Saving Functional Claiming: The Mismatch of § 112 Reform in the § 101 Reform Debate

BY KRISTEN OSENGA

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Contents

I. Introduction ............................................................................................................................................................................2
II. Functional Claiming and Its Discontents ..............................................................................................................................2
   a. What Functional Claiming Is .................................................................................................................................................3
   b. What People Say About Functional Claiming .......................................................................................................................4
      i. Historical Claims About Functional Claiming ...................................................................................................................4
      ii. Functional Claiming in the Current § 101 Reform Discussion .........................................................................................4
III. Saving Functional Claiming ...................................................................................................................................................5
   a. Why Functional Claiming is Critical for Innovation .................................................................................................................6
   b. Functional Claiming Does Not Need to Be Fixed ..........................................................................................................................6
      i. Functional Claiming Is Not A Problem ....................................................................................................................................7
      ii. Existing Law Can Ensure Overbroad Claims Are Not Unfairly Enforced ..............................................................................7
   c. Functional Claiming Must Be Disentangled from the Current § 101 Discussion ...................................................................9
      i. Separate Doctrines, Different Purposes ......................................................................................................................................9
      ii. If Functional Claiming Is a Problem, Fix It Separately & Intentionally .............................................................................10
IV. Conclusion ............................................................................................................................................................................10
I. Introduction

Patent-eligible subject matter, the doctrine that explains what types of inventions may be patented, is a mess. Over the last decade, the Supreme Court decided four cases that resulted in an unworkable test for patent eligibility and created extreme uncertainty and instability in the patent system. Although the United States Patent & Trademark Office attempted to provide guidance and clarity about patent-eligible subject matter through its 2019 Revised Patent Subject Matter Eligibility Guidance, courts quickly made it clear that the Patent Office’s attempt to fix patent eligibility was in vain. If the doctrine of patent-eligible subject matter will not be fixed by the courts and cannot be fixed by the Patent Office, the last hope for clarifying this area of law rests with Congress.

In May 2019, a bipartisan group of Senators and Representatives set out to do just that. The group released a draft bill specifically aimed at undoing the Supreme Court’s confusing precedent and providing clear guidance on patent-eligible subject matter. Through early June 2019, Senators Tillis and Coons held public hearings about the draft bill and then held another round of closed-door meetings in August 2019. The testimony received at the public hearings in response to the draft bill, as well the many comments shared in the media before and after the hearings, have been mixed. Much of the commentary responding to proposed amendments to § 101 of the Patent Act, the provision that governs patent-eligible subject matter, has been favorable. However, the Tillis-Coons draft bill also includes a proposed amendment to § 112(f), the statutory provision that governs functional claiming. The purported basis for amending § 112(f) is to address a concern about overbreadth that lead to preemption, one of the justifications the Supreme Court has used throughout its patent-eligible subject matter decisions. The proposed changes to § 112(f) have drawn sharp criticism from numerous stakeholders.

Today’s innovations are often claimed using functional language. The amendment to § 112(f) as proposed by the draft bill would force a more narrow interpretation of functional claims resulting in negative consequences: the proposed changes to § 112(f) permit infringers to avoid liability by making small changes to the technology described in a patent.

II. Functional Claiming and Its Discontents

The claim defines the invention that is protected by a patent. It is what the inventor claims as the invention that is novel, useful, and nonobvious. Thus, it is the key component of the patent. As Judge Giles Rich famously said, “the name of the game is the claim.”

Functional claiming, or claiming an invention by what it does rather than what it is or what it is made of, is not a new phenomenon. Claims written in this way date back as early as the twentieth century and probably even before. Although claims had a different nature and purpose in the nineteenth century, as the patentee set forth the central “principle” of
the invention, there were still familiar aspects of what we now recognize as functional claiming.\(^8\)

For as long as functional claiming has existed, there have been concerns about its use. However, Congress expressly provided in § 112 of the 1952 Patent Act that functional claiming is a valid way to secure an invention in a patent.\(^9\)
Since this is a technical issue in patent law, this Section describes what functional claiming is and why it has remained controversial for so many years.

**a. What Functional Claiming Is**

Functional claim elements are generally drafted using the term “means” followed by a statement of function.\(^10\) Where a typical claim element may call for a “nail” to fasten two components of a device together, a functional claim element may instead recite “means for fastening component A to component B.” This type of claiming is provided for by 35 U.S.C. § 112(f), which states:

> An element in claim for a combination may be expressed as a means or step for performing a specified function without the recital of a structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.\(^11\)

This provision allows patentees to overcome some of the inherent limitations of using language to delineate a novel idea by focusing on the function of the claim element.\(^12\)
But functional claiming is not boundless. The statute clearly explains that the scope of the element is limited to the associated structure, material, or acts recited in the specification and their equivalents. In fact, functional claiming is often viewed as “narrow” and “easy for potential infringers to evade” because the “equivalents” language of § 112(f) is interpreted quite narrowly by courts.\(^13\)

Functional claim language is generally analyzed in three stages. First, a court must determine whether the element appropriately falls under § 112(f). Second, a court must use the traditional tools of claim construction to interpret what function is being claimed. Third, a court must identify the “corresponding structure” in the specification that is associated with the function as construed. The second stage is not unique to functional claiming, but a set of rules and presumptions have developed around the first and third stages that are unique to this type of claim.

As to the first stage, determining whether the claim element is drafted in functional terms, the Federal Circuit has stated that the use of the term “means” by the claim drafter creates a presumption that the element is to be analyzed under § 112(f).\(^14\) While the reverse is generally true, that § 112(f) does not apply in the absence of the use of the term “means,” the Federal Circuit has also stated that a claim element that recites a “function without reciting sufficient structure for performing that function” will also invoke § 112(f).\(^15\) Alternatively, if the term “means” is used but the element in question is not a function, or if the element in question also includes sufficiently “definite structure,” then the presumption that the claim element falls under § 112(f) is rebutted.\(^16\)

As to the third stage, the court must identify a structure or technology in the description of the invention in the patent (what is called the “specification” in patent law) that is capable of literally performing the specified function.\(^17\) The functional claim element is then construed as covering the identified structure, as well as any equivalent. Equivalence is found where the accused structure performs the claimed function in substantially the same way as the structure identified in the specification and the performance achieves substantially the same result as that achieved by the identified structure. If the specification does not describe fully a structure that performs the claimed function, then the claim is deemed “indefinite” and the claim is invalid.\(^18\)
b. What People Say About Functional Claiming

Functional claiming is not new. Although the practice became widespread by the 1940s, a Supreme Court opinion in 1946 made the practice less attractive. In *Halliburton Oil Well Cementing Co. v. Walker*, the Court invalidated the patent claims as indefinite because the patent was drafted entirely in functional terms. The Supreme Court’s seeming disapproval of functional claiming resulted in Congress incorporating § 112(f) in the 1952 Patent Act, which clarified the validity of this type of patent claim and reinvigorated interest in functional claiming. But as long as there has been functional claiming, there have been assertions that the practice is problematic.

i. Historical Claims About Functional Claiming

In general, complaints about functional claiming arise from the belief that the patentee is somehow able to claim more within the scope of one’s patent than what one would have been able to claim as one’s invention if one had described the invention in terms of its structure, material, or specific actions if it is a process. Some have argued that functional claiming allows the capture of non-patent-eligible subject matter, especially when it comes to high-tech inventions like computer software programs. For example, Professor Jay Thomas notes that “functional claiming . . . makes the technology appear more abstract and contributes to the sense that such [computer-related] inventions lie without the patent system.” Others assert that functional claiming allows the patentee to protect more than they invented. Professor Mark Lemley has stated that functional claiming permits the inventor to “capture[] ownership not of what they built, but of anything that achieves the same goal.”

The common thread of many of these complaints focuses on software inventions. As Professor Lemley has noted, “software gives patentees the opportunity to take abstraction in patent claiming to an extreme.” This is because computer hardware provides no real limitation or constraint on how the functions are implemented. The purpose of our computers is to run any program on the hardware in our desktops, laptops, or phones. With other fields of invention in which functional claiming is used, when looking at the specification for the structure that performs the claimed function, the result will be something tangible. For example, the claim “means for fastening” discussed in the prior Section would be interpreted to include nails, brads, screws, and the like, as these would be examples set forth by the inventor in the specification of the patent. But with software, the structure that performs the claimed function does not necessarily include a physical structure. The function of a software program is achieved by software code, as set forth by a programming language and ultimately by the binary 1s and 0s the computer uses in its actual operations. Therefore, “software inventions can only be reasonably defined by reciting what the software does or how it performs in functional terms.” The email program composes, sends, and receives email, for example. Due to this technological fact, commentators have taken special issue with functional claiming for software-related inventions. Professor Kevin Collins has stated: “Software patents are overbroad.”

ii. Functional Claiming in the Current § 101 Reform Discussion

Advocates of the proposed § 112(f) reform argue that functional claiming should be fixed to combat the assertion of overbroad claims, essentially providing a backstop because the Tillis-Coons proposed bill would make § 101 more permissive. In an article published on Law360, Senators Tillis and Coons noted that their proposed revisions to § 112 would “prevent inventors from claiming all possible solutions to a problem while also serving to protect inventors against those seeking to profit on trivial modifications.” In reality, the bill may prevent inventors from effectively claiming their invented solutions to a problem. The amendment would allow infringers to make trivial modifications to the claimed technology and leave inventors without the means to protect their inventions.
The Tillis-Coons draft bill broadens the existing § 112(f) language by removing the requirement that the element must be “in claim for a combination,” as well as removing the language suggesting the provision is implicated when the claim element is “expressed as a means or step for performing” the function. These amendments specifically address the Federal Circuit’s imposed presumption regarding the use of the term “means” and makes the law of functional claiming applicable in many more circumstances. Specifically, regardless of whether the claim element is in combination, any patent claim element that names a function without also reciting a corresponding structure, material, or act would be subject to interpretation under § 112(f) and would thus result in a narrower interpretation and narrower claim scope overall.

This proposed change to § 112(f) presents two issues. First, some people believe that the Supreme Court was reacting to overbroad patent claims when it decided the four patent-eligible subject matter cases in the early 2010s. The mismatch of fixing overbreadth by addressing patent eligibility, these people claim, is the reason patent eligibility is a mess today. Although it is true that patent-eligible subject matter is a problem, there is no reason to amend an unrelated section of the Patent Act to fix patent eligibility. Second, until the hearings this summer, the discussion surrounding patent-eligible subject matter was squarely focused on amending § 101. The amendment to § 112(f) has been regarded by many as an effort to placate a vocal segment of the high-tech community that has enjoyed using patent-eligible subject matter as a quick way to dismiss patent infringement claims alleged against them. Giving to § 101 while taking away from § 112, carries great risk if the consequences of reforming functional claiming remain unaddressed.

While testifying during the Senate’s June hearings, Robert Armitage argued in favor of the proposed amendment to § 112(f) by citing the Morse telegraph case of 1854: “You can’t describe every way of using characters or communicating intelligible information at a distance with electromagnetism in a patent that only discloses the telegraph.” The Morse case, however, is more complicated than this characterization. Functional claiming under § 112(f), as we know it today, was not at issue nor was it even a statutory provision at that time. This comparison obscures the focus of the present legal and policy discussion.

On the other hand, those opposed to the proposed amendment to § 112(f) argue that expanding the scope of application of this section to more patents than it currently applies to would make it difficult, especially in today’s innovation economy, for patentees to protect the full scope of their inventions. By removing the limitation in the current § 112(f) to only certain types of claims at least one commentator has observed that “nearly every claim in every issued patent would become significantly narrowed in scope on the day of enactment to require (as a limitation) narrowing concepts named in the specification but deliberately omitted from the claim by the responsible claim drafter.” Far more, if not almost all, patent claims would be interpreted under § 112(f) and, because of that, these patent claims would be limited to the specification, resulting in a more narrow claim scope than is currently available. This would devalue nearly every invention based on a hypothetical theory that the Supreme Court intended to address overbroad claims rather than patent eligibility when it decided not one, but four, patent-eligible subject matter cases. Instead of an amendment that would narrow § 112(f), it is more prudent to save functional claiming.

III. Saving Functional Claiming

The proposed amendment to § 112(f), however well intentioned, will weaken a system that does not require repair. The sheer importance of functional claiming in today’s innovation economy is a significant reason for this, along with the fact that there are existing ways to rein in claim scope that are less likely to lead to unintended consequences. To properly assess and address functional claiming, it is necessary to disentangle it from the
current discussion on patent-eligible subject matter because these are different doctrines with different purposes and neither should be elevated simply to deny patent eligibility quickly.

a. Why Functional Claiming is Critical for Innovation

Recent remarks of Senator Tillis are heartening, noting that he and Senator Coons are “still working on” the draft bill, and specifically pointing to “concerns with 112.” Senator Tillis has stated “we’ve got to get some balance in there.” This is an important point, because functional claiming is critical in today’s innovation economy. Although functional claiming is integral in claiming software-related inventions, the utility of functional claiming expands well beyond this. Functional claim elements are vital in effectively claiming medical devices, diagnostics and treatment inventions, biotechnology, mechanical devices, and so much more. Moreover, software has invaded nearly all aspects of technology today, from kids’ toys to heavy equipment. Whether we are talking about software-related inventions, or inventions that integrate software into them, or inventions that have no software components at all—functional claiming is necessary to ensure inventors can obtain effective and reliable patent rights that are easily and efficiently drafted and read by others.

Many speakers at the June hearings focused on this point, including inventor Paul Morinville, speaking on behalf of US Inventor. Morinville first explained the costs the proposed amendments to § 112(f) would impose on inventors:

We use a robust full-featured language relevant to the field of the invention in order to precisely define this boundary of our invention. It is often proper and indeed necessary for a precise boundary to use functional language. … The proposed revisions to Section 112 would prohibit using functional language …, demanding that inventors describe each and every structure. … This will require an exhaustive and costly effort to catalog each and every structure that can achieve every function employed in the invention.

He then explained the proposed amendment’s unique burden on “tech patents,” a change that he claimed would be “disastrous.” He explained that “there are 571 coding languages each with multiple ways of doing the same thing. An inventor must list every imaginable way to avoid legal gamesmanship. This is an impossible task that will make most tech patents undefendable.”

It is odd, at a time when we are increasingly recognizing the importance, ubiquity, and extensive growth of high tech and often computer-related technology, that we do not fully understand the difficulties of protecting this technology with patents. For one example of how pervasive this type of technology is, see the recent notice published by the United States Patent & Trademark Office seeking comments on patenting artificial intelligence inventions. Functional claiming is a major aspect of ensuring the innovations of today, and those in the future, can be protected by patent.

b. Functional Claiming Does Not Need to Be Fixed

Not only is functional claiming important to nearly every sector of today’s innovation economy, there is little evidence that functional claiming needs to be fixed. Other than offering anecdotes and theoretical supposition, there is not compelling evidence that functional claiming results in unfairly overbroad claims. Even if functional claiming could result in improper, overbroad claims that cover more than what the patent owner actually invented, there are preexisting patent laws that effectively prevent this from happening.

i. Functional Claiming Is Not A Problem

A common argument is that functional claiming allows inventors to routinely claim more than that which they are
entitled. In making this argument, commentators either reference the Morse case (which is irrelevant to § 112(f) in its present day form) or the Halliburton Oil case (which caused Congress to specifically codify functional claiming), or else they simply suppose that inventors overreach because they can. Some stakeholders who oppose patents on software-related inventions do not even provide this level of support for reforming § 112; they simply assert they are harmed by overbroad functional claiming.

To the contrary, many of those who believe functional claiming is a problem also attach functional claiming to other specious concerns, like patent “trolls” or patent hold-up. The existence of these theoretical concerns – trolls and hold-up – have been routinely called into question by rigorous empirical work. With minimal solid evidence of the negative effects of functional claiming, these expressed concerns are unproven at best and dangerous at worst. By tying functional claiming to other speculative issues, the issue of functional claiming is used to devalue patent protection for today’s inventors.

ii. Existing Law Can Ensure Overbroad Claims Are Not Unfairly Enforced

Rather than introducing new provisions that could have unintended consequences, there are other existing provisions in the patent statutes that are used to provide reasonable limits on functional claims to ensure patent owners are protected in only what they have truly invented themselves. These other doctrines have proven their value over hundreds of years and thus there is a substantial body of judicial precedent that make their utility clear. Some of these doctrines include the other sections of § 112, including written description, enablement, and definiteness; claim construction; and the doctrine of equivalents.

1. Other Sections of § 112

The usefulness of other sections of § 112 in providing real boundaries for functional claiming is not a novel, or even a recent, idea. Judge Newman of the Federal Circuit remarked in 2015: “The court is not powerless to require software claims to comply with the statutory requirements of description, enablement, definiteness, …, etc. If there have been abuses, [ ] the remedy is not to eliminate the statute but to apply the statute.” Professor Arti Rai has also suggested that “certain Section 112 requirements could be applied more strictly” by examiners when assessing patent applications, especially for software-related inventions. Although Judge Newman and Professor Rai were referencing software-related inventions, the other requirements of § 112 are equally useful for non-software inventions.

The written description and enablement requirements are set forth in § 112(a), which mandates that the specification include “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 [relevant] art . . . to make and use” the invention. Courts have interpreted the written description requirement as compelling the inventor to disclose the invention in sufficient detail as to “convey[ ] to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” The enablement requirement, on the other hand, demands the inventor’s disclosure be sufficient to enable “one skilled in the art to make and use the claimed invention”; it need not be completely enabling so long as undue experimentation is not required.

Either or both of these doctrines easily suffice as limits on the scope of functional claiming. Although proponents of the proposed amendments to § 112(f) claim that functional claiming is nearly limitless, the reality is that the inventor, in order to satisfy the other obligations of § 112(a), must demonstrate that one did indeed invent, or possess, the described invention and also explain how the invention is to be made and used. Thus, written description and enablement, as the doctrines currently exist, serve as real limits on functional claim scope.
Claim definiteness, a requirement set forth in § 112(b), has also long been used as an actual limit on the scope of functional claims. This provision states that the patent specification “shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.” Particularly in the area of software-related inventions, this requirement has been used to cabin in the scope of functional claims. Courts have held that, if a patentee uses functional claiming, and then discloses only a general-purpose computer as the structure to perform that function, the claim is indefinite and the patent is invalid. This doctrine has also proven useful in policing the scope of patents in non-software related inventions.

These legal tools are already available, and they could be developed further if they were pressed into use more often. Assuming there is a problem with functional claiming, it is easy to provide genuine limits on functional claims with existing legal rules in the patent statutes. As Senator Tillis has noted, the purpose for amending § 112(f) is “so that vague business methods and generic computer claims can’t pass muster and be weaponized against small businesses, startups, and entrepreneurs.” The requirements already provided for in §§ 112(a) and (b) already require much more than vague and generic descriptions and claims; amending functional claiming is not the answer.

2. Claim Construction

The legal rules for interpreting patent claims—what patent lawyers call “claim construction”— are already being used to provide limits on functional claiming, in a similar manner to the proposed amendment. In the Williamson v. Citrix Online, LLC, case, the Federal Circuit overruled the previously “strong” presumption that a claim element that does not recite the term “means” does not fall under § 112(f); rather, the primary inquiry is “whether the words of the claim are understood by persons of ordinary skill in the art to have a sufficiently definite meaning as the name for structure.” This case has already made more patent claims susceptible to interpretation under § 112(f) as it is currently written and courts have already adopted well to this change. Professor Paul Gugliuzza provides a few examples of how federal district courts have altered their approach to claim construction of these types of claims following Williamson. Professor Gugliuzza notes that courts now have wide discretion via claim construction in determining whether to treat a claim element as claimed functionally, “giving courts more leeway in deciding whether to treat a limitation as a means-plus-function limitation.” Using claim construction, rather than a formulaic inquiry about the use of the term “means,” in conjunction with the requirements of written description, enablement, and definiteness described above, provides courts with ample tools to ensure functional claims are not given too broad a scope.

Some commentators argue that the proposed amendment to § 112(f) simply codifies the Williamson case. However, the changes go much further than the ruling in this case. While the Williamson case allowed courts more discretion to apply § 112(f) in cases where the term “means” is not used but the claim element lacks structure, the proposed change to functional claiming in the draft bill also removes the notion of combination claims. As explained above, by eliminating both the combination requirement and the “means” aspect, nearly every claim in every patent could fall under § 112(f). This is well beyond the outcome produced by Williamson.

3. Reverse Doctrine of Equivalents

Although the reverse doctrine of equivalents (reverse DOE) is a relatively obscure and rarely used legal doctrine in patent law, it could easily be revived to address the concerns of overbreadth in functional claiming. To understand how the reverse DOE works and how it could serve to cabin claim scope, a brief discussion of the more common forward DOE is necessary before turning to the reverse DOE.

Forward DOE allows liability for patent infringement to be found even where the accused product or process does not literally
infringe the patent claim, “if there is ‘equivalence’ between the elements of the accused product or process and the claimed element of the invention.” Forward DOE thus allows a patentee to claim an exclusive right over things not explicitly claimed in the patent so long as the differences are insubstantial. The justification for this doctrine is usually given as the difficulty of capturing the boundaries of a new invention using words.

Reverse DOE, on the other hand, states that where an accused device falls within the literal language of the claims but is so far changed in principle from the patent claims that it performs a similar function but in a substantially different way, there is no liability. As Professor Derek Bambauer has noted, “[t]he enablement requirement and the reverse doctrine of equivalents perform a similar role.” As he explains, the enablement requirement prohibits the inventor from failing to provide sufficient technical details while the reverse DOE exempts from liability an accused device that falls within the literal language yet is sufficiently different to be a separate invention. Even though the Federal Circuit has essentially barred use of the reverse DOE, there is no reason it could not be reinvigorated to provide courts with yet another tool to ensure functional claims are not given overbroad claim scope. Specifically, the scope of any functional claim element could be limited to include only those structures that function in substantially the same way and exclude structures that, although they are literally equivalent, function in a substantially different way.

Functional claiming is important to today’s innovation economy and there is little evidence to suggest that functional claims are stifling innovation or competition due to their perceived overbreadth. Even if functional claiming does run the risk of excess claim scope, there are plenty of existing doctrines in patent law that could be used – separately or in conjunction to ensure functional claim elements are not given limitless interpretation. In any case, as discussed in the next section, it is important to disentangle functional claiming from the current § 101 reform discussion.

c. Functional Claiming Must Be Disentangled from the Current § 101 Discussion

Concerns about allegedly overbroad patents, especially in the area of software-related inventions, have become enmeshed with the current discussion about patent-eligible subject matter. This may be due to a lingering hostility toward intellectual property protections for software-related inventions. It also may be to appease technology sectors that have been reliant on quick invalidations of competitors’ patents under § 101. I have written about both of these issues in the context of patent-eligible subject matter since 2007, and other commentators have been arguing since the early 1990s that software should not be patented. The concerns are not new, but the Tillis-Coons proposal to essentially open § 101 to today’s innovations while closing § 112(f) as a practical mode for claiming these types of inventions is troubling. To the extent that functional claiming needs to be fixed, it should be assessed and amended separate from the proposed amendments related to patent-eligible subject matter.

i. Separate Doctrines, Different Purposes

Patent eligibility and functional claiming are separate legal doctrines, each serving different purposes within the Patent Act. The purpose of § 101 and its listing of patent eligible categories of inventions and discoveries, “process, machine, manufacture, or composition of matter,” limits patent protection to “the useful arts” – that is, technology, broadly defined. As the Supreme Court has noted, the patent-eligible subject matter provisions of the patent law “have been cast in broad terms to fulfill the constitutional and statutory goal of promoting ‘the Progress of Science and the useful Arts’ with all that means for the social and economic benefits envisioned by Jefferson.” Section 101, properly read, is simply a coarse filter to ensure patents are granted on technological advances. The Tillis-Coons proposed amendment to § 101 intentionally overrules extra-judicial overlays on patent eligibility and returns the law of patent-
eligible subject matter back to the simple, straightforward statutory text that has always existed and should have always been applied by the courts.

Functional claiming, on the other hand, is permitted by §112(f) in part because Congress recognized the limitations of words when describing certain types of inventions. The only boundary placed on functional claiming is the scope of the property right in the claim is limited to the structures described in the specification and their equivalents. Section 112(f) provides a careful balance “allowing patentees to express a claim limitation by reciting a function to be performed rather than by reciting structure for performing that function, while placing specific constraints on how such a limitation is to be construed.”

There is nothing about functional claiming that ties it to patent-eligible subject matter; it exists for a different purpose and is subject to a different set of rules and case law. The changes proposed by the Tillis-Coons draft bill, with respect to functional claiming, are not returning this doctrine to its proper place, but instead imposing additional limitations without any evidence the doctrine, as it is currently being applied, is broken and in need of repair.

Philip Johnson, Chair of the Steering Committee for 21st Century Patent Reform, said it best that the proposed §112(f) amendment “is not necessarily part of the solution to our current patent eligibility problem,” even if it does deserve further study regarding its own merits.

**ii. If Functional Claiming Is a Problem, Fix It Separately & Intentionally**

Problems associated with functional claiming should be fixed intentionally and separately from current efforts to resolve patent-eligible subject matter. There are many unintended consequences and unexplored issues that will accompany the proposed changes to §112(f) and, before taking these missteps, it would be better to look carefully at how changing functional claiming will affect patent law and innovation more broadly.

At least one commentator has noted that expanding the applicability of §112(f) would create more problems than it would solve. Eric Blatt argues the Tillis-Coons proposal may “increase litigation expenses, hinder business planning, and . . . undermine the effectiveness of Sections 102 and 103 in combatting meritless assertion of overbroad claims.” Blatt notes that the revisions to §112(f) would also extend claim scope uncertainty, defeating the notice function of claims and impeding settlement or other efficient resolution of patent assertions. This cannot be what Senators Tillis and Coons were intending to achieve with this proposal.

**IV. Conclusion**

An amendment to §112(f) without first demonstrating that it needs to be fixed is not the proper avenue to effectuate patent reform. Many of the most important and most innovative technologies today benefit from being claimed in functional language; to propose patent reform that would eviscerate the ability to draft functional claims would hinder, rather than promote, this type of innovation. If functional claiming needs to be fixed, and that is a big “if,” then do it separately and intentionally, not as a knee-jerk reaction to appease those who are opposed to §101 reform.

Kristen Osenga is the Austin E. Owen Research Scholar & Professor of Law, University of Richmond School of Law
Endnotes


2. See, e.g., Cleveland Clinic Foundation v. True Health Diagnostics LLC, 760 Fed. Appx. 1013, 1020 (Fed. Cir. 2019) (“While we greatly respect the PTO’s expertise on all matters relating to patentability, including patent eligibility, we are not bound by its guidance.”).


4. See Chisum on Patents § 8.04 (describing functional claiming cases from the early twentieth century).


6. See, e.g., 3 Chisum on Patents § 8.04 (describing functional claiming cases from the early twentieth century).


10. See Janis, supra note 5.


13. See Mark A. Lemley, Software Patents and the Return of Functional Claiming, 2013 Wis. L. Rev. 905, 913. See also Janis, supra note 5, for a lengthy discussion on how equivalents are determined for the purpose of functional claims.


15. See Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1349 (Fed. Cir. 2015) (en banc).


17. See Finisar Corp. v. DirecTV Grp., Inc., 523 F.3d 1323, 1340 (Fed. Cir. 2008).


19. 329 U.S. 1, 12-13 (1946).


22. In addition to software, Professor Lemley also associates functional claiming with patent thickets and patent trolls. See id.

23. See id. at 919.


25. See id.


29 See Mossoff, supra 7.


32 See id.

33 See, e.g., Kristen Osenga, Debugging Software’s Schemas, 82 Geo. Wash. L.Rev. 1832, 1838 (2014).


35 See id. at 30.

36 See id.

37 See Request for Comments on Patenting Artificial Intelligence Inventions, 84 FR 44889 (Aug. 27, 2019) (“Artificial Intelligence (AI) is increasingly becoming important across a diverse spectrum of technologies and businesses. [...] Execution of AI invariably requires some form of computer implementation...”).

38 See, e.g., Collins, supra note 15, at 1411-1414 (doing all three).


41 Williamson v. Citrix Online LLC, 792 F.3d 1339, 1362 (Fed. Cir. 2015) (en banc) (Newman, J., dissenting).


44 Atrial Pharm., Inc. v. Eli Lilly & Co., 598 F.3d 1336, 1351 (Fed. Cir. 2010).

45 See, e.g., Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1384 (Fed. Cir. 1986).


50 Williamson v. Citrix Online, LLC, 792 F.3d 1339, 1349 (Fed. Cir. 2015) (en banc in relevant part).


52 See id. at 1240.


54 Derek E. Bambauer, Paths or Fences: Patents, Copyrights, and the Constitution, 104 Iowa L.Rev. 1017, 1027 (2016).


59 See Chisum on Patents § 1.01.
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+1.202.974.2400
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