



July 18, 2019

Robert Schmidt  
Kevin Burns  
Co-Chairmen

Senator Thom Tillis  
Brad Watts, Legislative Council  
Senate Judiciary Committee  
Subcommittee on Intellectual Property  
Dirksen Senate Office Building, Room 185  
Washington DC 20510

Jere Glover  
Executive Director

Larry Nannis  
Treasurer

Matt Oristano  
Mid-Atlantic  
Regional Chair

Subject: SBTC Position Statement on Proposed Patent Legislation for Sections 100, 101, 112

Ash Thakker  
Southeast  
Regional Chair

References: 1. Draft Bill released May 22, 2019, for Sections 101, 100(k), and 112(f)  
2. Phone call of July 3, 2019.

Mary Delahunty  
Southwest  
Regional Chair

Dear Mr. Watts:

Russ Farmer  
Mountain  
Regional Chair

Thank you for allowing the Small Business Technology Council (SBTC) to provide comments on the proposed legislation (the Draft Bill released May 22) during our phone call of July 3, 2019. SBTC ([www.SBTC.org](http://www.SBTC.org)) is the technology council of the National Small Business Association (NSBA, [www.nsba.biz](http://www.nsba.biz)) which has celebrated more than 80 years representing America's small-business owners. NSBA is a staunchly nonpartisan organization with 65,000 members in every state and every industry in the U.S. NSBA is proud to be the nation's first small-business advocacy organization and was the founder of the "small business movement" in the United States.

Michael Browne  
Pacific  
Regional Chair

Paul Donovan  
Michael Squillante  
NIH Committee  
Co-Chairs

SBTC is the nation's largest organization of small technology-based companies, with members in diverse fields. Our mission is to protect the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs to help grow the American economy, create jobs, and facilitate the public/private partnerships to develop the next generation of new technologies. SBTC is the largest organization representing SBIR/STTR award winners working across government agencies. SBIR companies produce more patents than all U.S. universities combined, and small businesses create 2/3 of all new American jobs.

Ash Thakker  
Phase III Committee  
Chair

Russ Farmer  
DCAA Committee  
Chair

Jonathan Kaplan  
Patent Committee  
Chair

We appreciate this opportunity to provide more detailed comments, for entry into the official record on the proposed legislation.

#### Comments re Section 101:

The SBTC is pleased to support the changes to Section 101 as currently embodied in the Draft Bill, subject to satisfactory treatment of the Additional Legislative Provisions ("ALP"). Our support is contingent on the ALP having the same permanent and general force of law as the codified provisions of the Draft Bill. Furthermore, to ensure full notice to the public at large, we strongly believe that all elements of the Draft Bill with force of law (including the ALP) must be codified.

SBTC concurs with the many witnesses who testified that patent eligibility doctrine under Section 101 has become untethered from the text of the statute. This tangled body of judicially created law poses an existential threat to our patent system – a system that has made the U.S. innovation economy the envy of the world over the past two centuries. As Senator Tillis and Senator Coons astutely framed the issue, “Why should we cede our competitive edge at this critical juncture?”

We regard as crucial the Draft Bill’s removal of the term “new” from Section 101. Whether an invention is of a *type* that is patent-eligible (e.g., whether it is an example of a “process, machine, manufacture, or composition of matter”) is a distinctly different consideration from whether the invention is novel and non-obvious. There is nothing to be gained, and much to be lost, by combining two such disparate concepts in a single statutory provision. It should already be clear that Section 101 was written to only define permissible *types* of inventions, since the single word “new” is the *only textual hook* it shares in common with the novelty/non-obviousness requirements of Sections 102/103.

Nevertheless, in its *Mayo* and *Alice* decisions, the Supreme Court developed a non-statutory test for eligibility based on the notion of parsing a claim to determine if it contains an “inventive concept” sufficient to transform a claimed abstract idea into patent-eligible subject matter. The Court explained that “well-understood, routine, and conventional” activities or claim elements cannot form an “inventive concept.” This is a *novelty* consideration that apparently stemmed from the word “new” in Section 101. As a result, the Court’s final step in the *Alice/Mayo* test has plagued Section 101 jurisprudence with the hunt for the “inventive concept” and a required showing that the claim contains something “more.” The removal of the term “new” will ensure that the claim as a whole, with all its limitations treated equally, will be evaluated for eligibility.

While the Draft Bill is effective at preventing conflation of Section 101 with Sections 102/103, we believe it still does not sufficiently address conflation of Section 101 with issues of enablement under Section 112(a). We note there is a substantial risk that the proposed legislation may still not adequately protect inventions where the disclosed embodiments rely upon a combination of novel programming with general-purpose hardware. So long as a process is claimed with sufficient specificity such that its execution on general-purpose machinery is enabled, it is irrelevant whether the process is also capable of performance by the aided or unaided human mind. A provision addressing the issue should be technology neutral, since this inventive paradigm has already appeared across a wide range of technologies, including: molecular level programming (such as found in DNA), the programmable electronic memories of computers, and the “qubits” of the highly active research area of quantum computers.

Finally, we believe the Additional Legislative Provisions prohibiting judicially-created exceptions to subject matter eligibility are critical to ensuring that appropriate incentives are available in fields (such as artificial intelligence) that rely on continued innovation of computer algorithms. Patent eligibility is essential to ensuring America’s continuing competitive advantage in this domain.



Comments re Section 100(k):

SBTC believes that, as proposed, Section 100(k) is harmful to small company inventors and should be stricken from the Draft Bill. The term “useful” or “utility” has a well-defined, clearly understood, and noncontroversial meaning in patent law. We see no need to upset this settled body of law by creating new statutory language.

Specifically, the proposals to require that an invention’s utility occur in a “field of technology” and “through human intervention” would create unnecessary complexity and invite wasteful litigation. Put simply, utility need not and should not be at issue in the vast majority of patent disputes. Any alleged infringer who would argue that utility is at issue will end-up supplying her own proof to the contrary if the alleged infringement and resulting damages are proven at trial. By definition, the infringer’s “utilizing” the claimed invention demonstrates that the invention is useful.

Redefining “useful” as proposed could have significant negative consequences. As just one example, is the utility of a Rubik’s Cube (or of any other gaming device) situated in a “field of technology”? Likewise, the requirement for “human intervention” would cast doubt on patent eligibility for any autonomous system. Autonomous systems represent a massive area of research, across many fields, because of their potential to increase both productivity and quality of life. As just a few examples, autonomous systems research has a central role in the fields of artificial intelligence, robotics, and even for items as commonplace as automated communication routers or switches. Under many reasonable interpretations of the phrase, any one of which may be adopted by the courts, all these systems could be found to operate without “human intervention.”

Even if the proposed definition does not result in an absolute bar to the patentability of many important inventions, adding a requirement of “human intervention” will increase costs for obtaining and defending patents, increase litigation, and generally be harmful for the economy, including American job creation. Perhaps most importantly, it will make America less competitive in world markets, since our greatest economic competitors, particularly China, have recognized the importance of autonomous systems. Why would we purposely throw away American jobs, so that the rest of the world can benefit at our expense?

However, in the event a new definition along the lines of Section 100(k) must be included, our support for the Bill would require a change substantially as follows:

**Section 100:**

(k) The term “useful” means any invention or discovery that provides specific and practical utility in any field of art technology through human intervention.

We believe the above-listed changes result in language representing a much more accurate codification of existing legal standards for “utility,” and would do so without inviting harmful litigation over the meaning of the terms “technology” and “through human intervention.”



Comments re Section 112(f):

SBTC strongly opposes the proposed changes to Section 112(f), since we believe they remove crucial limitations on its applicability:

- it only applies to “combination” claims, and
- it removes the presumption of non-applicability if an inventor does not include either of the terms “means for” or “step for.”

For reasons explained below, the proposed amendments to Section 112(f) would “snatch defeat from the jaws of victory,” by completely undoing any benefit derived from the Draft Bill’s reform of Section 101. The proposed changes would have profound negative consequences, both for small businesses and the U.S. economy.

Our preferred position is to simply add the following underlined sentence to currently-effective Section 112(f):

**Section 112:**

**(f) Element in Claim for a Combination. —**

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of 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. A claim element that does not recite the words “means for” or “step(s) for” shall not invoke this paragraph unless a claimed function is explicitly specified, and the claim as a whole is wholly devoid, explicitly or implicitly, of any limitation on the range of potential embodiments for implementing the claimed function.

However, if this modification, or its substantial equivalent, is not acceptable, then our support would require striking the currently-proposed changes altogether from the Draft Bill, thereby leaving current 112(f) unchanged.

We oppose the proposed changes to Section 112(f) for two principal reasons.

**First**, the proposed change to Section 112(f) would disproportionately deny small businesses the ability to effectively protect their inventions. A patent claim that is construed under Section 112(f) is limited to the structures disclosed in the specification and “equivalents thereof”—that is, the claim would cover only devices that operate in “substantially the same way” to achieve “substantially the same result.”

Under current law, businesses generally avoid having their patents narrowly construed under Section 112(f) by eschewing the term “means” and other nonce words in their claims. As of 2010, only about 10% of patents contained a “means for” claim limitation.<sup>1</sup> This choice is effective because current law quite reasonably presumes that a claim that lacks the word

---

<sup>1</sup> <https://patentlyo.com/patent/2011/07/the-frequency-of-means-plus-function-claims.html>.

“means” was not intended to invoke Section 112(f).<sup>2</sup> The proposed change to Section 112(f) would eliminate that presumption, and in so doing, would make it almost impossible to predictably avoid construction under Section 112(f). Countless technical terms are defined by their function: screwdriver, transceiver, resistor, server, display, processor, etc.

It is impossible to predict how the courts would respond to the proposed abrogation of the current framework. This is itself problematic for small businesses, who will be forced to make decisions in the shadow of an uncertainty that will take at least years, and likely decades, to resolve. However, based on statistical analysis of case law, one can reasonably expect the proposed changes will put Section 112(f) at issue in 70% of cases—perhaps more.<sup>3</sup>

In cases where Section 112(f) is invoked—which would very likely become the modal outcome under the proposed text—an opportunist can free-ride off an innovator’s investment by analyzing the patent specification and using an obvious substitution for just a single part, so long as it happens to operate in a different way than the part described in the specification. A patent that describes adhesive might be designed-around by using screws; a patent that describes using Wi-Fi might be designed-around by using Bluetooth, etc.

This narrowing would be very nearly unavoidable. Even the most expert patent draftsman cannot anticipate every possible obvious variation for every single component to an invention. And patents, which routinely cost \$38,000 or more to obtain, are already far too expensive for many small businesses to afford.<sup>4</sup>

The situation for small business has already been greatly exacerbated by the elimination, under the AIA, of a secure one-year grace period. Prior to the AIA, assuming she was first to invent, an inventor could rely on a grace period of at least one year (from the date of conception) for having an application on file. During the year, and without needing to pay legal fees, an inventor could seek outside investors for funding business development (including patent procurement) costs. For individual or small business inventors with limited funds, requiring significantly more patent work at greater expense and in less time is even more burdensome, thus resulting in fewer patents, less small business growth, and fewer new jobs.

It is easy to envision the Draft Bill’s change to 112(f) causing the need for 1,000-page patent application filings. Specifications could require repetitions of 50 or more times, for things like different fastening means or attachment structures. This would not only substantially increase

---

<sup>2</sup> *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1349 (Fed. Cir. 2015)

<sup>3</sup> See <https://www.ipwatchdog.com/2019/06/29/one-overlooked-consequence-congress-discards-alice-williamson-section-112f-challenges/id=110801/> (finding that merely weakening the presumption, per the 2015 *Williamson* decision, resulted in a 64% increase in the number of cases in which claim construction arguments under Section 112(f) were presented in litigation).

<sup>4</sup> Stuart J.H. Graham, Robert P. Merges, Pam Samuelson, & Ted Sichelman, “High technology entrepreneurs and the patent system: results of the 2008 Berkeley patent survey,” 24 *Berkeley Technology Law Journal* 1225, 1311 (2009) <http://ssrn.com/abstract=1429049> (Finding that the average out-of-pocket cost to obtain a patent was over \$38,000, not including invention costs).

costs for the applicant, for drafting and reviewing patent applications, but for the subsequent examination of such patent applications by the patent office.

It would also be easy to “get lost” in scores of iterations of means and structures of a same invention, differing only due to slight “tweaks” of insubstantial elements. This would make it hard to ensure every possible combination and permutation of the invention is covered. Conversely, it would make it easy to skip over what might seem like a meaningless variation, but one that would allow an “infringer” to make a trivial change and not be liable for infringement. In addition to burdening the inventor and the patent office, evaluating scores of possible “design arounds” would be extremely difficult for a judge, and almost impossible for a jury. This would tend to clog the judicial system. These uncertainties would also likely be viewed as an unacceptable risk, for angel investors and venture capitalists, often resulting in a decision not to invest. The end result is less incentive to invent, fewer new companies being created, and fewer American jobs. All of these changes would make invention protection, and ultimate justice, more expensive, making America less competitive.

Moreover, empirical evidence shows a trend over the last few decades of patent claim scope *erosion*, where on average, courts have gradually construed claims more narrowly over time.<sup>5</sup> The proposed changes of the Draft Bill for 112(f) would only serve to accelerate the erosion trend, making it even more difficult for small business to protect their innovations.

The loss of claim protection due to the proposed Section 112(f) amendments would also make it much more difficult for American businesses to prevent foreign entities from stealing their intellectual property abroad and importing infringing goods into the domestic market. Through the U.S. International Trade Commission (“ITC”), Congress provided remedies for patent holders under Section 337 of the Tariff Act, wherein the ITC may issue an exclusion order that directs U.S. Customs to stop imports of the unauthorized infringing articles from entering the U.S. To obtain an exclusion order, the patent holder must prove not only the imported goods infringe, but also that there exists a domestic industry employing a patent claim being asserted against the importer-infringer. Many companies, however, make continual improvement to their products, where such improvements often consist of substituting one type of component for another. A substituted component may serve the same function but operates differently. Under the proposed Section 112(f), the ITC is much more likely to find a patentee has strayed beyond the scope of his claims with a substitution (if not have them invalidated altogether), making it more difficult to establish *both* infringement and domestic industry. This will substantially erode protections from unfair foreign competition.

By significantly increasing the risk that a business’s patents will not adequately deter opportunistic copying—both foreign and domestic—the proposed changes to Section 112(f)

---

<sup>5</sup> Ron D. Katznelson, “Patent Continuations, Product Lifecycle Contraction and the Patent Scope Erosion.” *Southern California Law Associations Intellectual Property Spring Seminar*, June 8-10 (2007). <https://ssrn.com/abstract=1001508> (Showing at 36 in Figure 6 the 30-year trend wherein the probability that a court finds a claim infringed declined from about 75% to 25%).

will likely eviscerate small businesses' incentive to invest the extraordinary amount of time and resources required to bring the next wave of great inventions to market.

**Second**, under the proposed reform, many small businesses would unintentionally invoke Section 112(f), and their patents would be invalidated for reasons that are hyper-technical and profoundly unfair. Where a claim term is found to invoke Section 112(f), but no corresponding structure is described in the specification, the patent claim will be invalidated as indefinite, even if that structure is technologically trivial.

Functional claim language is often used to describe the background environment in which an invention operates.<sup>6</sup> Consider, for example, a patent to a revolutionary algorithm that detects neurological disease based on the sound of your voice, but which also recites a “receiver” for obtaining voice samples and a “transmitter” for sending results. If the inventor omits a description in her patent specification of the structure of the receiver or transmitter, because it is well known to those skilled in the art, she will have met all other requirements of Section 112, but her patent claim may still be invalidated for failing to comply with new Section 112(f). The net result is a company quite possibly destroyed—notwithstanding the tremendous value of the invention.

The proposed change would thus create a kind of “trap,” whereby small businesses routinely lose their patents for failing to describe mundane structures that surround their inventions. This undermines faith in the patent system, and it would punish innovation.

### Conclusion:

In sum, the proposed amendments to Section 112(f) would unduly narrow claim scope, impede effective enforcement of American intellectual property against foreign theft, increase the cost and complexity of patent drafting, and cause countless small businesses to unfairly lose their patents. For all these reasons, SBTC could not support any bill including the proposed amendments to Section 112(f) contained in the Draft Bill. This is a “poison pill” we cannot swallow.

Furthermore, in summary, SBTC believes:

1. Section 101 should have the Additional Legislative Provisions codified in the Draft Bill so there is no confusion as to what the law is.
2. Section 100(k) should be deleted.
3. Section 112(f) should remain as is or clarified as we propose. We strongly oppose the draft bill language as it will hurt small business and the economy.

---

<sup>6</sup> See, e.g., <https://www.ip-watch.org/2018/07/19/dangers-means-plus-function-limitations-us-patent-prosecution/> (analyzing a Federal Circuit case in which a patent was nearly invalidated for failing to describe conventional software for making a pointer move on a computer screen).



Thank you again for listening to our concerns and permitting us this opportunity to comment.

Sincerely,  
Small Business Technology Council

A handwritten signature in black ink that reads "Robert N. Schmidt". The signature is written in a cursive style with a horizontal line underneath.

---

Robert N. Schmidt,  
Co-Chair

A handwritten signature in black ink that reads "Jonathan T. Kaplan". The signature is written in a cursive style with a horizontal line underneath.

---

Jonathan T. Kaplan,  
Patent Committee Chair