discovered or created by the inventor, defined at the appropriate level of generality, then it is possible to ask whether an accused infringer is implementing that principle without having to decide whether the inventor enabled the category of all things that employ that principle.<sup>225</sup>

Others too have shown how abstract language employing the principle of the invention can literally claim after arising technology.<sup>226</sup>

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<sup>221</sup> See Karl B. Lutz, *Evolution of the Claims of US. Patents*, 20 J. PAT OFF. SOC’Y 457, 465 (1938); Meurer & Nard at 1961-66; Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1122 n. 259 (2009)

<sup>222</sup> *Continental Paper Bag Co. v. E. Paper Bag Co.*, 210 U.S. 405, 418 (1908) (focusing on the principle of the invention not a specific embodiment); *Winans v. Denmead*, 56 U.S. (15 How.) 330, 343 (1853) (focusing on the “substance of the invention”); see also Lutz discussing principle of invention and TJ Chiang Levels of Abstraction 3.

<sup>223</sup> Mark D. Janis, *On Courts Herding Cats: Contending with the “Written Description” Requirement (and Other Unruly Patent Disclosure Doctrines)*, 2 WASH. U. J. L. & POL’Y 55, 67 (2000).

<sup>224</sup> *Newman v. Quigg*, 877 F.2d 1575, 1581 (Fed. Cir. 1989); see also Janis at 67

<sup>225</sup> Jeff Lefstin, *The Formal Structure of Patent Law and the Limits of Enablement*, 23 BERKELEY TECH. L. J. 1141, 1122-23 (2009)

<sup>226</sup> Michael J. Meurer & Craig Allen Nard, *Invention, Refinement and Patent Claim Scope: A New Perspective on the Doctrine of Equivalents*, 93 GEO. L. J. 1947, 1977 (2005) (“Surprisingly, certain claim-drafting techniques allow inventors to claim technology that incorporates elements that have not been developed. Consider for example a patentable tennis racket that differs from previous rackets in terms of its shape and dimensions. The inventor must describe a suitable material for use in the racket, but should avoid limiting herself to a particular material. In recent years, rackets have become lighter and stronger, as manufacturers moved from wood to aluminum to graphite. An inventor, familiar with this trend, should

For example, suppose I disclose a chair made from wood and I also disclose the basic engineering principles that make the chair work and I make it clear that it need not be made from wood, then this lays the groundwork for literal claims that could be applied to chairs made from after arising materials. Suppose I explain that the four legs need to be made from a material such that each leg can support one quarter of the weight of a human. I also describe some margin of error for differences in weights and unequal weighting on the legs etc. At some later date after carbon fiber and polymer resin composites have been invented, a person of skill in furniture making will read my specification and they will be able to build a carbon fiber chair *not because they could make and use it after reading my specification* but *because they would do so* -- the specification would tell them to use materials other than wood as long as those materials met the mechanical properties outlined by the specification. Such a broad conception demonstrates what I call a trans-technological invention. It can cover embodiments that were not explicitly foreseen but that were nonetheless explicitly taught by the specification.

### **G. Diagram & Deposit: A Picture is Worth How Many Embodiments?**

[Incomplete]

Cases like Vas-Cath and Enzo suggest that indeed diagrams and deposits can be used to satisfy parts of § 112. They generally cannot satisfy the enablement requirement as a deposit or drawing may not describe how to make and use the pictured or deposited thing but they can be used to satisfy the written description requirement.

But really how broadly does a diagram or deposit corroborate? A deposit seems to only corroborate the specific thing deposited – only words of a specification can generalize further. Likewise most figures show only one embodiment. It is hard to prove conception of anything beyond the pictured embodiment. Surely words in the specification could quickly generalize but nonetheless the diagram itself only corroborates just the pictured embodiment.

That analysis draws into question cases Vas-Cath that allowed a spectrum of embodiments to be supported by a single diagram. Interestingly, the district court opinion in Vas-Cath, written by Judge Easterbrook, explicitly delved into this matter and did not think the diagram alone could corroborate more than the embodiment pictured. Similar to Vas-Cath, this analysis suggests caution when applying Enzo II. In short, both deposits and diagrams can corroborate conception of the specific embodiments depicted or deposited but they alone cannot do more. Either multiple diagrams, deposits, or generalizing language in the specification must be included if claims are to extend beyond those specific embodiments.

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describe the material used to make his racket in general terms, and then the patent claim will literally cover a racket of the same shape and dimension even if it is made from a substance that was not known at the time of the patent application.”); see also Mueller at 628..

## H. Can DOE extend beyond the Invention?

[Very Incomplete]

How does the substantive concept of the invention limit the doctrine of equivalents? A) It doesn't limit it all; DOE is equitable and courts can do what they want B) DOE is limited to the invention. In other words, DOE can only reach embodiments that were in fact conceived by the inventor. C) DOE is limited to the invention disclosed in the application and for some reason was not literally claimed – this option appears to conflict with the public dedication rule.

With B or C, DOE would not be available as a matter of course. Some argument would have to be made by the patentee that shows how the equivalent in question was part of their invention yet somehow failed to be claimed literally.

## V. Conclusion

Modern patent law does not think much about the invention. The term surely gets used but it is just a shorthand reference for the claimed subject matter. The patent system that has emerged from that trivial vision of the invention is failing to provide its promise of precision and accuracy. The problem is the trivial vision.

By seeing the invention as a substantive concept the patent system can improve both precision and accuracy. With a substantive vision, we once again put the invention at the center of patent law with the claims as an important yet administrative tools. Such a system gives claims meaning and that will aid uniformity in claim interpretation. And that system gives disclosure a unified purpose closely tying disclosure to claim interpretation and that should help resolve the conflict and instability plaguing disclosure.