TESTIMONY OF JOHN D. VANDENBERG

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BEFORE THE SUBCOMMITTEE ON INTELLECTUAL PROPERTY
U.S. SENATE COMMITTEE ON THE JUDICIARY

HEARING JUNE 11, 2019

# THE STATE OF PATENT ELIGIBILITY IN AMERICA: PART III

TABLE OF CONTENTS

Chairman Tillis, Ranking Member Coons, and distinguished members, thank you for the opportunity to comment on the draft bill text. My comments and recommendations are my own, and not made on behalf of my firm or its clients.

## I. Summary Of Recommendations

1. Do not erase centuries of common law on this complex issue. Patenting the types of ideas the courts today consider "abstract" will harm innovation, especially so when they are useful and innovative ideas. (*See* Appendix D listing of "abstract ideas" identified by Federal Circuit post *Alice*.)

2. Ask selected witnesses to submit language overturning *Mayo*, but not *Alice* or *Myriad*—even if they disagree with that approach. This will not be easy, but such a targeted question to this diverse group of experts might lead to a workable legislative solution that spurs innovation in personalized medicine, for example, without harming innovation in other areas.

3. Remember that some big U.S. patent holders are in China, and could use U.S. patents on useful and innovative mathematical algorithms, mental processes, and desired results, etc.—that they cannot patent today under *Alice*—to harm U.S. businesses and innovation. (*See* Appendix A list of 210 Huawei patents issued in May.)

4. Amend Sec. 112(f) as proposed, namely to remove unnecessary and confusing language, but make that amendment prospective only.

5. Also add to Sec. 112(f) this sentence: "The Director shall identify each such claim element in the record of the patent." This will promote both patent clarity and also fairness to inventors.

## II. My Experience

I am a member of the Patent bar (Reg. No. 31,312) and have been continuously litigating patent cases for 37 years. Since 1991, I have been a partner in Klarquist Sparkman, LLP, an intellectual property law firm in Portland Oregon with about 60 attorneys and patent agents.

I successfully argued on behalf of Nautilus in the Supreme Court's only Section 112 case in the past 69 years, *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120 (2014). There, the Court strengthened enforcement of the Patent Act's clarity and precision demand in 35 U.S.C. § 112(b).

For fifteen years, I have authored "Patent Defenses" (www.patentdefenses.com), a (225,000 + word) running summary of substantive patent law decisions of the Federal Circuit and Supreme Court.

## III. Summary Of Comments On Draft Bill Text

Below are brief comments on the specific language of the May 22, 2019, draft bill text released by Chairman Tillis and Ranking Member Coons, which is the subject of this hearing.

| Discussion Draft | Comments |
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| 100(k). The term "useful" means any invention or discovery that provides specific and practical utility… | Disagree.<br><br>1. As explained herein, Sec. 100(k) almost surely would permit patents on useful and innovative math, mental steps, information manipulation, and desired results (unlimited to a particular way to achieve the result), all of which would harm innovation.<br><br>2. "Specific and practical utility" is already the law and is toothless, meaning "totally incapable of achieving a useful result." *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1571 (Fed. Cir. 1992). Few seek a patent on, and even fewer infringe a patent on, something incapable of a useful result.<br><br>3. This defines an adjective, "useful," with a noun "invention or discovery," which might, or might not, engender some confusion. |
| …in any field of technology… | Disagree.<br><br>1. Whether a class of patents tends to chill innovation more than promote it, depends more on the nature of the claimed invention and how it is claimed than the nature of the field in which the invention is utilized.<br><br>2. Some might try to marry this language with the foregoing "specific and practical utility" language to imply a requirement of "technological utility," implying that the utility arises from technology rather than from math, a mental process, information manipulation, etc. But that would be a forced reading and at best would engender years of confusion and unpredictability.<br><br>3. Better language would be "provides a technical solution to a technical problem," in part because this has some meaning in existing patent law here and in Europe. But, this would need to be accompanied by legislative history distinguishing "technical" from "business," "financial," "mathematical," and other examples of what is not |

| Discussion Draft | Comments |
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| | "technical." It also should distinguish merely using a technological tool, such as running a new formula on a computer. But even this alternative language and clarification, however, would not justify abrogating the "abstract idea" exclusions to eligibility, which are much better established and defined after centuries of case law. |
| … through human intervention. | No opinion.<br><br>1. While this language would exclude some natural products, it would do little, if anything, to preserve the eligibility exclusions of mathematical algorithms, mental processes, etc., as humans normally program the processors or build the circuits doing the math, mental process, etc. |
| 101(a) Whoever invents or discovers any ~~new and~~ useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title. | Agreed, so long as the legislative history indicates that this change is not meant to alter any existing Supreme Court patent eligibility jurisprudence but rather to avoid redundancy with Sec. 102's novelty requirement. |
| (b) Eligibility under this section shall be determined only while considering the claimed invention as a whole, without discounting or disregarding any claim limitation. | Disagree.<br><br>1. This is already the law. As part of *Alice* Step One, the entire claim is considered to determine the nature of the claimed advance, i.e., the focus of the claim. If that focus is ineligible subject matter, then Step Two examines the remainder of the claim to determine if it is limited to an innovative application of that ineligible subject matter. That is a rational approach and considers all claim limitations. |
| 112(f) Functional Claim Elements—An element in a claim ~~for a combination may be~~ expressed as a ~~means or step for performing~~ specified function without the recital of structure, material, or acts in support thereof shall be construed to cover the corresponding structure, material, or acts described in the | Agreed.<br><br>1. Deleting "for a combination" makes sense. There is no good reason why a single-element claim cannot make use of the claiming safe harbor that is Sec. 112(f).<br><br>2. Deleting "means or step for performing" is a good and important change. Sec. 112(f) was added to the Patent Act in response to Supreme Court decisions that claims reciting a function to be performed or result achieved without |

| Discussion Draft | Comments |
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| specification and equivalents thereof. | specifying how, are invalid for not particularly pointing out and distinctly claiming an invention. Sec. 112(f) did not overturn that case law. Instead, it gave patent applicants a drafting shortcut, allowing them to put the necessary "how" in the patent's disclosure not the claims. And, it gave patent owners a safe harbor from an indefiniteness determination based on "functional" claiming, so long as the patent complied with Sec. 112(f). Neither of these reasons for the statute turn on whether the drafter includes the words "means for" or "step for." The deletion of those words will remove this source of unnecessary confusion in the construction of patent claims. |
| **Additional Legislative Provisions:** | |
| The provisions of section 101 shall be construed in favor of eligibility. | Disagree.<br><br>1. This disregards our patent system's second engine of innovation, described below, and the harm caused to follow-on innovation from patents on abstract ideas. |
| No implicit or other judicially created exceptions to subject matter eligibility, including "abstract ideas," "laws of nature," or "natural phenomena," shall be used to determine patent eligibility under section 101, and all cases establishing or interpreting those exceptions to eligibility are hereby abrogated. | Disagree.<br><br>1. If not undone by other language in the bill, this would do great damage to our patent system. It would allow patents on innovative and useful mathematical algorithms, mental processes, business ideas, information manipulations, desired results, etc., which patents would harm innovation.<br><br>2. See Appendix A and B for post-*Alice* examples of ideas that this draft bill text likely would allow to be patented. |
| The eligibility of a claimed invention under section 101 shall be determined without regard to: the manner in which the claimed invention was made; … | No opinion.<br><br>1. This likely would do no harm, but it is unnecessary because courts today do not consider the manner in which the claimed invention was made. |
| …whether individual limitations of a claim are well known, conventional or routine; | Disagree.<br><br>1. This would seem to allow patenting of any innovative and useful business plan, formula, thought process, etc., so long as the claim recites a conventional computer. |

| Discussion Draft | Comments |
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| | 2. Step Two of *Alice*, already explained in 1978 in *Flook*, is a sound way of distinguishing technical solutions from non-technical (albeit useful and innovative) math or other ideas that can use technology (e.g., a computer) as a tool. |
| …the state of the art at the time of the invention; | Disagree, for the same reasons above. |
| …or any other considerations relating to sections 102, 103, or 112 of this title. | Disagree, for the same reasons above.<br><br>1. Also, Sec. 101, 112(a), and 112(b) overlap. Claims reciting a function to be performed or result achieved without specifying how this is accomplished, fail (1) the "particularly pointing out and distinctly claiming" mandate of Sec. 112(b), (2) the requirement that the full scope of a claim be supported by the patent's written description under Sec. 112(a), and (3) the "abstract idea" exclusion implied by Sec. 101. |

## IV. Weakening Sec. 101 Risks Chinese Companies Obtaining Abstract-Idea Patents Harming U.S. Businesses And Innovation

A recent WIPO report on worldwide AI patenting states: "there are around 100 Chinese institutions in the top 500 patent holders, while 17 out of the top 20 academic players are in China." *https://www.wipo.int/edocs/pubdocs/en/wipo_pub_1055.pdf*

In 2015, Huawei was the number one filer of PCT patent applications in the world. See *https://www.zdnet.com/article/huawei-tops-global-list-of-patent-applications/*.

In 2017, Huawei was the biggest filer of patents with the European Patent Office (EPO). See *https://www.zdnet.com/article/huawei-the-biggest-filer-of-patents-with-the-epo-in-2017/*.

By 2017, Huawei was number 22 in U.S. patents granted, and rising fast. See *https://www.ipo.org//wp-content/uploads/2018/06/2017_Top-300-Patent-Owners.pdf*.

In May 2019, Huawei obtained 210 U.S. utility Patents. See listing in Appendix A (including one design patent).

Weakening Sec. 101 risks giving Chinese companies "abstract" patent claims in AI and other next-generation technologies. This would include patents claiming desired results or functions without being limited to specific ways (how) to accomplish those functions or results. This risks chilling or blocking follow-on innovations of U.S. individuals and companies who would otherwise seek to design around existing patents by inventing and commercializing new solutions. Incentivizing such design-around inventing is our patent

system's second engine of innovation. Such "results" patents are a brake on innovation rather than the second engine of innovation our patent system depends upon.

## V. Our Patent System Depends On Its "Second Engine Of Innovation"

Much of the testimony and questioning has focused on our patent system's first engine of innovation, which uses the lure of monopoly profits or royalties to incentivize innovation, and the public disclosure of inventions in patents. The primary concern is that today's Sec. 101 jurisprudence harms that first engine of innovation, particularly in life sciences. A related objection is the perception that it is easier to get a patent in Europe and China than in the U.S. One counter-argument has been that *Alice* allows small businesses and technology companies to escape more quickly from abusive litigation.

Like several other witnesses, I can attest to the huge benefit *Alice* has been to small, medium and large software companies sued on "abstract idea" patents that never should have issued. I give one example.

> ETAP is a mid-size high tech software company employing about 150 scientists, engineers and others in Orange County, and about 500 employees worldwide. ETAP was founded by Dr. Farrokh Shokooh 33 years ago. His company makes highly sophisticated and complex software for analyses and real-time operation of electrical power systems, including in nuclear power plants.
>
> His company was sued by a company on four patents that were issued before *Alice*. It was obvious that the patents would be invalidated under *Alice* because their claims were very close to those of other patents in the same field that were invalidated under *Alice* by the Federal Circuit shortly after ETAP was sued. ETAP won on summary judgment under *Alice* and that was affirmed on appeal. Without section 101, we would have had to persuade a judge or jury on Sec. 103 or 112 or non-infringement in a very complex mathematical area, which would have cost ETAP at least an additional $2 Million in legal fees most likely.

But another important point mostly has been overlooked during this hearing: any revision to Sec. 101 can harm our patent system's second engine of innovation. (Mr. Mohr's testimony is one of the exceptions to this.)

The second engine of innovation starts the day a patent issues. The patent incentivizes others to design around the patent by inventing a new and perhaps better solution that they can commercialize without having to pay the patent owner a penny. The follow-on innovator often has no interest in obtaining his or her own patent.

This second engine of innovation depends on clear and precise patent claims, so the next innovator is reasonably certain of the boundaries she needs to design around, as the Supreme Court recognized in *Nautilus*.

But the second engine of innovation also depends on patent claims being strictly limited to the actual solution the patent applicant contributed. If patents instead covered all possible

ways of solving the problem, that would discourage others from even trying to design around the patent. They would just go home and watch cable news.

In short, having more patents or more easily obtained patents does not necessarily translate into more innovation, if those patents cover results or other abstractions that deter designing around the patents.

Some challenge the need for *Alice* by arguing that patents on old ideas merely adding "do it on a computer" limitations are prevented by Sec. 103 and Sec. 112. Others counter, correctly, that Sec. 103 and 112 are more expensive routes for invalidating such patents that never should have issued in the first place. But, as important, this challenge to *Alice* does not address patents on new math, new mental processes, new results, etc., that merely add "do it on a computer." Those claims harm the second engine of innovation and are not prevented, typically, by Sec. 103 or Sec. 112.

In considering any argument pro or con Sec. 101 reform, the impact on the second engine of innovation should receive as much attention as the investment and innovation spurred by the first engine of innovation and, on the other side, abusive-litigation concerns.

It is not surprising that the second engine of innovation has received little attention during this hearing. Those who would "design around" patents and innovate new solutions—or are thwarted from doing so by "abstract" patents—often never see the Patent Office, or a court. Therefore, the Patent Office and some judges have no direct contact with many such would-be innovators more interested in avoiding paying a royalty to another than in collecting royalties themselves. Yet, the Supreme Court for centuries has been cognizant of and protective of these would-be second innovators in balance with protecting the patent-seeking first innovators.

Part of the centuries' long common law the draft bill text would erase is the recognition and protection of this second engine of innovation. For example, the draft bill text would erase this decision and this guiding principle of the Supreme Court insisting that patent claims be limited to a particular way of achieving a desired result, rather than monopolize the result itself: "A patent is not good for an effect, or the result of a certain process" because such patents "would prohibit all other persons from making the same thing by any means whatsoever." *Le Roy v. Tatham*, 55 U.S. 156, 175 (1853).

## VI. *Alice* Bars Hollow Patent Claims That Chinese Companies Could Use To Harm U.S. Innovation

Sec. 101 today is the primary tool used by the Fed. Cir. to invalidate such results patent claims that would monopolize all possible solutions. Appendix C identifies some post *Alice* Federal Circuit decisions invalidating patent claims under the abstractness exclusion of Sec. 101 at least in part because the claims recited a result without being limited to how that result is accomplished.

The essential role of limiting patent claims to *how* a function or result is accomplished, rather than preempting all possible solutions, is served mostly by the "abstractness" exclusion implicit in Sec. 101. *E.g.*, *Univ. of Fla. Research Found., Inc. v. Gen. Elec. Co.*,

916 F.3d 1363 (Fed. Cir. 2019) ("Neither the … patent, nor its claims, explains *how* the drivers do the conversion …. [T]he drivers are described [in the specification] in purely *functional* terms: they 'facilitate data exchanges,' 'convert received data streams to a format independent of any particular bedside machine,' 'translate the data stream,' 'interpret data streams,' 'facilitate communications with the bedside machine,' and 'interpret [discrete] segments' in a 'data stream for the machine.'"); *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253 (Fed. Cir. 2016) ("There is nothing in claim 1 that is directed to *how* to implement out-of-region broadcasting on a cellular telephone. Rather, the claim is drawn to the idea itself."); *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343 (Fed. Cir. 2015) ("the end result of 'maintaining the state' is described as the innovation over the prior art," but "claim 1 contains no restriction on *how the result is accomplished*. The mechanism for maintaining the state is not described, although this is stated to be the essential innovation.").

This body of Federal Circuit cases enforces the same principles the Supreme Court enforced in the 19th Century, and since. *E.g.*, *White v. Dunbar*, 119 U.S. 47 (1886) ("the object of an invention is a very different thing from the invention itself. The object may be accomplished in many ways; the invention shows one way."); *Le Roy v. Tatham*, 55 U.S. 156, 175 (1853) ("A patent is not good for an effect, or the result of a certain process" because such patents "would prohibit all other persons from making the same thing by any means whatsoever."); *Corning v. Burden*, 56 U.S. 252, 268 (1853) (patents are granted "for the discovery or invention of some practicable method or means of producing a beneficial result or effect . . . and not for the result or effect itself").

More generally, today, thanks to centuries of common law, restated in *Alice*, Chinese companies cannot obtain computer or processor claims in U.S. patents directed to useful and innovative: mathematical algorithms, mental processes, information manipulation (see Appendix B), or results without specifying how to accomplish the result. These are four of the categories of "abstract idea" under current Sec. 101 jurisprudence.

Abrogating these and similar decisions would harm our patent system.

## VII. The Draft Text Would Almost Surely Allow Huawei And Others To Obtain Innovation-Harming Claims

The following draft bill text language—at least if read in isolation—expressly instructs courts that what today is considered an "abstract idea" (e.g., mathematical algorithms, etc.) is no longer ineligible for patenting (so long as other requirements are met):

> No implicit or other judicially created exceptions to subject matter eligibility, including "abstract ideas," "laws of nature," or "natural phenomena," shall be used to determine patent eligibility under section 101, and all cases establishing or interpreting those exceptions to eligibility are hereby abrogated.

Some argue that these eligibility exclusions nevertheless are preserved, despite this sweeping abrogation language, by Sec. 100(k) of the draft:

> The term "useful" means any invention or discovery that provides specific and practical utility in any field of technology through human intervention.

But this language almost certainly does not preserve any of these existing eligibility exclusions. The "specific and practical utility" language in Sec. 100(k) certainly does not. That language is already the law, and it is toothless. Per the Federal Circuit, an invention lacks specific and practical utility only if it is "totally incapable of achieving a useful result." *Brooktree Corp. v. Advanced Micro Devices, Inc.*, 977 F.2d 1555, 1571 (Fed. Cir. 1992). That's why patents are almost never invalidated for lack of specific and practical utility.

And processors are a "field of technology" and programmed by "human intervention."

I note the draft bill text does not refer to "technical solution to a technical problem." That would come closer to preserving the four patent-eligibility exclusions noted above (math, mental process, information manipulation, desired results), but still not adequately preserve centuries of common law, and certainly not with greater predictability.

In sum, any text similar to the draft bill text risks handing Chinese companies, and others of course, thousands of patents on useful math, useful mental processes, useful information manipulations, and useful results, in 5G, AI, and other technical fields, which patents they can use to harm U.S. businesses and innovation.

At a higher level, one reason why the Supreme Court has recognized that "abstract ideas" are outside the realm of patenting, is that they inherently are difficult to design around, inherently preempt more than they contribute, and inherently harm the system's second engine of innovation. This contrasts with patent-eligible subject matter that inherently embodies a particular way to solve a problem in the physical realm which, if correctly claimed, incentivizes others to design around the patent by innovating a different solution, all toward progress of the useful arts.

## VIII. It Is Not Feasible To Replace Centuries Of Common Law With A Few Sentences And Expect Greater Predictability

I question the premise that we can erase centuries of common law, including more than a dozen Supreme Court decisions and more than 80 Federal Circuit decisions, but then find a few words that somehow preserve the mathematics, mental process and other eligibility exclusions, and do so with increased predictability.

## IX. Some Arguments In Favor Of Radical Change Have No Basis In Fact Or Law

Many sound arguments have been made for and against various possible approaches. So have some unsound arguments. Two stand out.

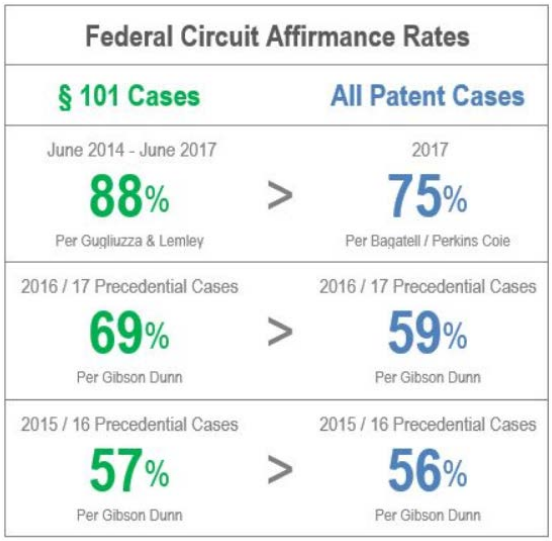
First, while the contrary view is popular, *Alice* is not new law. The following describes Step Two of *Alice*: "Even though a phenomenon of nature or mathematical formula may be well known, an inventive application of the principle may be patented. Conversely, the discovery of such a phenomenon cannot support a patent unless there is some other

inventive concept in its application." That quote is from a Supreme Court decision in 1978. *Parker v. Flook*, 437 U.S. 584, 594 (1978). That the Patent Office and Federal Circuit eventually strayed from and disregarded that Supreme Court precedent does not make its restatement in *Alice*, new law.

Second, while the contrary view also is popular, *Alice* is not an unpredictable mess, or particularly tricky or difficult. Patent ineligibility today under *Alice* is more predictable than claim construction, obviousness and indefiniteness. There are so many Sec. 101 precedents now that most claims one picks up are close to a claim that already has been approved or rejected under *Alice*. If it were a mess, we'd see a high percentage of reversals by the Fed. Cir. but we don't.

The Subcommittee may wish to ask a service like Docket Navigator to do an objective analysis of how district court and PTAB Sec. 101 rulings fare on appeal versus obviousness, written description and indefiniteness—as a measure of predictability.

But, in the meantime, below is some affirmance-rate data collected in 2018 by a patent litigation law firm from various sources, including a paper written by two witnesses at this hearing, with various caveats noted in the online article. Note that the second and third rows are limited to precedential cases and thus understate affirmance rates by not including summary affirmances without opinion.




Jeremy Anapol and Andrew B. Schwaab (Knobbe Martens), "*How Unpredictable is the Alice Analysis?*" (October 16, 2018), at https://www.knobbe.com/news/2018/10/how-unpredictable-alice-analysis#_ednref9 (citing in part, Paul R. Gugliuzza & Mark A. Lemley, *Can a Court Change the Law by Saying Nothing?*, 71 Vand. L. Rev. 765, 777 n.70 (2018).

Some have cited the large number of appeals of Sec. 101 decisions as a sign of unpredictability. But that is not the most logical explanation. If those appeals led to an unusually low rate of affirmance, that would be a sign of unpredictability. But, the

affirmance rates are higher for Sec. 101 than for other issues it seems. The large number of appeals is a direct result of the Patent Office granting a huge number of patents that were plainly invalid under Supreme Court precedents, followed by the Supreme Court, in *Alice*, reaffirming those older precedents. That was wasteful and unfair to all concerned, and caused much of the angst being expressed in this hearing, but the fault is not with *Alice*. (The recent Patent Office guidance on Sec. 101 appears destined to repeat this unfortunate history.)

It is difficult to explain the widely conflicting statements regarding the predictability of *Alice* determinations, but perhaps some of the assertions of "unpredictability" may be colored by understandable angst over the high number of presumptively valid (but wrongly issued) patents being invalidated under Sec. 101.

## X. The Draft Text Makes Needed Improvements To Sec. 112(f)

Congress enacted Sec. 112(f) in response to and as a way for patent drafters to comply with Supreme Court precedents—based on the patent system's second engine of innovation—that "functional" elements, particularly at a point of novelty, invalidate a patent claim for lack of particularity. *Halliburton Oil Well Cementing Co. v. Walker*, 329 U.S. 1, 12 (1946) ("The language of the claim . . . describes this most crucial element in the 'new' combination in terms of what it will do rather than in terms of its own physical characteristics or its arrangement in the new combination apparatus. We have held that a claim with such a description of a product is invalid." "[U]nless frightened from the course of experimentation by broad functional claims like these, inventive genius may evolve many more devices to accomplish the same purpose.")

The draft bill text improves Sec. 112(f) in two respects, by striking two problematic phrases from the current statute.

> 112(f) Functional Claim Elements— An element in a claim ~~for a combination may be~~ expressed as a ~~means or step for performing~~ specified function without the recital of structure, material, or acts in support thereof shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

First, striking "for a combination" is a pro-inventor step that does not harm the second engine of innovation. Sec. 112(f) is a special claim-construction statute serving to limit a patent's claims to the actual disclosed invention.

A patent claim that recites a desired result or function without being limited—expressly or via Sec. 112(f)—to a particular way of accomplishing that function or result, likely is invalid under Sec. 101, 112(a) and/or 112(b). Sec. 112(f) therefore is a <u>statutory safe harbor</u> for inventors and their patent drafters. There is no good reason to deny this safe harbor to inventions consisting of a single unified element, as distinct from a combination. Yet that today is the law. *See In re Hyatt*, 708 F.2d 712, 715 (Fed. Cir. 1983) ("The final paragraph of § 112 saves *combination* claims drafted using means-plus-function format from this problem by providing a construction of that format narrow enough to avoid the problem of

undue breadth as forbidden by the first paragraph. But no provision saves a claim drafted in means-plus-function format which is not drawn to a combination, i.e., a single means claim.") The draft bill text fixes this problem.

Second, and more significantly, the phrase "means or step for performing" has engendered confusion in the courts, a lack of clarity in patent-claim scope, and otherwise undermined the safe-harbor purpose of Sec. 112(f).

Claims reciting a function or result without a particular way of accomplishing the function or result have been called "hollow claims":

> Claiming a result without reciting what materials produce that result is the epitome of an indefinite claim. Such a claim fails to delineate with any reasonable certainty the requirements of the formulation. The claim is thus indefinite irrespective of the twisting narrative that is recited concerning how the result is measured. It is a hollow claim…. [It] is indefinite for the principal and simple reason that it claims a result without reciting how to achieve that result.

*Forest Labs., Inc. v. Teva Pharm. USA, Inc.*, 716 F. App'x 987 (Fed. Cir. 2017) (non-precedential) (Louire, J., concurring op.).

The opposite of a hollow claim might be called a "how" claim. Patent drafters have two way to draft "how" claims not "hollow" claims: expressly include in the claim a particular way of accomplishing the function or result or, instead, omit such "how" limitations from the claim but clearly disclose them in the patent's disclosure (specification), per the safe harbor of Sec. 112(f).

While this should work in theory, in practice the language "means or step for performing" has caused uncertainty and often undermined the purpose of Sec. 112(f).

The problem is that courts have misconstrued "means or step for" as being essentially magic words that patent drafters should include in a patent claim to announce that they are triggering Sec. 112(f) or omit from a patent claim to announce that they are not triggering Sec. 112(f). But there is no indication that this was the intent of this statute. On the contrary, the history of Sec. 112(f) indicates that the intent was what the draft bill text better reflects: a safe harbor from the invalidity fate awaiting hollow patent claims, under Sec. 101, 112(a), and/or 112(b).

In a decision reducing but not eliminating the significance of the words "means for" being present in or absent from a patent claim, the *en banc* Federal Circuit described the Congressional intent behind Sec. 102(f) as follows:

> In enacting this provision, Congress struck a balance in 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, namely, by restricting the scope of coverage to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof.

*Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347 (Fed. Cir. 2015) (*en banc*).

The Court rejected the then existing "strong presumption" associated with these particular words, as having led to "a proliferation of functional claiming":

> That ["strong" presumption] characterization is unwarranted, is uncertain in meaning and application, and has the inappropriate practical effect of placing a thumb on what should otherwise be a balanced analytical scale. It has shifted the balance struck by Congress in passing § 112, para. 6 and has resulted in a proliferation of functional claiming untethered to § 112, para. 6 and free of the strictures set forth in the statute. Henceforth, we will apply the presumption as we have done prior to *Lighting World*, without requiring any heightened evidentiary showing and expressly overrule the characterization of that presumption as "strong." We also overrule the strict requirement of "a showing that the limitation essentially is devoid of anything that can be construed as structure." The standard 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.

*Id*. at 1349.

This was a good step but did not solve the problems identified by the Court. Even under its "not strong" presumption associated with "means for" or "step for," there is still uncertainty and a proliferation of functional claiming. As a result, neither inventors, their patent drafters, would-be follow-on innovators wishing to design around the claims, or judges, can be certain, in many cases, whether or not a claim element triggers construction under Sec. 112(f).

For example, post-*Williamson* the following claim language has been held by the Federal Circuit to trigger Sec. 112(f) construction: "processor means at the handset for displaying keyed alphanumeric data on the screen and concurrently transmitting the alphanumeric data and commands to the base station"; "cheque standby unit"; "a symbol generator connected to [a] CPU and [a] database for generating symbols on [a] touch screen display screen"; and "compliance mechanism."

But the following claim language has been held by the Federal Circuit to not trigger Sec. 112(f) construction: "wireless device means"; "voltage source means"; "conduits connecting the container"; "program that can operate the movement of the pointer (0)"; "user interface code being configured to detect one or more locations touched by a movement of the user's finger on the screen without requiring the exertion of pressure and determine therefrom a selected operation"; and "central piece of equipment," "Ethernet terminal equipment," and "BaseT Ethernet terminal equipment" followed by "to detect," "to control," "to provide," "to distinguish," "to draw," "to result," and "to convey."

Stepping back, this is a rather absurd position to be in 229 years after the first Patent Act. We have a special claim-construction provision but when it has been or should be applied is uncertain.

The draft bill text's amendment to Sec. 112(f) should eliminate this problematic presumption entirely by removing the words that caused the confusion: "means or step for." If properly enforced by the Patent Office, this should induce patent drafters to expressly recite in the claims, where feasible, how the claim-recited function or result is accomplished, leading to greater certainty as to claim scope and more innovation.

Some object that the amendment would broaden the reach of Sec. 112(f) and that would be bad for inventors. But they have it backwards. Sec. 112(f), again, is a safe harbor against a facially "functional" claim element invalidating a patent claim under Sec. 101 (for claiming a result, not how to accomplish it), 112(a) (for lack of description support for the full scope of the "functional" claim element), or 112(b) (for failure to "particularly point out" the claimed invention). If the bill broadens the reach of Sec. 112(f), this will save more claims from invalidity—at least if the amendment applies prospectively only to claims granted or amended post enactment.

Some object that this would require software inventors to describe every possible detailed implementation in every possible programming language, and require all inventors to include encyclopedic disclosures. But well-settled law is to the contrary. Software inventors need only disclose an algorithm (e.g., a flowchart) describing how to perform the function, not source code. More generally, patent drafters choose in the first instance what to include as claim elements, and can omit conventional features or claim them as part of the claim environment rather than as a claim element. Patent drafters also can choose partly functional claim terms known in the art to describe a definite class of structures, such as "filters," "brakes," "clamp," "screwdriver," "locks," and "steering wheel." Most importantly, these objections simply do not acknowledge that Sec. 112(f) is a safe harbor saving otherwise "functional" claim elements from invalidating the claim under Sec. 101, 112(a), or 112(b).

Another problem with current Sec. 112(f) case law is that it treats method claims differently because "step for" is rarely used in a patent claim. By removing the "step for" language from the statute, the proposed amendment to Sec. 112(f) may end this loophole that companies can exploit to obtain (invalid) "hollow" method claims discouraging would-be next innovators.

Some object that it is too difficult to distinguish a "function" from an "act" for performing that function in a method patent claim. But former Chief Judge Rader explained the distinction well:

> In general terms, the "underlying function" of a method claim element corresponds to *what* that element ultimately accomplishes in relationship to what the other elements of the claim and the claim as a whole accomplish. "Acts," on the other hand, correspond to *how* the function is accomplished. …. If a claim element recites only an underlying function without acts for performing it, then § 112, ¶ 6 applies even without express step-plus-function language.

*Seal-Flex, Inc. v. Athletic Track and Court Const.*, 172 F.3d 836, 849–850 (Fed. Cir. 1999) (Rader, J. concurring).

In sum, removing "means or step for performing" from the statute will move us closer both to the goals of the *en banc* Federal Circuit in *Williamson*, and also the original Congressional attempt to spur innovation by limiting patents to "how" claims.

## XI. The Patent Office Should Say Which Claim Elements Are Construed Under Sec. 112(f)

The Subcommittee should revise the bill's text to add the following sentence to the end of Sec. 112(f):

> "The Director shall identify each such claim element in the record of the patent."

Patent Office examiners necessarily construe a patent claim before comparing its claim scope to the prior art to determine novelty and obviousness. Part of this necessary claim-construction step is identifying which claim elements, if any, trigger construction under Sec. 112(f). One might think, therefore, that the examiners write that down so that the inventor and public know which claim-construction rules were applied to which claim elements: special construction under Sec. 112(f) or normal claim construction rules. But the Patent Office is not mandated by law to do that and examiners often do not do that, despite being encouraged to do so. *See* M.P.E.P. 2181 VI ("When an examiner interprets a claim limitation under the provisions of 35 U.S.C. 112(f) …, the Office action should specify that the examiner has done so.") (https://www.uspto.gov/web/offices/pac/mpep/s2181.html)

A court need not abide by the Patent Office determination whether a claim element is construed under Sec. 112(f). But surely a court is more likely to agree with the Patent Office if the Patent Office makes its determination on the record, as mandated by statute, so that an inventor can react to that determination by amending his or her claims if necessary, to trigger or not trigger Sec. 112(f). Therefore, this proposed revision advances the clarity of patent claim scope, and requires no more than what the Patent Office already encourages its examiners to do.

## XII. Strengthening Sec. 112(f) Does Not Justify Weakening Sec. 101

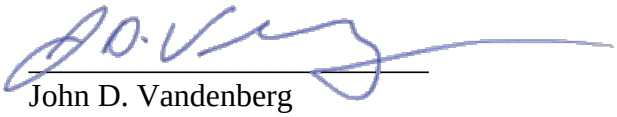
Strengthening Sec. 112 does not justify weakening Sec. 101 for at least two reasons, one procedural and one substantive.

First, as noted by other witnesses, patent eligibility under Sec. 101 inherently is a threshold issue well-suited for decision at the pleadings stage, where it might cost less than $100K to litigate. Sec. 112(b) and 112(f), on the other hand, pose claim-construction issues, which typically are decided at the "*Markman*" claim-construction stage, often incurring roughly $1 Million dollars in expert and attorney fees and costs before invalidating the patent claims.

Second, while "results" claiming is addressed by both Sec. 101 and 112, other problematic claiming is uniquely policed by the abstractness exclusion. For example, the mathematical formula in *Flook* was new and useful and appeared to be claimed clearly, yet it was abstract under Sec. 101.

Therefore, I urge the Subcommittee not to treat proposed improvements to Sec. 112(f) as justifying weakening of Sec. 101.

Thank you for the opportunity to participate in this process.



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# APPENDICES

## Appendix A

**Results of Search in US Patent Collection db for:**
**AN/Huawei AND ISD/5/$/2019**: 211 patents.
*Hits **1** through **50** out of **211***

| | PAT. NO. | Title |
|---|---|---|
| 1 | 10,306,786 | Mobile terminal comprising lid unit with key device |
| 2 | 10,306,701 | User discovery method, user equipment, and proximity service function entity |
| 3 | 10,306,676 | Enhanced channel access mechanisms for wide band operation on unlicensed bands |
| 4 | 10,306,666 | Data transmission method, base station, and user equipment |
| 5 | 10,306,659 | Data transmission method and device |
| 6 | 10,306,647 | Method and apparatus for shifting control areas in a wireless communication system |
| 7 | 10,306,638 | Direct current component subcarrier configuration method and apparatus |
| 8 | 10,306,628 | Method and apparatus for determining control channel search space |
| 9 | 10,306,624 | Method for notifying channel use time for sending uplink data, and method and device for sending uplink data |
| 10 | 10,306,608 | Method for transmitting and receiving uplink control information, terminal, base station |
| 11 | 10,306,602 | Data transmission method and apparatus |
| 12 | 10,306,585 | Signal determining method and apparatus |
| 13 | 10,306,551 | WLAN access method and apparatus |
| 14 | 10,306,549 | Access control method and device |
| 15 | 10,306,518 | Circuit switched service processing method and terminal |
| 16 | 10,306,517 | Method, apparatus and system for paging processing and information displaying |
| 17 | 10,306,515 | System and method for wireless load balancing |
| 18 | 10,306,504 | Method and controller for low-overhead user equipment measurements |
| 19 | 10,306,491 | Antenna line device management method, and device |
| 20 | 10,306,457 | Mobility management method, serving GPRS support node or mobility management entity, and terminal |
| 21 | 10,306,440 | Communication method, communications system, and apparatus |
| 22 | 10,306,415 | Method for positioning using wireless signal and positioning server |
| 23 | 10,306,408 | Positioning method, positioning server, and positioning system |
| 24 | 10,306,344 | Method and system for distributed control of large photonic switched networks |
| 25 | 10,306,165 | Image generating method and dual-lens device |
| 26 | 10,306,073 | Method, system, and entity for exercising policy control |
| 27 | 10,306,070 | Call transfer method and user equipment |
| 28 | 10,306,028 | Data processing method and apparatus |
| 29 | 10,306,014 | Method, device, and system for controlling quality of service |
| 30 | 10,306,007 | Cache content hit method and communications system |
| 31 | 10,305,866 | Data transmission method, base station and user equipment |
| 32 | 10,305,834 | System and method for messaging between operating system containers |
| 33 | 10,305,823 | Network interface card configuration method and resource management center |
| 34 | 10,305,815 | System and method for distributed resource management |

| | | |
|---|---|---|
| 35 | 10,305,806 | Data packet transmission method and border routing bridge device |
| 36 | 10,305,804 | Method for processing network congestion and switch |
| 37 | 10,305,783 | Packet control method, switch, and controller |
| 38 | 10,305,777 | Flow entry configuration method, apparatus, and system |
| 39 | 10,305,727 | Method, apparatus and system for controlling self-optimization switch |
| 40 | 10,305,684 | Secure connection method for network device, related apparatus, and system |
| 41 | 10,305,667 | Method and apparatus for allocating and transmitting time and frequency resource for resource request indicator |
| 42 | 10,305,666 | Systems and methods for multi-channel beacon transmission in a wireless network |
| 43 | 10,305,661 | Method and apparatus for sequence distributing and sequence processing in communication system |
| 44 | 10,305,649 | Interference coordination method, apparatus, and system |
| 45 | 10,305,645 | Frame structure for filter bank multi-carrier (FBMC) waveforms |
| 46 | 10,305,595 | Method and apparatus for transmitting and receiving interface signals of distributed base station |
| 47 | 10,305,572 | Information transmission method, access point, and user equipment |
| 48 | 10,305,571 | Data transmission method, apparatus and system, and user equipment |
| 49 | 10,305,558 | Precoding matrix indicator feedback method, receiving method, and apparatus |
| 50 | 10,305,524 | Method and device for reducing intermodulation interference |
| 51 | 10,305,512 | Encoding method and apparatus |
| 52 | 10,305,366 | Power converter, a controller and a system |
| 53 | 10,305,169 | Antenna apparatus and terminal |
| 54 | 10,305,167 | Antenna circuit, terminal device, and method for disposing antenna circuit |
| 55 | 10,304,478 | Method for detecting audio signal and apparatus |
| 56 | 10,304,326 | Terminal having infrared remote control function and pairing method for infrared remote control |
| 57 | 10,303,691 | Column-oriented database processing method and processing device |
| 58 | 10,303,630 | Configurable hardware accelerators |
| 59 | 10,303,619 | Method and apparatus for determining physical address |
| 60 | 10,303,600 | Method and storage device for collecting garbage data |
| 61 | 10,303,552 | Method for optimizing index, master database node and subscriber database node |
| 62 | 10,303,518 | Congestion notification method, related device, and system |
| 63 | 10,303,474 | Data read/write method and apparatus, storage device, and computer system |
| 64 | 10,303,473 | Vector permutation circuit and vector processor |
| 65 | 10,303,374 | Data check method and storage system |
| 66 | 10,303,124 | Time-to-digital converter |
| 67 | 10,302,958 | Display apparatus, stereoscopic display apparatus, and application terminal thereof |
| 68 | 10,302,861 | Semiconductor optical apparatus |
| 69 | 10,299,309 | Method for accessing local network, and related device |
| 70 | 10,299,296 | Data sending method, resource measurement method, apparatus, and device |
| 71 | 10,299,283 | System and method for coexistence of grant-free and grant-based uplink traffic |
| 72 | 10,299,280 | Systems and methods for interference alignment in Wi-Fi |
| 73 | 10,299,273 | Network device, terminal, and method for determining availability of communication spectrum |
| 74 | 10,299,267 | Data transmission method and user equipment |
| 75 | 10,299,248 | Method and apparatus for transmitting system information, and method and apparatus for receiving system information |
| 76 | 10,299,247 | Paging method, apparatus, and system |

| | | |
|---|---|---|
| 77 | 10,299,240 | Positioning parameter coordination apparatus, system, and method |
| 78 | 10,299,239 | Capability exposure implementation method and system, and related device |
| 79 | 10,299,234 | Synchronization method, base station, and user equipment |
| 80 | 10,299,217 | Method for ensuring parallel data random access and user equipment |
| 81 | 10,299,211 | Method for saving power of user equipment and device |
| 82 | 10,299,200 | Method for accessing access point by station device, device, and system |
| 83 | 10,299,164 | Protocol stack adaptation method and apparatus |
| 84 | 10,299,116 | Method and apparatus for negotiating security during handover between different radio access technologies |
| 85 | 10,299,111 | Antenna information sending method and device, and antenna information receiving method and device |
| 86 | 10,299,085 | Method, device, and system for optimizing short message signaling |
| 87 | 10,298,970 | Image transmission method and apparatus |
| 88 | 10,298,901 | Method for synchronous playback by multiple smart devices, and apparatus |
| 89 | 10,298,827 | Shooting method and mobile device |
| 90 | 10,298,713 | Distributed content discovery for in-network caching |
| 91 | 10,298,600 | Method, apparatus, and system for cooperative defense on network |
| 92 | 10,298,580 | Admission of an individual session in a network |
| 93 | 10,298,506 | Low jitter traffic scheduling on a packet network |
| 94 | 10,298,502 | Method, device, and system for performing balance adjustment on egress traffic of SDN based idc network |
| 95 | 10,298,495 | Packet forwarding method and apparatus |
| 96 | 10,298,487 | Method and device for transmitting data |
| 97 | 10,298,466 | Systems and methods for SDT to interwork with NFV and SDN |
| 98 | 10,298,464 | Network performance prediction method and apparatus |
| 99 | 10,298,439 | Network functions virtualization network system and data processing method, and apparatus |
| 100 | 10,298,438 | Resource state monitoring method, device and communication network |
| 101 | 10,298,436 | Arbitration processing method after cluster brain split, quorum storage apparatus, and system |
| 102 | 10,298,368 | Method and device for handling inter-cell interference, control apparatus, and base station |
| 103 | 10,298,365 | System and method for orthogonal frequency division multiple access (OFDMA) resource allocation |
| 104 | 10,298,351 | Method for implementing hybrid automatic repeat request, user equipment, and base station |
| 105 | 10,298,335 | Co-channel interference reduction in mmWave networks |
| 106 | 10,298,323 | Generating a pilot tone for an optical telecommunications system |
| 107 | 10,298,318 | Pilot tone compensation in receiver optical digital signal processing |
| 108 | 10,298,305 | Channel state information feedback method and apparatus, user equipment, and base station |
| 109 | 10,298,007 | Digital power supply protection circuit, and apparatus |
| 110 | 10,297,915 | Apparatus and methods for beamforming tracking |
| 111 | 10,297,901 | Wireless terminal |
| 112 | 10,296,827 | Data category identification method and apparatus based on deep neural network |
| 113 | 10,296,782 | Processing device and method for face detection |
| 114 | 10,296,774 | Fingerprint recognition apparatus |
| 115 | 10,296,204 | Touch operation processing method and terminal device |
| 116 | 10,296,141 | Device, and adjustable parameter adjustment method for device |

117 10,296,028 Low dropout regulator, method for improving stability of low dropout regulator, and phase-locked loop
118 10,295,368 Data collection method, apparatus, and system
~~119 D848,455 Display screen or portion thereof with an animated graphical user interface~~
120 10,292,253 Heat-dissipation and shielding structure and communications product
121 10,292,186 Method, apparatus, and system for controlling link in cooperative communication
122 10,292,163 Methods and systems for beamforming for device-to-device communication
123 10,292,151 Method for resource allocation and base station
124 10,292,150 Method for information transmission, base station and user equipment
125 10,292,125 Method and apparatus for interoperability
126 10,292,082 Backhaul link establishment method, base station, and device
127 10,292,052 Access method and device
128 10,292,050 Method, apparatus, and platform for sharing wireless local area network
129 10,292,006 Method and system for obtaining location information of target object, and apparatus
130 10,291,971 Optical cross-connect node and optical signal switching method
131 10,291,935 Image processing method and apparatus
132 10,291,882 Call processing method and gateway
133 10,291,823 Apparatus and method for color calibration
134 10,291,768 Information processing method and user equipment
135 10,291,767 Information presentation method and device
136 10,291,766 Information processing method and apparatus
137 10,291,515 System and method for a control plane reference model framework
138 10,291,514 Software defined network (SDN) control signaling for traffic engineering to enable multi-type transport in a data plane
139 10,291,510 Topology structure discovery method and device
140 10,291,459 Systems and methods for sparse code multiple access
141 10,291,446 Clock synchronization method, receiver, transmitter, and clock synchronization system
142 10,291,427 Device selection method and apparatus
143 10,291,421 Method for monitoring licensed-assisted access cell, device, and base station
144 10,291,374 Reference signal detection method and receiving method, user equipment, and base station
145 10,291,371 Method, user equipment, and base station for generating pilot sequence
146 10,291,360 Information transmission method and device
147 10,291,358 Data receiving method and device, and data sending method and device
148 10,291,284 Wireless communications method, user equipment, base station and system
149 10,291,264 Systems and methods for rate matching when using general polar codes
150 10,291,139 Two-transformer three-phase DC-DC resonant converter
151 10,290,947 Beam scanning antenna, microwave system, and beam alignment method
152 10,290,922 Electronic device
153 10,289,710 Method for modifying root node, and modification apparatus
154 10,289,504 Access control method and system, and access point
155 10,289,472 Resource leak detection method, apparatus, and system
156 10,289,451 Method, apparatus, and system for adjusting deployment location of virtual machine
157 10,285,214 Communications method of wearable device, communications system, and related device
158 10,285,199 Method, apparatus, device and network system for adding secondary serving cell
159 10,285,197 Random access response method, base station and terminal

160 10,285,186 System and method for grouping and selecting transmission points
161 10,285,185 Resource allocation method and communications terminal
162 10,285,183 Signal processing method, apparatus, and system for providing service to multiple user equipments at a same time and in a same frequency
163 10,285,182 Methods and network nodes in a wireless communication network
164 10,285,175 System and method for adaptive transmission time interval (TTI) structure
165 10,285,140 Power estimation method and apparatus
166 10,285,136 Power allocation method and apparatus
167 10,285,132 Methods and network nodes in a wireless communication network
168 10,285,128 Method and apparatus for waking up devices in batches, and device
169 10,285,109 Wireless connection establishment method and apparatus
170 10,285,106 User equipment and method for ensuring continuous service reception in wireless network
171 10,285,105 Method, device, and system for establishing virtual base station and transferring data
172 10,285,103 Resource allocation method, service transmission method, and apparatus
173 10,285,099 Communication method, base station, and user equipment
174 10,285,092 Random access preamble design
175 10,285,091 System and method for preambles in a wireless communications network
176 10,285,086 Channel decoding method and apparatus, and distributed decoder
177 10,285,079 Network parameter adjustment method, and base station device
178 10,284,993 Apparatus and method for driving an array of loudspeakers
179 10,284,933 Non-symmetric interconnection over fiber
180 10,284,931 Liquid crystal grating-based optical switch
181 10,284,754 Camera assembly configured to be detachably mounted on a mobile terminal
182 10,284,712 Voice quality evaluation method, apparatus, and system
183 10,284,710 Call method of mobile terminal, mobile terminal control method, and related device
184 10,284,697 Terminal device
185 10,284,497 Networking method for data center network and data center network
186 10,284,467 Method and apparatus for controlling packet transmission and network functions virtualization system
187 10,284,466 Service processing method, device, and system
188 10,284,461 Method and related apparatus for probing packet forwarding path
189 10,284,458 Flow table modifying method, flow table modifying apparatus, and openflow network system
190 10,284,411 Signal processing method and apparatus
191 10,284,397 FFE-aided CDR to calibrate phase offset and enhance gain in baud rate sampling phase detector
192 10,284,384 Standby method, intelligent home device, and standby system
193 10,284,348 Control information sending method and control information receiving method, and apparatus
194 10,284,340 Multicast sending apparatus, multicast receiving apparatus, and multicast transmission determining method
195 10,284,331 Channel decoding method, apparatus, and system
196 10,284,330 Data transmission method, device, and system
197 10,284,298 Method for awaking optical network unit in passive optical network, device, and system
198 10,284,272 Channel estimation apparatus and method
199 10,284,267 System and method for reducing self-interference in a wireless resource
200 10,284,256 Nonlinear precoding bit loading method, transmit end, receive end, and system
201 10,283,866 Antenna and communications device

202 10,283,864 Antenna and terminal
203 10,283,862 Phase-mode feed network for antenna arrays
204 10,283,133 Audio classification based on perceptual quality for low or medium bit rates
205 10,283,005 Image display method and apparatus
206 10,282,448 System and method for searching a symmetrically encrypted database for conjunctive keywords
207 10,282,381 Method and apparatus for discovering closely related user
208 10,282,293 Method, switch, and multiprocessor system using computations and local memory operations
209 10,282,210 System and method for virtual hardware control
210 10,282,073 Method and wireless handheld device for automatically switching handheld mode
211 10,281,560 Positioning method based on time difference of arrival, user equipment, and network device

## Appendix B

## Information Manipulation is Abstract

| Post-*Alice* Fed. Cir. Opinion |
|---|
| 1. "Information as such is an intangible. Accordingly, we have treated collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas. In a similar vein, we have treated analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category. And we have recognized that merely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is abstract as an ancillary part of such collection and analysis. Here, the claims are clearly focused on the combination of those abstract-idea processes. The advance they purport to make is a process of gathering and analyzing information of a specified content, then displaying the results, and not any particular assertedly inventive technology for performing those functions. They are therefore directed to an abstract idea." *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016) (emphasis added). |
| 2. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1366 (Fed. Cir. 2018) (claims directed to "abstract idea of parsing, comparing, storing, and editing data" similar to claims in *TLI Commc'ns* and *Content Extraction*). |
| 3. *Glasswall Sols. Limited v. Clearswift Ltd.*, No. 2018-1407, 2018 WL 6720014, at *1 (Fed. Cir. Dec. 20, 2018) (non-precedential) ("The claims merely require the conventional manipulation of information by a computer. We have often held similar conventional data manipulation to be abstract."). |
| 4. *Move, Inc. v. Re/Max Int'l, Inc.*, 721 F. App'x 950, 954 (Fed. Cir. 2018) (non-precedential) ("while we do not suggest that every claim involving the collection, organization, manipulation, or display of data is necessarily directed to an abstract idea, claim 1 is not meaningfully distinct from claims we have held were directed to abstract ideas in previous cases"). |
| 5. *Smart Sys. Innovations, LLC v. Chicago Transit Auth.*, 873 F.3d 1364, 1372 (Fed. Cir. 2017) ("collection, storage, and recognition of data" is abstract). |
| 6. *Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1056 (Fed. Cir. 2017) ("data processing to facilitate financing is a patent-ineligible abstract concept."). |
| 7. *West View Research, LLC v. Audi AG*, 685 F. App'x 923, 926 (Fed. Cir. 2017) (non-precedential) (aff'g judgment on pleadings of Sec. 101 invalidity of 81 claims in 7 pats.; claims directed to an abstract idea because they "do not go beyond receiving or collecting data queries, analyzing the data query, retrieving and processing the information constituting a response to the initial data query, and generating a visual or audio response to the initial data query," and not improvement to computer functionality itself). |
| 8. *Intellectual Ventures I LLC v. Erie Indemnity Co.*, 850 F.3d 1315, 1327 (Fed. Cir. 2017) ("We have previously held other patent claims ineligible for reciting similar abstract concepts that merely collect, classify, or otherwise filter data….[T]he claimed creation of an index used to search and retrieve information stored in a database is similarly abstract."). |
| 9. *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017) ("claims are, at their core, directed to the abstract idea of collecting, displaying, and manipulating data."). |

10. *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1093, 1097–98 (Fed. Cir. 2016) (patent "is directed to or drawn to the concept of analyzing records of human activity to detect suspicious behavior"; "the practices of collecting, analyzing, and displaying data, with nothing more, are practices 'whose implicit exclusion from § 101 undergirds the information-based category of abstract ideas.'").

11. *TDE Petroleum Data Sols., Inc. v. AKM Enter., Inc.*, 657 F. App'x 991, 993 (Fed. Cir. 2016) (non-precedential) (claims directed to "the abstract idea of storing, gathering, and analyzing data");

12. *TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607, 611 (Fed. Cir. 2016) (aff'g mtn. to dismiss: "claims are directed to the abstract idea of classifying and storing digital images in an organized manner").

13. *Content Extraction and Transmission LLC v. Wells Fargo Bank*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) (claims "drawn to the abstract idea of 1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory.").

14. *Return Mail, Inc. v. U.S. Postal Service*, 868 F.3d 1350, 1368 (Fed. Cir. 2017) (claim reciting "'receiving from a sender a plurality of mail items,' 'identifying undeliverable mail items,' 'decoding . . . encoded data,' 'creating output data,' and 'determining if the sender wants a corrected address,'" are analogous to those in *Content Extraction*).

15. *Digitech Image Techs., LLC v. Elecs. For Imaging, Inc.*, 758 F.3d 1344, 1350 (Fed. Cir. 2014) ("claims an abstract idea because it describes a process of organizing information through mathematical correlations and is not tied to a specific structure or machine.").

## Appendix C

### Results, Effects and Functions—Without Reciting *How* They Are Achieved or Performed—Are Abstract Ideas

| | |
|---|---|
| 1. | "A patent is not good for an effect, or the result of a certain process" because such patents "would prohibit all other persons from making the same thing by any means whatsoever." *Le Roy v. Tatham*, 55 U.S. 156, 175 (1853). |
| 2. | *Corning v. Burden*, 56 U.S. 252, 268 (1853) (patents are granted "for the discovery or invention of some practicable method or means of producing a beneficial result or effect . . . and not for the result or effect itself." "A claimed invention must embody a concrete solution to a problem having 'the specificity required to transform a claim from one claiming only a result to one claiming a way of achieving it.'") |
| 3. | *Interval Licensing LLC v. AOL, Inc*. 896 F.3d 1335, 1338, 1348 (Fed. Cir. 2018) (aff'g R. 12(c) invalidity of CRM claims; "the claimed 'attention manager,' broadly construed as any 'system' for producing that result ["our function-based construction of 'attention manager'"; the "result-centric construction"; "defining that term by the result it yields, not by its structural design or any mode for producing the result"], is not limited to a means of locating space on the screen unused by a first set of displayed information and then displaying the second set of information in that space. The claim limitations for accessing, scheduling, and then displaying the second information set are conventional functions stated in general terms and do not further define *how* the attention manager segregates the display of two sets of data on a display screen."). |
| 4. | *Glasswall Sols.*, 2018 WL 6720014, at *1 ("The claims at issue in both patents do not purport to claim *how* the invention receives an electronic file, *how* it determines the file type, *how* it determines allowable content, *how* it extracts all the allowable data, *how* it creates a substitute file, *how* it parses the content according to predetermined rules into allowable and nonconforming data, or *how* it determines authorization to receive the nonconforming data. Instead, the claims are framed in wholly functional terms, with no indication that any of these steps are implemented in anything but a conventional way."). |
| 5. | *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018) (The claims in *McRO* "had the specificity required to transform a claim from one claiming only a result to one claiming a way of achieving it."). |
| 6. | *Move, Inc.*, 721 F. App'x at 954–56 (claim "is aspirational in nature and devoid of any implementation details or technical description that would permit us to conclude that the claim as a whole is directed to something other than the abstract idea…. While the claim limitations provide steps for using the computer to perform the search, they contain no technical details or explanation of how to implement the claimed abstract idea using the computer…. Instead of focusing on the technical implementation details of the zooming functionality, for example, claim 1 recites nothing more than the result of the zoom."). |
| 7. | *Two-Way Media Ltd. v. Comcast Cable Comm'ns, LLC*, 874 F.3d 1329, 1337 (Fed. Cir. 2017) (aff'g R. 12(c) invalidity; claim "recites a method for routing information using result-based functional language. The claim requires the functional results of 'converting,' 'routing,' 'controlling,' 'monitoring,' and 'accumulating records,' but does not sufficiently describe how to achieve these results in a non-abstract way," even under the patent owner's proposed constructions). |

8. *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1241, 1244, 1245 (Fed. Cir. 2016) (aff'g PTAB CBM Sec. 101 unpatentability determination and rev'g Sec. 101 patentability on some claims: "the claims in these patents are directed to an abstract idea. The patents claim systems including menus with particular features. They do not claim a particular way of programming or designing the software to create menus that have these features, but instead merely claim the resulting systems. Essentially, the claims are directed to certain functionality—here, the ability to generate menus with certain features."; relying on absence of disclosure in the Spec. as to how result achieved: "the linked orders claim limitation calls for the desired result of associating a customer's order with said customer, and does not attempt to claim any method for achieving that result" and Spec. "refers to the use of handwriting and voice capture technologies without providing how these elements were to be technologically implemented").

9. *Affinity Labs of Texas, LLC v. Amazon.com Inc.*, 838 F.3d 1266, 1269 (Fed. Cir. 2016) ("The patent, however, does not disclose any particular mechanism for wirelessly streaming content to a handheld device. … The purely functional nature of the claim confirms that it is directed to an abstract idea, not to a concrete embodiment of that idea.").

10. *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1258 (Fed. Cir. 2016) ("There is nothing in claim 1 that is directed to *how* to implement out-of-region broadcasting on a cellular telephone. Rather, the claim is drawn to the idea itself.").

11. *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1348 (Fed. Cir. 06/23/15) (aff'g mtn. to dismiss and Sec. 101 invalidity: "the character of the claimed invention is an abstract idea: the idea of retaining information in the navigation of online forms"; "IPC's proposed interpretation of 'maintaining state' describes the effect or result dissociated from any method by which maintaining the state is accomplished upon the activation of an icon." "The end result of 'maintaining the state' is described as the innovation over the prior art," but "claim 1 contains no restriction on how the result is accomplished. The mechanism for maintaining the state is not described, although this is stated to be the essential innovation.").

12. *Data Engine Tech. LLC v. Google LLC*, 906 F.3d 999, 1008, 110–11 (Fed. Cir. 2018) (rev'g R. 12(c) invalidity; patents "solved this known technological problem in computers in a particular way—by providing a highly intuitive, user-friendly interface with familiar notebook tabs for navigating the three-dimensional worksheet environment;" claims "recite a specific structure (i.e., notebook tabs) within a particular spreadsheet display that performs a specific function (i.e., navigating within a three-dimensional spreadsheet).").

13. *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299, 1305 (Fed. Cir. 2018) (aff'g post-trial judgment of no Sec. 101 invalidity; although "even an innovative result, is not itself patentable," claims "recite specific steps—generating a security profile that identifies suspicious code and linking it to a downloadable—that accomplish the desired result").

14. *Visual Memory LLC v. Nvidia Corp.*, 867 F.3d 1253, 1261 (Fed. Cir. 2017) (2-1) (rev'g R. 12(b)(6) dismissal; rejecting dissent's position that claims directed to a result without specifying how achieved: "both the specification and the claims expressly state that this improved memory system is achieved by configuring a programmable operational characteristic of a cache memory based on the type of processor connected to the memory system").

15. *Amdocs (Israel) Limited v. Openet Telecom, Inc.*, 841 F.3d 1288 (Fed. Cir. 2016) (2-1) (long discussion; arguing that the specific means may be software and need not be tangible).

## Appendix D

| | "Abstract Idea" To Which Claims Directed | Ruling |
|---|---|---|
| 1. Trading Techs. (IBG) II (Fed. Cir. (04/30/19) (Moore, J.)<br>2. See Trading Techs. (IBG) III (Fed. Cir. 05/21/19) (non-precedential) (Hughes, J.) (controlled by precedential decisions on related patents) | "providing a trader with additional financial information to facilitate market trades"<br>"providing information to traders in a way that helps them process information more quickly" | aff'g PTAB CBM FWD claims unpatentable<br>22 claims |
| 3. In re: Morinville (Fed. Cir. 04/29/19) (non-precedential) (Newman, J.) | "the general concept of reorganizing an organization in conformity with function"<br>"a business administration concept for management of a business, i.e., a conventional business practice long prevalent in our system of commerce" | aff'g rejection ex parte appln.<br>18 claims |
| 4. Trading Techs. (IBG) I (Fed. Cir. 04/18/19) (Moore, J.) | "graphing (or displaying) bids and offers to assist a trader to make an order"<br>"receiving a user input to send a trade order" | aff'g PTAB CBM FWD claims unpatentable<br>89 claims |
| 5. ChargePoint (Fed. Cir. 03/28/19) (Prost, C.J.) | "communicating over a network for device interaction" | aff'g R. 12(b)(6)<br>8 claims |
| 6. Univ. of Fla. Research (Fed. Cir. 02/26/19) (Moore, J.) | "collecting, analyzing, manipulating, and displaying data." | aff'g R. 12(b)(6)<br>2 claims at least |
| 7. Voit Tech. (Fed. Cir. 02/08/19) (non-precedential) (Wallach, J.) | "entering, transmitting, locating, compressing, storing, and displaying data (including text and image data) to facilitate the buying and selling of items" | aff'g R. 12(b)(6)<br>17 claims |
| 8. In re Guldenaar Holding (Fed. Cir. 12/28/18) (Chen, J.) | "rules for playing a dice game" | aff'g rejection ex parte appln.<br>23 claims |
| 9. Glasswall (Fed. Cir. 12/20/18) (non-precedential) (Linn, J.) | "the filtering of electronic files and data by regenerating an electronic file without non-conforming data" | aff'g R. 12(b)(6)<br>18 claims |
| 10. In re Downing (Fed. Cir. 12/07/18) (non-precedential) (Lourie, J.) | "personal management, resource planning, or forecasting." | aff'g rejection ex parte appln.<br>4 claims |

| | "Abstract Idea" To Which Claims Directed | Ruling |
|---|---|---|
| 11. Data Engine (Fed. Cir. 10/09/18) (Stoll, J.) | "collecting spreadsheet data, recognizing changes to spreadsheet data, and storing information about the changes"<br>"identifying and storing electronic spreadsheet pages" | aff'g R. 12(c)<br>8 claims<br>[but rev'g on most claims] |
| 12. In re Villena (Fed. Cir. 08/29/18) (Stoll, J.) (non-precedential) | "property valuation" | aff'g rejection ex parte appln.<br>3 claims |
| 13. BSG Tech. (Fed. Cir. 08/15/18) (Hughes, J.) | "considering historical usage information while inputting data" | aff'g Summ. J.<br>7 claims |
| 14. SAP America (Fed. Cir. 08/02/18) (Taranto, J.) | "selecting certain information, analyzing it using mathematical techniques, and reporting or displaying the results of the analysis" | aff'g R. 12(c)<br>31 claims |
| 15. Interval Licensing (Fed. Cir. 07/20/18) (Chen, J.) | "the presentation of two sets of information, in a nonoverlapping way, on a display screen" | aff'g R. 12(c)<br>4 claims |
| 16. Burnett (Fed. Cir. 07/16/18) (per curiam) (non-precedential) | "a mathematical methodology to convert geospatial coordinates into a single string of natural numbers" | aff'g R. 12(b)(6)<br>2 claims |
| 17. In Re: Eberra (Fed. Cir. 05/04/18) (per curiam) (non-precedential) | "promoting the purchase of a product with the incentive being a spot in a television program, i.e. product promotion" | aff'g PTAB rejection of ex parte appln. claims<br>14 claims |
| 18. Voter Verified (Fed. Cir. 04/20/18) (Lourie, J.) | "voting, verifying the vote, and submitting the vote for tabulation" | aff'g R. 12(b)(6)<br>92 claims |
| 19. Maxon (Fed. Cir. 04/09/18) (Hughes, J.) (non-precedential) | "decentralized delivery controlled by the owner of a plurality of devices" | aff'g R. 12(b)(6)<br>4 claims |
| 20. Intellectual Ventures (Symantec) (Fed. Cir. 03/15/18) (O'Malley, J.) (non-precedential) | "backing up data" | aff'g R. 56<br>2 claims |
| 21. Automated Tracking (Fed. Cir. 02/16/18) (Stoll, J.) (non-precedential) | "collecting data, analyzing it, and determining the results based on the analysis of data."<br>[per district court; Fed. Cir. held claim directed to abstract idea without identifying it.] | aff'g R. 12(c)<br>4 claims |

| | "Abstract Idea" To Which Claims Directed | Ruling |
|---|---|---|
| 22. Zuili (Fed. Cir. 02/09/18) (Wallach, J.) (non-precedential) | "collecting, transmitting, analyzing, and storing data to detect fraudulent and/or invalid clicks based on the time between two requests by the same device or client" | aff'g PTAB CBM FWD claims unpatentable<br>24 claims |
| 23. Berkheimer (Fed. Cir. 02/08/18) (Moore, J.) | "parsing and comparing data;"<br>"parsing, comparing, and storing data;"<br>"parsing, comparing, storing, and editing data" | aff'g R. 56<br>4 claims (vacating on 3 claims) |
| 24. Move, Inc. (Fed. Cir. 02/01/18) (Stoll, J.) (non-precedential) | "a method for collecting and organizing information about available real estate properties and displaying this information on a digital map that can be manipulated by the user." | aff'g R. 56<br>12 claims |
| 25. Inventor Holdings (Fed. Cir. 12/08/17) (Chen, J.) | "local processing of payments for remotely purchased goods." | aff'g post-*Alice* fees award (earlier aff'd R. 12(c))<br>23 claims |
| 26. Intellectual Ventures I (Erie Indemnity) (Fed. Cir. 11/03/17) (Wallach, J.) (non-precedential) | "the identification of unwanted files in a particular field (i.e., a computer network) and otherwise concern data collection related to such identification." | aff'g R. 12(b)(6)<br>16 claims |
| 27. Two-Way Media (Fed. Cir. 11/01/17) (Reyna, J.) | "(1) sending information, (2) directing the sent information, (3) monitoring the receipt of the sent information, and (4) accumulating records about receipt of the sent information;"<br>"monitoring the delivery of real-time information to a user or users;"<br>"measuring the delivery of real-time information for commercial purposes." | aff'g R. 12(c)<br>223 claims |
| 28. Smart Sys. (Fed. Cir. 10/18/17) (Wallach, J.) (2-1, Linn, J., dissenting on two patents) | "the formation of financial transactions in a particular field (i.e., mass transit) and data collection related to such transactions." | aff'g R. 12(c)<br>87 claims |
| 29. Secured Mail (Fed. Cir. 10/16/17) (Reyna, J.) | "using a marking affixed to the outside of a mail object to communicate information about the mail object, i.e., the sender, recipient, and contents of the mail object." | aff'g R. 12(b)(6)<br>143 claims |

| | "Abstract Idea" To Which Claims Directed | Ruling |
|---|---|---|
| 30. Return Mail (Fed. Cir. 08/28/17) (Prost, C.J.) | "'relaying mailing address data.'" | aff'g PTAB CBM FWD claims unpatentable<br>3 claims |
| 31. Audatex (Fed. Cir. 07/27/17) (Prost, C.J.) (non-precedential) | "'providing a vehicle valuation through the collection and use of vehicle information'" | aff'g PTAB CBM FWD substitute claims unpatentable<br>60 claims |
| 32. Prism Tech. (Fed. Cir. 06/23/17) (Prost, C.J.) (non-precedential) | "'providing restricted access to resources'" | rev'g denial of R. 50(b) invalidity<br>18 claims |
| 33. Credit Acceptance (Fed. Cir. 06/09/17) (Dyk, J.) | "processing an application for financing a purchase" | aff'g PTAB CBM FWD unpatentable<br>23 claims |
| 34. EasyWeb (Fed. Cir. 05/12/17) (Hughes, J.) (non-precedential) | "receiving, authenticating, and publishing data" | aff'g R. 56 invalidity<br>7 claims [at least] |
| 35. RecogniCorp (Fed. Cir. 04/28/17) (Reyna, J.) | "encoding and decoding image data;"<br>"Morse code, ordering food at a fast food restaurant via a numbering system, and Paul Revere's 'one if by land, two if by sea' signaling system all exemplify encoding at one end and decoding at the other end." | aff'g R. 12(c)<br>37 claims |
| 36. West View (Fed. Cir. 04/19/17) (Wallach, J.) (non-precedential) | "receiving or collecting data queries, analyzing the data query, retrieving and processing the information constituting a response to the initial data query, and generating a visual or audio response to the initial data query" | aff'g R. 12(c)<br>81 claims |
| 37. Coffelt (Fed. Cir. 03/15/17) (per curiam) (non-precedential) | "calculating and comparing regions in space" | aff'g R. 12(b)(6)<br>6 claims |

| | "Abstract Idea" To Which Claims Directed | Ruling |
|---|---|---|
| 38. Clarilogic (Fed. Cir. 03/15/17) (Reyna, J.) (non-precedential) | "gathering financial information of potential borrowers;"<br>"a method for collection, analysis, and generation of information reports, where the claims are not limited to how the collected information is analyzed or reformed, is the height of abstraction." | aff'g R. 56 invalidity<br>18 claims |
| 39. In re Salwan (Fed. Cir. 03/13/17) (per curiam) (non-precedential) | "billing insurance companies and organizing patient health information" | aff'g PTAB rejection of ex parte appln. claims<br>42 claims |
| 40. Intellectual Ventures (Erie Indemnity) (Fed. Cir. 03/07/17) (Prost, C.J.) | [first patent:] "'creating an index and using that index to search for and retrieve data;'"<br>"using XML tags—as opposed to other kinds of tags—to build an index;"<br>[second patent:] "'remotely accessing user specific information'" | aff'g R. 12(b)(6)<br>77 claims |
| 41. Intellectual Ventures (Capital One) (Fed. Cir. 03/07/17) (Prost, C.J.) | "collecting, displaying, and manipulating data of particular documents" | aff'g R. 56 invalidity<br>29 claims |
| 42. Smartflash (Fed. Cir. 03/01/17) (Prost, C.J.) (non-precedential) | "'conditioning and controlling access to data based on payment.'" | rev'g denial R. 50(b)(b) invalidity<br>4 claims |
| 43. Evolutionary Intelligence (Fed. Cir. 02/17/17) (Lourie, J.) (non-precedential) | "selecting and sorting information by user interest or subject matter, a longstanding activity of libraries and other human enterprises" | aff'g R. 12(b)(6)<br>39 claims |
| 44. Apple (Ameranth) (Fed. Cir. 11/29/16) (Reyna, J.) | "certain functionality—here, the ability to generate menus with certain features;"<br>"generating menus on a computer, or generating a second menu from a first menu and sending the second menu to another location;"<br>"taking orders from restaurant customers on a computer" | aff'g PTAB CBM unpatentability 27 claims; rev'g patentability 9 claims<br>36 claims |

| | "Abstract Idea" To Which Claims Directed | Ruling |
|---|---|---|
| 45. Tranxition (Fed. Cir. 11/16/16) (Prost, C.J.) (non-precedential) | "migration, or transitioning, of settings"<br>[claim recited automatic migration of computer settings from one computer to another] | aff'g R. 56 invalidity<br>81 claims |
| 46. Synopsys (Mentor) II (Fed. Cir. 10/17/16) (Chen, J.) | "translating a functional description of a logic circuit into a hardware component description of the logic circuit"<br>[Unlike the challenger's "articulation of the abstract idea, which largely restates [claim] in different words, we believe our definition more accurately captures the 'basic thrust' of the Asserted Claims."] | aff'g R. 56 invalidity<br>16 claims |
| 47. FairWarning (Fed. Cir. 10/11/16) (Stoll, J.) | "analyzing records of human activity to detect suspicious behavior" | aff'g R. 12(b)(6)<br>17 claims |
| 48. Intellectual Ventures (Symantec) (Fed. Cir. 09/30/16) (Dyk, J.) | "receiving e-mail (and other data file) identifiers, characterizing e-mail based on the identifiers, and communicating the characterization—in other words, filtering files/e-mail;"<br>"the screening of messages by corporate organizations—in the context of electronic communications;"<br>"virus screening" | aff'g R. 56 and R. 52(c) invalidity 12 claims; rev'g denial R. 52(c) invalidity 1 claim<br>13 claims |
| 49. Affinity Labs (Direct TV) (Fed. Cir. 09/23/16) (Bryson, J.) | "providing out-of-region access to regional broadcast content" | aff'g R. 12(b)(6)<br>21 claims |
| 50. Affinity Labs (Amazon) (Fed. Cir. 09/23/16) (Bryson, J.) | "delivering user-selected media content to portable devices";<br>"customizing a user interface" | aff'g R. 12(c)<br>20 claims |
| 51. TDE Petroleum (Fed. Cir. 08/15/16) (Hughes, J.) (non-precedential) | "storing, gathering, and analyzing data" | aff'g R. 12(b)(6)<br>115 claims |
| 52. Electric Power (Fed. Cir. 08/01/16) (Taranto, J.) | "collecting information, analyzing it, and displaying certain results of the collection and analysis" | aff'g R. 56 invalidity<br>16 claims |

| | "Abstract Idea" To Which Claims Directed | Ruling |
|---|---|---|
| 53. LendingTree (Fed. Cir. 07/25/16) (Schall, J.) (non-precedential) | "a loan-application clearinghouse or, more simply, coordinating loans"<br><br>[Note: one claim had 11 steps and 361 words] | rev'g denial R. 56 invalidity<br><br>11 claims |
| 54. Shortridge (Fed. Cir. 07/13/16) (non-precedential) (per curiam) | "'cataloging labor data'" | aff'g R. 12(c)<br><br>24 claims |
| 55. TLI Commc'ns (Fed. Cir. 05/17/16) (Hughes, J.) | "classifying and storing digital images in an organized manner" | aff'g R. 12(b)(6)<br><br>5 claims [at least] |
| 56. In re Brown (Fed. Cir. 04/22/16) (per curiam) (non-precedential) | "assigning hair designs to balance head shape" | aff'g PTAB rejection ex parte appln.<br><br>13 claims |
| 57. In re Smith (Fed. Cir. 03/10/16) (Stoll, J.) | "rules for conducting a wagering game" | aff'g PTAB rejection ex parte appln.<br><br>18 claims |
| 58. Mortgage Grader (Fed. Cir. 01/20/16) (Stark, J.) | "'anonymous loan shopping'" | aff'g R. 56 invalidity<br><br>4 claims |
| 59. Vehicle Intelligence (Fed. Cir. 12/28/15) (per curiam) (non-precedential) | "testing operators of any kind of moving equipment for any kind of physical or mental impairment;"<br><br>"using an unspecified 'expert system' running on equipment that already exists in various vehicles" | aff'g R. 12(c)<br><br>10 claims |
| 60. Versata II (Fed. Cir. 07/09/15) (Plager, J.) | "determining a price, using organizational and product group hierarchies"<br><br>[method, system and CRM claims] | aff'g PTAB CBM FWD unpatentability<br><br>4 claims |
| 61. Intellectual Ventures (Capital One) (Fed. Cir. 07/06/15) (Dyk, J.) | "tracking financial transactions to determine whether they exceed a pre-set spending limit (i.e., budgeting);"<br><br>"customizing information based on . . . information known about the user" | aff'g R. 56 invalidity<br><br>20 claims |
| 62. Internet Patents (Fed. Cir. 06/23/15) (Newman, J.) | "retaining information in the navigation of online forms" | aff'g R. 12(b)(6)<br><br>8 claims |

| | "Abstract Idea" To Which Claims Directed | Ruling |
|---|---|---|
| 63. OIP Tech. (Fed. Cir. 06/11/15) (Hughes, J.) (Mayer, J., Concurring Op.) | "offer-based price optimization" | aff'g R. 12(b)(6)<br>4 claims [at least] |
| 64. Content Extraction (Fed. Cir. 12/23/14) (Chen, J.) | "1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory" | aff'g R. 12(b)(6)<br>242 claims |
| 65. In re BRCA1- and BRCA2-Based Hereditary Cancer Test Patent Litig. (Fed. Cir. 12/17/14) (Dyk, J.) | "comparing BRCA sequences and determining the existence of alterations" | aff'g denial prelim. injunc.<br>2 claims |
| 66. Ultramercial III (Fed. Cir. 11/14/14) (Lourie, J.) (Mayer, J., Concurring Op.) | "receiving copyrighted media, selecting an ad, offering the media in exchange for watching the selected ad, displaying the ad, allowing the consumer access to the media, and receiving payment from the sponsor of the ad;"<br>"showing an advertisement before delivering free content" | aff'g R. 12(b)(6) [having previously held claims eligible pre-Mayo and again post-Mayo but pre-Alice<br>16 claims |
| 67. buySAFE (Fed. Cir. 09/03/14) (Taranto, J.) | "creating a contractual relationship—a 'transaction performance guaranty.'" | aff'g R. 12(c) invalidity<br>4 claims |
| 68. Planet Bingo (Fed. Cir. 08/26/14) (Hughes, J.) (non-precedential) | "managing a bingo game while allowing a player to repeatedly play the same sets of numbers in multiple sessions;"<br>"'solv[ing a] tampering problem and also minimiz[ing] other security risks' during bingo ticket purchases" | aff'g R. 56 invalidity<br>52 claims |
| 69. Digitech (Fed. Cir. 07/11/14) (Reyna, J.) | "a process of organizing information through mathematical correlations and is not tied to a specific structure or machine" | aff'g R. 56 invalidity<br>19 claims |
| 70. Alice Corp. (U.S. 06/19/2014) (Thomas, J.) | "intermediated settlement" | aff'g R. 56 invalidity<br>208 claims |