

Appeal No. 2008-1248

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

ARIAD PHARMACEUTICALS, INC.,
MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
THE WHITEHEAD INSTITUTE FOR BIOMEDICAL RESEARCH, AND
THE PRESIDENTS AND FELLOWS OF HARVARD COLLEGE

Plaintiffs-Appellees

v.

ELI LILLY & COMPANY

Defendant-Appellant

Appeal from the United States District Court for the District
of Massachusetts in Case No. 02-CV-11280, Judge Rya W. Zobel

BRIEF OF *AMICUS CURIAE*
OSKAR LIIVAK
IN SUPPORT OF DEFENDANT-APPELLANT

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Dated November 18, 2009

CERTIFICATE OF INTEREST

Counsel for *Amicus Curiae* Oskar Liivak certifies the following:

1. The full name of every party or *amicus curiae* represented by me is Oskar Liivak.
2. The name of the real parties in interest (if the party named in the caption is not the real party in interest) represented by me is Oskar Liivak.
3. All parent corporations and any publicly held companies that own 10 percent of the stock of the party or *amicus curiae* represented by me are: None.
4. The names of all law firms and the partners or associates that appeared for the party or *amicus curiae* now represented by me in the trial court or are expected to appear in this court are:

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STATEMENT OF IDENTITY AND INTEREST

I teach and write about patent law and policy at Cornell Law School. I have no personal interest in the outcome of this case. My interest in this case is to contribute to the development of patent law and policy. No part of this brief was authored by counsel for any party, person, or organization besides myself. This brief is filed in response to the Court's invitation to file amicus briefs in this matter without leave of Court, as indicated in the Court's order in this matter dated August 21, 2009.

SUMMARY OF ARGUMENT

As applied today, enablement is not enough. 35 U.S.C. § 112¹ requires more. To keep patent claims from exceeding the disclosed invention, there must be a written description requirement in addition to enablement.

On numerous occasions, the Supreme Court has emphasized that patent claims cannot exceed the disclosed invention. The invention is the specific, complete and operable solution conceived by the inventor for solving some pressing problem. To claim the invention, the inventor must disclose the invention in the specification. Though it needs to be specific and complete, the invention need not be narrow. In many instances, inventors disclose a broad conception of the invention. When they do, they can claim broadly. But when they do not, they can only claim narrowly if at all. Written description and enablement police this fundamental limit. Together they ensure that the specification provides objective evidence that the patentee did in fact conceive and invent as broadly as claimed. In other words, valid claims under § 112 can only extend to subject matter whose conception is corroborated by the specification. Conception is complete when an inventor

¹ For ease of discussion, unless otherwise noted, reference to 35 U.S.C. § 112 or § 112 is a shorthand reference to the non-best mode portion of 35 U.S.C. § 112 ¶ 1.

can instruct those skilled in the art to practice the specific and complete invention. It is complete when the inventor can instruct others both *what* to make as well as *how* to make and use it. The written description requirement is this first requirement while the enablement requirement is the second. Together these requirements ensure that claims do not exceed the disclosed invention as they require the specification to corroborate that the inventor conceived and invented the claimed subject matter.

As applied today, enablement alone cannot adequately police this fundamental limit. Despite its clear statutory mandate to enable *the invention*, enablement has instead focused on enabling the claimed subject matter. It allows claims to extend to subject matter that a person of skill might find (without undue experimentation) based on the patentee's generalized instructions. Such a standard alone does not ensure that the claims are limited to subject matter conceived and invented by the patentee. § 112 requires claims (even original claims) to be limited to the disclosed invention and, as applied today, enablement alone is not enough. Written description makes up the needed difference.

ARGUMENT

I. The Supreme Court has repeatedly underscored a fundamental limit: claims cannot exceed the invention.

A. Patent claims can only be granted to inventors for their discoveries.

The Supreme Court has held on numerous occasions that, at most, inventors can claim only that which they themselves invented. *See O'Reilly v. Morse*, 56 U.S. 62, 120-121 (1854) (“[The patentee] can lawfully claim only what he has invented...”); *see Evans v. Eaton*, 20 U.S. 356, 430 (1822) (“it is clear that the party cannot entitle himself to a patent for more than his own invention”).² The Court in *O'Reilly* goes on to conclude that “[i]n fine, [Morse] claims an exclusive right to use a manner and process which he ... had not invented.... The court is of opinion that the claim is too broad, and not warranted by law.” 56 U.S. at 120-21.

² *See also Agawam v. Jordan*, 74 U.S. 583, 602 (1869) (“No one is entitled to a patent for that which he did not invent ...”); *Morey v. Lockwood*, 75 U.S. 230, 240 (1869) (“Several objections are taken to this reissued patent; among others, and which is the most material, that the claim is broader than the invention.”); *Ensten v. Simon, Ascher & Co.*, 282 U.S. 445, 452-53 (1931) (describing the “principle which forbids a patentee to assert a right to more than he has actually invented”); *see also Wyeth v. Stone*, 30 F. Cas. 723, 727 (C.C.D. Mass. 1840)(Justice Story) (“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”); *O'Reilly*, 56 U.S. at 121 (describing the “the evil ... if [a patentee] claims more than he has invented although no other person has invented it before him.”).

Such repeated emphasis on this limit is not surprising as the requirement stems directly from the constitutional mandate to grant exclusive rights only to Inventors for their discoveries. *See* U.S. Const. art. I § 8 cl. 8; *see also Thompson v. Boisselier*, 114 U.S. 4, 11 (1885)(quoting Art. I. § 8 Cl. 8 and stating that “[t]he beneficiary [of the patent laws] must be an inventor, and he must have made a discovery.”). The subject matter that is claimed by a patent must be original to the inventor. *See In re Trade-Mark Cases*, 100 U.S. 82, 93-94 (1879)(holding that Art. I § 8 Cl. 8 and therefore both patents and copyrights require originality).³

B. The invention is the specific means conceived by the inventor for achieving some useful ends.

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.” *Electric Railroad Signal Co. v. Hall Railway Signal Co.*, 114 U.S. 87, 96 (1885). Importantly,

³ *See Burrow Giles v. Sarony*, 111 U.S. 53, 60 (1888)(“when [someone] has secured ... a patent, the question ... of originality is always open to examination.”); *see also* R. CARL MOY, *MOY’S WALKER ON PATENTS* § 1:15 (4th ed. 2003)(“[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.”). There is a difference between novelty and originality. *See Pennock v. Dialogue*, 27 U.S. 1, 23 (1829)(J. Story)(noting the difference between novelty and originality: “if known or used before his supposed discovery [the inventor] is not the first, although he may be a true inventor”).

the desired result, the “object” of the invention, is *not* the invention itself and it cannot be claimed as such. *Id.* 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.” *O’Reilly*, 56 U.S. at 119.

The Supreme Court and patent law generally have further refined this by turning to the notion of conception. The Supreme Court has held that “the word ‘invention’ in the Patent Act unquestionably refers to the inventor’s conception....” *Pfaff v. Wells Electronics*, 525 U.S. 55, 60-61 (1998); *see also Collar Co. v. Van Dusen*, 90 U.S. 530, 563-64 (1874)(“The ‘inventor,’ in patent law, is the person or persons who conceived the patented invention.”); WILLIAM C. ROBINSON, I THE LAW OF PATENTS 91 (1890) (“An 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.”).

Other references to invention or inventor in 35 U.S.C. already focus on conception. For inventorship, this Court determines *who* invented an invention based on conception. *See Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227-28 (Fed. Cir. 1994)(“Conception is the touchstone of

inventorship.”). For priority, this Court determines *when* an inventor invents an invention based on conception. *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.”). 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” 56 U.S. at 68.

C. A complete conception requires a permanent and complete invention as well as an operable method for making and using that invention.

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.’” *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). 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.” *Id.* 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.” *Mergenthaler v. Scudder*, 11 App. D.C. 264, 1897 C.D. 724 at 731 (D.C. Cir. 1897). 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.” *Cameron v. Brick*, 1871 C.D. 89 at 90 (Comm’r Pat. 1871). 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.

This Court has held that “[c]onception requires both the idea of the invention’s structure and possession of an operative method of making it.” *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). For example in *Board of Education ex rel. Florida State University v. American Bioscience, Inc.*, this Court 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. 333 F.3d 1330 (Fed. Cir. 2003); *see also Fiers v. Revel*, 984 F.2d 1164 (Fed. Cir. 1993).

II. § 112 objectively prevents claims that exceed the disclosed invention.

A. § 112 requires the specification to objectively prove what was invented.

As conception is 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. *See Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1228 (Fed. Cir. 1994)("[b]ecause [conception] is a mental act, courts require corroborating evidence"). 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.

The Telephone Cases, 126 U.S. 1, 273-74 (1888)(emphasis added). 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.” *O’Reilly v. Morse*, 56 U.S. 62, 120-121 (1854); see also *Mackay Radio & Tel. Co. v. Radio Corp. of America*, 306 U.S. 86, 98 (1939)(holding that certain “claims ... must fail, because such structures are not within the invention described in the application.”).

Importantly, what determines whether a patentee has come “within the domain of [] patent law” is whether the patentee has described how his specific conception can be applied and employed so “as to lead to a result.” *Id.* 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.⁴ 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.

⁴ For this reason, a specification that satisfies § 112 constitutes constructive reduction to practice.

B. The language of § 112 requires disclosing the complete conception.

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.⁵ These two requirements and their overall purpose in documenting 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].” 35 U.S.C. § 112. 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].” *Id.* 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*. The written description portion of § 112 ensures that the specification describes the complete invention as it will be carried out in

⁵ 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 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.

practice while enablement ensures that the specification describes how to make and use that invention.

This Court and its predecessors have interpreted the disclosure requirements in this way. The “patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that ‘the inventor invented the claimed invention.’” *Regents of the University of California v. Eli Lilly*, 119 F.3d 1559, 1566 (Fed. Cir. 1997)(citing *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 (1997)). And as Judge Rich put the question in *In re Ruschig*: “Does the specification convey clearly to those skilled in the art, to whom it is addressed, in any way, the information that appellants invented that specific [claimed] compound?” 379 F.2d 990, 996 (C.C.P.A. 1967). Other cases have also drawn connections between “the standard for proving conception” and the “adequacy of support in a disclosure for a claim.” *Spero v. Ringold*, 377 F.2d 652, 660 (C.C.P.A. 1967).

In particular, the Supreme Court has cautioned that “[t]he omission to mention in the specification of something which contributes only to the degree of benefit, providing the apparatus would work beneficially and be worth adopting without it, is not fatal, while the omission of what is known to be necessary to the enjoyment of the invention is fatal.” *Sewall v. Jones*, 91

U.S. 171, 186 (1875). Thus, if a process is claimed, and if *anything* is essential to that process, then inventor needs a complete and operative description of those *things*. See *In re Howarth*, 654 F.2d 103, 105 (C.C.P.A. 1981); *In re Ghiron*, 442 F.2d 985, 991 (C.C.P.A. 1971).

C. There is nothing onerous about requiring disclosure of the complete conception.

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.” 35 U.S.C. § 115. 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.

III. Enablement, as currently applied, is not enough.

A. Enabling the full scope of the claimed subject matter does not necessarily enable the invention.

The invention is referenced three times in § 112. Independent of how those references are parsed into subtests, as a whole § 112 requires the specification to disclose the inventor's complete and operative conception of her invention. One of those references occurs at the heart of the enablement requirement and thus even leaving aside for the moment the other two references, it is instructive to examine the role of the invention in enablement itself and to examine whether the enablement as applied today stays faithful to that statutory mandate.

Everyone accurately quotes the statutory language that enablement requires the specification to disclose enough so as to “enable any person skilled in the art ... to make and use [the invention]....” 35 U.S.C. § 112. Yet in operation it is not clear that enablement stays true to that language. Discussion of enablement often drops invention altogether. In some instances enablement requires only that claim scope be roughly commensurate with the specification's contribution. *See In re Fisher*, 427 F.2d 833, 839 (C.C.P.A. 1970) (“[§ 112] requires that the scope of the claims must bear a reasonable correlation to the scope of enablement provided by the specification to persons of ordinary skill in the art.”). The focus is turned away from the

invention and instead to the “contribution” or the “teaching” of the specification. The danger in focusing on teachings or contributions is that allowable claim scope may then expand to include subject matter not conceived and invented by the inventor.⁶ Furthermore, all sorts of information may well contribute or teach but patents are granted for a specific kind of teaching: the contribution must be an invention.⁷ *See Brenner v. Manson*, 383 U.S. 534, 535-36 (1966) (“This is not to say that we mean to disparage the importance or contributions to the fund of scientific information short of the invention of something ‘useful’....[b]ut a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion.”).

Enablement should not focus on what persons of skill *could* make and use based on the specification or what *might be obvious* based on the

⁶ As originality and inventorship of the claimed subject matter are rooted in the constitutional language, the proper interpretations of § 112 most certainly cannot ignore *the invention* in enablement or in § 112 generally. *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”).

⁷ Noting in this brief is intended to resurrect the ghost of the “requirement of invention” that preceded 35 U.S.C. § 103. The focus here is on *what* is the invention. It does not seek a return to a state of the law where an invention would be unpatentable because it fails “to involve a mysterious quality called ‘invention’” *Giles S. Rich, Why and How Section 103 Came to Be*, in *NONOBVIOUSNESS - THE ULTIMATE CONDITION OF PATENTABILITY* (John F. Witherspoon ed., 1980).

specification. Instead, the focus should remain faithful to the statutory language. § 112 requires the specification to disclose the invention (i.e. the inventor's specific, complete way of solving some relevant problem) and for enablement, the specification must enable a person of skill to make and use that specific invention.

Most cases do not completely ignore the invention language in enablement yet their application of it leaves room for confusion. For example consider the discussion of enablement in this Court's decision in *AK Steel Corp. v. Sollac*. 344 F.3d 1234 (Fed. Cir. 2003). The Court correctly quotes the statute finding that enablement requires the specification to disclose how "to make and use [the invention]." *Id.* at 1241. Yet the Court goes further to operationalize that requirement stating that "a patent specification must enable the full scope of a claimed invention" or further that "[a]ll questions of enablement are evaluated against the claimed subject matter [and] [t]he focus of the examination inquiry is whether the substantial scope of the claim is enabled." *Id.* at 1244. The focus of the enablement inquiry jumps from "the invention", to "the claimed invention," and then to "the claimed subject matter." This would not be problematic if the invention was in fact the claimed subject matter. But it is not. The claims are not the invention as a logical, conceptual and practical matter.

As a logical matter, the purpose of § 112 is to test whether the specification can corroborate that the claimed subject matter was in fact invented by the patentee. Written description asks whether the specification can corroborate that the claimed subject matter was part of the inventor's complete and permanent idea of the invention. By assuming that the claimed subject matter is in fact the invention, the current enablement requirement assumes away an important part of the statutory inquiry. In a sense, enablement today is improperly stated as a leading question: if *asked* to make and use an embodiment covered by a claim, could a person of skill in the art do so after reading the specification? By including in the enablement test itself what we want the person of skill to be able to make and use, a critical part of § 112 has been missed. Instead § 112 needs to ask *would* a person of skill “following the specification strictly ..., without more, construct” the claimed subject matter and would they know how to use that subject matter. *The Telephone Cases*, 126 U.S. at 563.. The latter standard addresses more faithfully whether a specification enables a person of skill to make and use *the invention*.

Furthermore, as a conceptual matter, the invention is not the claims. Claims only “measure the invention.” *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 232 (1942); *see also Cont'l Paper Bag Co. v. E. Paper Bag*

Co., 210 U.S. 405, 419 (1908). Claims are fences; they are boundaries that circumscribe the invention. Though closely related to the invention, claims themselves are not the invention. See *United States v. Adams*, 383 U.S. 39, 48-49 (1966)(noting the distinction by stating that “claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention.”). Other cases further highlight the difference. See *O’Reilly*, 56 U.S. at 120-121 (noting that the claims must follow the invention in time by stating that one cannot claim what one has not described and cannot describe what one has not invented); see also *Autogiro Co. of America v. United States*, 384 F.2d 391 (Ct. Cl. 1967)(“An invention exists most importantly as a tangible structure or a series of drawings. A verbal portrayal is usually an afterthought written to satisfy the requirements of patent law....Things are not made for the sake of words, but words for things.”).

And lastly, as a practical matter even when dealing with original claims, it is improper to view enablement as only requiring enabling the claimed subject matter rather than enabling the invention. To their credit, Plaintiffs-Appellees at least argue that a “necessary” component of enablement is “describ[ing] ... what the invention is....” *Principal Brief of Plaintiffs-Appellees* at 43. Yet they then argue that, as a practical matter, this

is largely irrelevant for original claims because original claims “necessarily identify the subject matter they define.” *Id.* at 44. This suggests that for original claims, there is no practical difference between asking whether persons of skill can make and use “the invention” or whether they can make and use “the claimed subject matter.” Indeed, in some instances this may be, as a practical matter, a harmless substitution *but it is not in all circumstances*.

There is no doubt that the original claims are part of the specification and as a result claim language itself *can sometimes* be used to satisfy the requirements of § 112. *See* 35 U.S.C. § 112 ¶ 2; *see also Hyatt v. Boone*, 146 F.3d 1348 (Fed. Cir. 1998)(“The claims as filed are part of the specification, and may provide or contribute to compliance with § 112.”). This may be especially true for claims that employ structural language. They can often themselves corroborate that the claimed subject matter was in fact part of the inventor’s complete conception. For example, *In re Gardner* this Court’s predecessor found that “claim [2], in itself constituted a description in the original disclosure ...[and] [n]othing more is necessary for compliance with the description requirement of the first paragraph of 35 USC 112.” 475 F.2d 1389, 1391 (C.C.P.A. 1973). Importantly, the claim at issue in *In re Gardner* recited a structural formula for a compound wherein the “R(1)” group of the claimed compound was either a “hydrogen, methyl, methoxy, chlorine, and

bromine” group. *Id.* That original claim itself did corroborate that as of the filing date the inventor had a complete and permanent idea of the claimed subject matter. In other words, the claim language itself evidenced *what* was invented. The claim itself disclosed structural details of the invention and it therefore satisfied the written description portion of 35 U.S.C. § 112. Similarly eight years later in *In re Koller*, this Court’s predecessor held that inclusion of the limitation “a liquid medium” in an original claim satisfied the description portion of 35 U.S.C. § 112 and thus allowed the claim to be interpreted to cover both water based and non-water based mediums despite the fact that no language outside the original claim supported non-water based liquid mediums. *In re Application of Koller*, 613 F.2d 819, 824 (C.C.P.A. 1980). In *Koller* as in *Gardner* the claim language itself evidenced conception of the claimed subject matter. *Id.* For such claims, the written description portion of § 112 is satisfied by the claims themselves. From the claim language itself, a person of skill can glean *what* was invented. The rest of the specification would only need to disclose how to make and use that invention. In such circumstances, it may appear that for original claims there is no separate written description requirement and one might even conclude that little practical harm can result from replacing “the invention” with “the claimed subject matter” in the enablement inquiry.

B. Functional and non-structural claims themselves do not disclose the invention.

Despite the fact that the claims in *Koller* recited structure, the opinion in *Koller* goes on to state that “original claims constitute their own description.” *In re Application of Koller*, 613 F.2d 819, 824 (C.C.P.A. 1980). Yet as only structural claim language was being examined, nothing suggests that this statement from *Koller* should be interpreted broadly to establish that any original claim constitutes its own description.

For example, claims that use non-structural limitations or functional language generally do not corroborate the conception of the subject matter that they cover. Such function language only corroborates that the patentee contemplated the useful end result. And as emphasized by the Supreme Court, contemplating the end result is not enough. *See Electric Railroad Signal Co. v. Hall Railway Signal Co.*, 114 U.S. 87, 96 (1885). For functional claims, the claim language itself may do very little to corroborate the conception of the complete way to perform the recited function. Such claims do little more than to suggest “a desired end or result.” *Fiers v. Revel*, 984 F.2d 1164, 1168-69 (Fed. Cir. 1993). In order to be valid under § 112, the specification must disclose the complete and operative “means” that the inventor conceived. *Id.* Functional language itself does not corroborate that

they had gone further toward a complete invention. If such a claim is to satisfy the written description requirement, the rest of the specification must disclose the complete means that give the desired ends.

In addition, functional language often leads to broad claims. As this Court noted in *Geneva Pharms., Inc. v. GlaxoSmithKline*, “a functional limitation covers all embodiments performing the recited function.” 349 F.3d 1373, 1384 (Fed. Cir. 2003). Thus, to satisfy § 112, the specification must corroborate that the patentee did in fact conceive of all of the claimed embodiments that perform the recited function. As shown below, there are cases where inventors can claim broadly but to do so the specification must disclose a similarly broad conception.

C. Written description is not new and it is not industry specific.

Importantly, this link between functional claiming and confusion over the proper tests for § 112 may also explain why the written description appears to be a recent requirement. Until recently in patent history, functional claims were generally forbidden. *See Holland Furniture Co. v. Perkins Glue Co.*, 277 U.S. 245, 257 (1928)(“That the patentee may not by claiming a patent on the result or function of a machine extend his patent to devices or mechanisms not described in the patent is well understood.”); see also III WILLIAM C. ROBINSON, *THE LAW OF PATENTS* 133 (1890) (“Another

objectionable form of Claim is that which claims the result accomplished by the use of the invention, instead of the invention by whose use the result is attained.”). Where structural claim language is used, then as suggested above, the claim language itself may corroborate that the claimed subject matter was part of the inventor’s complete invention. In those circumstances, written description would rarely appear as a nontrivial requirement for original claims.

But since then this per se rule has been relaxed. For example since 1952, the patent statute has expressly allowed for means plus function claiming but the statute expressly limits the scope of those claims to the specific embodiments disclosed in the specification. *See* 35 U.S.C. § 112 ¶ 6. Furthermore though, patentees may now even use functional language even outside the confines of mean plus function claiming. Despite relaxing the historical prohibition, the underlying concerns have not vanished. “[U]nder the better view today, functional language in claims is not objectionable per se so long as it avoids [the] problems of undue breadth and vagueness.” DONALD CHISUM, CHISUM ON PATENTS, § 8.04 (2009). As functional claiming become more prevalent, the written description requirement (though always present) became more visible. Furthermore, this explains what otherwise might appear as an industry specific requirement. As the

biotechnology industry has often relied on functional claim language, it may come as no surprise that invalidation due to written description appears with greater frequency in that industry.

IV. Supreme Court precedent allows broad claims when the specification discloses a broad conception.

Tilghman v. Proctor is an example of a disclosed, broad conception that supports a broad claim. *Tilghman v. Proctor*, 102 U.S. 707 (1881). 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. *Id.* at 712-13. 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, *Id.* at 730-31 and he described variations in temperature that could be employed. *Id.* at 732-33. 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. *Id.* at 726.

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. *Id.* at 723-27. 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 Neilson 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.” *Id.* at 726. Neilsen had conceived of a very broad method applicable “whatever form was adopted for the receptacle” *Id.* 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. 159 U.S. 465 (1885). 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 materials from which to construct the filaments. *Id.* at 471. The patentees Sawyer and Mann disclosed in the patent that they had reduced to practice filaments made from both carbonized paper and wood carbon. *Id.* at 466. Their first claim though was broad covering a filament constructed 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.” *Id.*

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.” *Id.* at 472. 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. *Id.* at 477.

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.

CONCLUSION

§ 112 has a coherent purpose. It simply asks whether the specification can objectively corroborate that the patentee conceived and invented the claimed subject matter. As applied today, enablement focuses on enabling the claimed subject matter and not enabling *the invention*. That standard alone does not do enough. As long as enablement continues to ignore its mandated focus, there must be a separate written description requirement that when combined with enablement ensures that claims do not exceed the disclosed invention.

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Ithaca, New York
November 18, 2009

By _____
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CERTIFICATE OF COMPLIANCE

Pursuant to Rule 32(a)(7)(C) of the Federal Rules of Appellate Procedure, I certify that the foregoing Brief of *Amicus Curiae* Oskar Liivak in Support of Defendant-Appellant complies with the type volume limitations of Rule 29(d) of the U.S. Court of Appeals for the Federal Circuit. I further certify that the body of this brief – not including the cover page, table of contents, table of authorities, Appendix, and certificates – contains 6,442 words as determined by Microsoft Word 2007, including the statement of interest, summary of argument, headings, footnotes, quotations, signature lines, and date.

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CERTIFICATE OF SERVICE

I, Oskar Liivak, hereby certify that I caused two copies of the foregoing Brief of *Amicus Curiae* Oskar Liivak in Support of Defendant-Appellant to be served this 18 day of November, 2009, by first class mail, postage prepaid, upon each of the following sets of Counsel:

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