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At the Intersection of U.S. Patent Laws and Autonomous Vehicles: A Look at Patent Eligibility and Claim Indefiniteness



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Reising Ethington P.C.

Jeffrey L. Doyle

Introduction

The automotive industry and U.S. patent laws have something in common: they are experiencing change at a pace seldom matched in previous decades. With the advent of autonomous vehicles and the navigation, sensor, and other related technological advances, the automotive industry is moving from a mostly mechanical-focused industry to a more software-focused one. And with the enactment of the America Invents Act in 2011 and the U.S. Supreme Court's penchant for patent matters in recent years, patent laws have rarely been so restless.

Since autonomous vehicle technologies rely on software in one form or another, patenting them involves more computer implementation and more detachment from components than the gears and pistons of the past. Here, patent applicants and owners can encounter patent eligibility and claim indefiniteness challenges, two areas reshaped by the Supreme Court and not infrequently raised for inventions similar in kind. This chapter looks at the state of these two areas of patent law.

Patent Eligibility

It is without question that countless types of inventions lend themselves to patent eligibility. It has become, however, abundantly clear – if it was not so already – that not all inventions do. Section 101 of the U.S. Patent Act sets forth the general requirements regarding which subject matter is considered to be patenteligible. Specifically, § 101 provides that patent protection may be obtained for "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof". While not explicitly provided for in the statute, courts have long held that inventions directed to laws of nature, natural phenomena, and abstract ideas do not fall within the four statutory categories of invention enumerated in § 101, and are therefore patent-ineligible concepts excluded from the broad terms of § 101. It is the application of these three patent-ineligible concepts – or "judicial exceptions", as they are often called - that has caused much consternation among courts and patent stakeholders alike in the wake of the relatively recent U.S. Supreme Court decision in Alice Corporation v. CLS Bank International.2

In *Alice*, the Court promulgated a two-step framework for determining patent eligibility of a claim. First, a determination is made as to whether the claimed subject matter is directed to one of the patent-ineligible judicial exceptions.³ If the answer is *no*, the subject matter is patent-eligible. If the answer is *yes*,

the analysis moves to the second step in which a determination is made as to whether the elements of the claim, alone or as an ordered combination, contain an inventive concept that transforms the judicial exception into a patent-eligible application of that exception.⁴ If the claim contains an inventive concept, the subject matter is patent-eligible; otherwise, it is not.

Between when *Alice* was decided in June 2014 and May 2016, the U.S. Court of Appeals for the Federal Circuit issued more than 20 decisions in which patents relating to computer-implemented inventions (e.g., software) were ineligible, and a single, solitary decision in which a patent relating to such an invention was deemed to be eligible.⁵ However, while *Alice* and its progeny may have cast a dark shadow on the patent-eligibility of computer-implemented inventions, there may be brighter days ahead for patent applicants and owners, if recent Federal Circuit decisions are any indication.

Two Federal Circuit decisions that are particularly noteworthy are *Enfish, LLC v. Microsoft Corporation, et al*⁶ and *Bascom Global Internet Services, Inc. v. AT&T Mobility LLC, et al.*⁷ In both cases, the Federal Circuit found the claims of the patents at issue to be eligible, albeit doing so at different steps of the *Alice* framework.

In *Enfish*, the claims at issue related to a logical model for a computer database described in the patent as a "self-referential" model. The district court concluded that the claims were directed to the abstract idea of "storing, organizing, and retrieving memory in a logical table or, more simply, 'the concept of organizing information using tabular formats'". In disagreeing with the district court's conclusion and finding that the claims were not directed to an "abstract idea", the Federal Circuit engaged in a deliberate analysis of the first step of the *Alice* framework.

The court started by making the point that determining whether an invention is *directed to* a patent-ineligible concept is a "meaningful one", noting that the two-step framework contemplates that "a substantial class of claims are not directed to a patent-ineligible concept".9 The court went on to explain that the question is not simply whether a claim involves a patent-ineligible concept, but rather whether the character of the claim as a whole is directed to such a concept,10 cautioning against describing claims at "a high level of abstraction and untethered from the language of the claims", as doing so "all but ensures that the exceptions to § 101 swallow the rule".11 Ultimately the court concluded that the claims were not directed to the abstract idea identified by the district court because the plain focus of the claims was not on the abstract idea, but rather was directed to a specific application of that idea, namely, a self-referential table for a computer database that provides an improvement to an existing technology (i.e., improvements in computer capabilities). 12

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Interestingly, and perhaps instructively, the court noted that both the description of benefits which the claimed invention provided over conventional databases, and the disparagement of those databases in the patent's specification, bolstered its conclusion.¹³ And providing at least a glimmer of hope with respect to the patent-eligibility of computer-related inventions is the court's pronouncement that "we are not persuaded that the invention's ability to run on a general purpose computer dooms the claims", ¹⁴ and its finding that because the claims at issue were directed to "a specific implementation of a solution to a problem in the software arts", the claims were not directed to an abstract idea and thus are eligible for patent protection.¹⁵

In Bascom, the claims at issue related to a customizable filtering system installed at a remote server. In applying the two-step Alice framework, the district court concluded that the claims were directed to the abstract idea of "filtering content" (first step), and did not contain an inventive concept transforming the judicial exception into a patent-eligible application of the exception (second step), and thus the claims were not directed to patent-eligible subject matter. 16 The Federal Circuit acknowledged that "unlike Enfish, [this case] presents a 'close call[] about how to characterize what the claims are directed to",17 but nonetheless found that the "the claims and their specific limitations do not readily lend themselves to a step-one finding that they are directed to a nonabstract idea".18 The Federal Circuit disagreed with the district court, however, as it relates to the second step of the Alice framework, finding that the ordered combination of the steps of the claims provide something more than the abstract idea itself.¹⁹ Specifically, the court concluded that the "installation of a filtering tool at a specific location, remote from the end-users, with customizable filtering features specific to each end user" constitutes more than merely "filtering content". 20

In addressing the second step of the *Alice* framework, the court explained that "[t]he inventive concept inquiry requires more than recognizing that each claim element, by itself, was known in the art", and noted that "an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces". And in applying this principle to the claims, the court concluded that the ordered combination of elements of the claims indeed provided an improvement to existing technology by providing a specific, discrete technical solution for overcoming problems attendant in existing Internet filtering systems. Accordingly, the court found that the claims were, in fact, eligible for patent protection.

Underlying the court's conclusion are the facts that the claims at issue do not simply recite an abstract idea along with a requirement that the idea be performed on the Internet, and the claims do not preempt all ways of performing content filtering on the Internet.²³ This second part is important, because while the *Alice* framework does not explicitly address or include the concept of pre-emption, it is a significant underpinning of the framework that may weigh in favor of the eligibility of a claim.

While the claims at issue in *Enfish* and *Bascom* were found to be eligible under different steps of the *Alice* framework, it is interesting to note that in both instances, the Federal Circuit's decision was based at least in part on the fact that the claims were directed to a specific technical solution for overcoming a problem in an existing technology. This, perhaps, underscores the advisability – if not the necessity – of ensuring that the problem(s) which an invention is intended to solve is described in detail and depth in the patent application, and that the claims are tailored to a particular solution to the problem(s).

Claim Indefiniteness

Claim indefiniteness is about providing notice of a claim's metes and bounds, in order that it is clear what subject matter is covered, and what is not. If a claim fails to do this, the claim should be held invalid as indefinite. The governing statute, 35 U.S.C. § 112, demands that a patent "conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention".²⁴

Before the Supreme Court addressed the issue in 2014, courts would find a claim definite, and hence not invalid, so long as the claim was *amenable to construction* and not *insolubly ambiguous*. This often meant that claims would weather indefiniteness challenges if their boundaries could be discerned, however formidable the task, and would only fall if no claim construction could be adopted, not even a narrowing one.²⁵ Courts pointed to the statutory presumption of patent validity as the rationale for the somewhat tepid approach.

In Nautilus, Inc. v. Biosig Instruments, Inc.,26 the Supreme Court moved away from the amenable-to-construction and insolublyambiguous standard, viewing it as tolerating too much imprecision and breeding lower court confusion. In its place, the Court read the relevant language of § 112 to require that claims, viewed in light of the patent's specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.27 Behind this new standard were concerns that claim ambiguity discourages innovation due to deficient notice of what is claimed and what is not, and yet an acknowledgment of the inherent limitations of language that preclude absolute precision.²⁸ The Court also reprised several principles: definiteness is to be evaluated from the perspective of a person skilled in the relevant art; claims are to be read in light of the patent's specification and prosecution history; and definiteness is to be measured from the viewpoint of a person skilled in the art at the time when the patent was filed.²⁹

The patent in dispute described a heart-rate monitor for exercise equipment. The contentious claim language called for a live electrode and a common electrode "mounted [...] in spaced relationship with each other". The controversy centered on whether the phrase "spaced relationship" was indefinite and the claim consequently invalid. The Supreme Court only set out the reasonable-certainty standard in its opinion and did not decide the issue, leaving it for the Federal Circuit below. On remand, the Federal Circuit held that the phrase was not indefinite and the claim not invalid under the new standard, maintaining its previous holding under the old standard before Supreme Court review.30 Despite not defining "spaced relationship" with parameters in the patent specification, the Federal Circuit found that the phrase meant the electrodes could not be spaced apart greater than the width of a user's hands, nor spaced apart infinitesimally small, based largely on the function to be performed by the live and common electrodes.³¹

Now that we have the reasonable-certainty standard to gauge claim indefiniteness, the question remains: How much has really changed? Little more than a name change to help guide lower courts, it seems, per the remanded Federal Circuit opinion, and not a particularly good one at that: "[W]e may now steer by the bright star of 'reasonable certainty', rather than the unreliable compass of 'insoluble ambiguity'".³² Indeed, in its opinion, the Supreme Court recognized that, in practice, the old standard may come close to meeting the demands of § 112.³³

In *Dow Chemical Co. v. Nova Chemicals Corp.*, ³⁴ however, the difference between the old standard and the new standard was the difference between a definite and valid claim, and an indefinite and invalid one. The patents in dispute described a new type of

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plastic. The contentious claim language called for "a slope of strain hardening coefficient greater than or equal to 1.3". In an earlier appeal, the Federal Circuit found the phrase not indefinite and the claims not invalid under the old amenable-to-construction and insolubly-ambiguous standard.³⁵ Amid a subsequent appeal concerning damages, the Supreme Court decided *Nautilus* and prescribed the new reasonable-certainty standard, and therefore the Federal Circuit revisited the issue under the new standard.

This time, the Federal Circuit found the phrase indefinite and the claims consequently invalid.³⁶ Unlike its remanded opinion in *Nautilus*, the court here observed something more than a mere name change with the reasonable-certainty standard: "[T]here can be no serious question that *Nautilus* changed the law of indefiniteness."³⁷ The controversy centered on how the "slope of strain hardening" should be measured. The court identified four methods for doing so, all of which could produce varying results.³⁸ Neither the patent nor the prosecution history provided guidance on the method to be used, and there was no evidence of how skilled artisans would have measured the slope.³⁹ As a result, one could not know whether a given product infringed the claims.⁴⁰

So where does this leave us? In one case, the Federal Circuit tells us that not much has changed with the new indefiniteness standard; in another case, it tells us that real change has occurred. Whichever is more accurate, prudence is the way forward. Claim ambiguity, or imprecision, when permitted by the prior art and injected at the point of novelty, can be particularly effective in securing desired breadth. It should be employed wittingly, however, and with the knowledge that courts will look to the patent and prosecution history for description and clarification, and from the viewpoint of skilled artisans. Apart from this, the usual advice to prepare claims of varying scope – broader ones with less precision, and narrower ones with greater precision – could serve as a way to withstand indefiniteness challenges.

Concluding Remarks

Whether in the automotive industry or in U.S. patent laws, change is good. And whatever changes lie ahead for the laws of patent eligibility and claim indefiniteness, the key to patenting advances in autonomous vehicle technologies is no different than advances elsewhere: it begins with patent quality. Rigor in patent preparation – thoughtful claims, in-depth descriptions, careful attention to evolving patent laws – is the best way to ready patent protection for the challenges to come.⁴¹

Endnotes

- 1. 35 U.S.C. § 101 (2012).
- 2. Alice Corp v. CLS Bank Int'l, 134 S.Ct. 2347 (2014).
- 3. Id. at 2355.

- 4. Id. at 2357.
- See DDR Holdings, LLC v. Hotels.com, L.P., 773 F.3d 1245 (Fed. Cir. 2014).
- Enfish, LLC v. Microsoft Corp., 822 F.3d 1327 (Fed. Cir. 2016).
- 7. Bascom Global Internet Services, Inc., v. AT&T Mobility LLC, et al, 2016 WL 3514158 (Fed. Cir. 2016).
- 8. Enfish, 822 F.3d at 1337.
- 9. *Id.* at 1335.
- 10. Id.
- 11. Id. at 1337.
- 12. Id. at 1336.
- 13. *Id.* at 1337.
- 14. Id. at 1338.
- 15. *Id.* at 1339.
- 16. Bascom, 2016 WL 3514158 at *4.
- 17. Id. at *5.
- 18. Id.
- 19. Id. at *6.
- 20. Id.
- 21. Id.
- 22. Id. at *7.
- 23. Ia
- 24. 35 U.S.C. § 112(b) (2012).
- 25. See Exxon Research and Engineering Co. v. U.S., 265 F.3d 1371, 1375 (Fed. Cir. 2001).
- Nautilus, Inc. v. Biosig Instruments, Inc., 134 S.Ct. 2120 (2014).
- 27. Id. at 2129.
- 28. *Id.* at 2129–2130.
- 29. Id. at 2128.
- Biosig Instruments, Inc. v. Nautilus, Inc., 783 F.3d 1374, 1384 (Fed. Cir. 2015).
- 31. *Id.* at 1382–1383.
- 32. *Id.* at 1379.
- 33. Nautilus, 134 S.Ct. at 2130.
- Dow Chemical Co. v. Nova Chemicals Corp. (Canada), 803
 F.3d 620 (Fed. Cir. 2015).
- Dow Chemical Co. v. Nova Chemicals Corp. (Canada), 458
 Fed.Appx. 910, 920 (Fed. Cir. 2012).
- 36. Dow Chemical, 803 F.3d at 635.
- 37. *Id.* at 630.
- 38. Id. at 633-634.
- 39. Id. at 634.
- 40. Id.
- 41. Views expressed in this chapter are those of the authors.

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Since its founding in Detroit in 1865, Reising Ethington has specialized solely in the practice of intellectual property (IP) law. Areas of expertise include IP prosecution and litigation, managing worldwide patent and trademark portfolios, post-grant proceedings, trade secrets, and licensing and other IP-related agreements. The firm represents some of the world's most innovative and foremost IP owners, including automotive manufacturers and suppliers, medical technology companies, aerospace companies, universities, industrial equipment makers, robotics companies, and consumer product companies

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