4-26-2020

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Cardozo Arts & Entertainment Law Journal

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BY KAYLAN GEIGER/ON APRIL 26, 2020

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Subject matter eligibility, defined by 35 U.S.C. § 101, requires a claimed invention to fall within "one of the four categories of invention . . . i.e., process, machine, manufacture, or composition of matter."[1] While the general understanding has been that Congress has intended the patent laws to be understood expansively,[2] the Supreme Court has explained the inherent limitations on patentable subject matter.[3] These judicial exceptions include abstract ideas, laws of nature, and natural phenomena.[4] By prohibiting the grant of patents on judicial exceptions, the Court intended to prevent inhibiting "further discovery by improperly tying up the future use of these building blocks of human ingenuity."[5] Thus, taken together, the statutory language and the judicial exceptions require that the claims "be

directed to patent-eligible subject matter and not to a judicial exception (unless the claim as a whole includes additional limitations amounting to *significantly more than the exception*)."[6]

The Supreme Court has consistently affirmed the principle that categorical rules for denying patent protection for "inventions in areas not contemplated by Congress . . . would frustrate the purposes of the patent law."[7] Yet, in an attempt to avoid categorical rules, we are precisely frustrating the principles the Supreme Court wanted to protect. Contemplation of biotechnological and computer-implemented technologies that are currently being pursued today were, arguably, not within the contemplation of Congress in 1952. While § 101 is a "dynamic provision designed to encompass new and unforeseen inventions," these unforeseen inventions cannot be precluded from patentability merely because of the lack of a definitive definition as to what *significantly more than the exception* means.[8] Moreover, analyzing the subject-matter of a patent on a claim-by-claim basis in the § 101 analysis is inconsistent with the patentability analysis that occurs in, for example, §§ 102 or 103—where the claims are construed in light of the application as a whole.

In recent years, the call for patentable subject matter clarification has snowballed. What started with some general dissatisfaction with the cumulative principles articulated in the Supreme Court's decisions in *Bilski*, *Mayo*, *Myriad*, and *Alice* has now become proposals by major players in the intellectual property field.[9] Since these decisions have issued, there have been online blog posts,[10] calls for public comments,[11] PTO memoranda[12] and agency guidelines,[13] proposed amendments to current laws,[14] legislative hearings,[15] economic analyses,[16] and law review articles.[17] Moreover, since the *Alice* decision was rendered in 2014, the Supreme Court has denied certiorari for at least 46 petitions that centered on a § 101 issue.[18] At least four of these rejections were after both at least nine Federal Circuit judges, and the Solicitor General requested clarification for the *Alice*/*Mayo* framework.[19] Individuals in general and research groups, including groups at the Federal Trade Commission have also expressed concerns about the lack of clarity and the negative impact this uncertainty has on competition. For example, General Counsel, Alden F. Abbott, has expressed the need for reform because of the perverse incentive provided by the unclear application of patent law principles.[20] Specifically, Abbott emphasizes the lack of incentive for investors and accompanying difficulty entering the market without some form of funding that may result from the inability to know whether the research subject will fall within something more than mere abstract ideas, natural phenomena, or natural laws.[21]

The effects of uncertainty in § 101 inhibits innovation, which in turn, runs counter to the purpose of patent laws in general. For example, a startup or inventor wanting to bring their innovative ideas to the market to share with the public, requires funding. In order to obtain said funding, the first step is generally to obtain a patent,[22] for "intellectual property is often the most valuable asset of a startup."[23] Obtaining intellectual property rights provides security, and patents grants a limited amount of time where recovery for infringement is provided by law. Unlike trade secrets, which are dependent upon each party privy to the

information keeping it from everyone else, patents are granted the rights as soon as the patent is issued.

While the USPTO patent eligibility guidelines and memoranda have provided some clarity, this clarity is just a band-aid on the larger problem with the patent system.[24] The current clarity and trust innovators have in the patent system is minimum. These efforts are not a band-aid—the attempted clarification is about as useful as trying to fix a burst pipe with paper. Critics likely will argue that these guidelines have provided enough clarity for USPTO Examiners, and thus this should be sufficient for all others. However, the Updated Guidelines have resulted in a mere 25% decrease in the likelihood that an *Alice*-affected technology will not receive a first office action response with a § 101 rejection. However, a 25% reduction is unlikely to provide the confidence and security an investor is seeking when they offer the substantial capital required for some new, ground-breaking technology.[25] The United States, as a whole, once viewed as the leader of innovation, is slowly falling behind. As the predictability in patent protection diminishes, alternative forms of intellectual property protection become more attractive. In the worst scenario, inventors are likely to seek patent protection from another country that has more friendly patent laws.

Investors are without merit if they find this 25% decrease to be unconvincing—especially considering applications by smaller entities, such as startups and individuals, had claims that were rejected under the *Alice* analysis more often than similar subject matter claimed in applications of larger entities.[26] The disproportionate number of rejections faced by small entities is detrimental to innovation and prevents an efficient marketplace from operating.[27] While some have argued that our 'one size fits all' patent system has brought the United States to where we are now, a question prevails: where would we be if inventors had sufficient clarity in the law and if investors had sufficient security on their investment?

As a solution to the current unpredictability, some have called for additional statutes to be enacted. One commenter called for an additional patentability requirement be established—the completeness requirement. There have also been arguments for an additional form of patent as a remedy to unpredictability and lack of clarity. Ultimately, a minor amendment to the current § 101 can provide the necessary remedy.[28] In the alternative, to serve the purposes of promoting innovation, technology-specific patent terms that correlate to the amount of time and money invested in the research may encourage investment in risky R&D.[29] Greater patent protection is also required to "reduce the likelihood of patents stifling future innovation."[30] Economic forces make inventions with lengthy R&D times less profitable, all else being equal, which discourages new competitors from entering into the market. These perverse incentives inhibit intellectual property, which restricts the technological innovation of the United States in the 21st Century. Something must change with the current patent laws for them to be aligned to promote the individual to disclose their innovation to the public. If no change were to occur, the United States is likely to see a growing number of individuals who believe the current patent system is inadequate, unpredictable, and uneconomical.

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[1] MPEP § 706.03(a).

[2] *See* Diamond v. Chakrabarty, 447 U.S. 303, 308 (1980) ("In choosing such expansive terms as 'manufacture' and 'composition of matter,' modified by the comprehensive 'any,' Congress plainly contemplated that the patent laws would be given wide scope.").

[3] Alice Corp. Pty. Ltd. v. CLS Bank Int'l, 134 S. Ct. 2347, 2354 (2014) (citing Ass'n for Molecular Pathology v. Myriad Genetics, Inc., 133 S. Ct. 2107, 2116 (2013).

[4] *Id. See also* Bilski v. Kappos, 130 S. Ct. 3218, 3225 (2010) (citing Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980)).

[5] Mayo Collaborative Services v. Prometheus Laboratories, Inc., 56 U.S. 66 (2012).

[6] MPEP § 706.03(a) (emphasis added).

[7] Chakrabarty, 100 S. Ct. 2204.

[8] Bilski v. Kappos, 130 S. Ct. 3218, 3227 (2010).

[9] *See e.g.*, Fed. Trade Comm'n, The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition (March 2011), https://www.ftc.gov/sites/default/files/documents/reports/evolving-ip-marketplace-aligning-patent-notice-and-remedies-competition-report-federal-trade/110307patentreport.pdf.

[10] *See* Gene Quinn, *The One Word that Will Help Restore the U.S. Patent System*, IP Watchdog (May 30, 2019) (available at https://www.ipwatchdog.com/2019/05/30/one-word-will-help-restore-u-s-patent-system/id=109882/); *See also* Gene Quinn, The Supreme Court is More Interested in Being Right Than Shedding Light on 101, IPWatchdog (January 14, 2020), https://www.ipwatchdog.com/2020/01/14/supreme-court-interested-right-shedding-light-101/id=117822/; *see also* Paul R. Michel and Matthew J. Dowd, *America's Innovators Need Clear Patent Laws* (Jan. 23, 2020 7:10 PM), available at https://www.wsj.com/articles/americas-innovators-need-clear-patent-laws-11579824646; RPX Rational Patent, *Alice's Post-Berkheimer Decline Continues, with Summary Judgment Hit the Hardest*, Data Byte (October 23, 2019), https://www.rpxcorp.com/data-byte/alices-post-berkheimer-decline-continues-with-summary-judgment-hit-the-hardest/

[11] United States Patent and Trademark Office, Patent Eligible Subject Matter: Report on Views and Recommendations from the Public (July 2017), https://www.uspto.gov/sites/default/files/documents/101-Report_FINAL.pdf.

[12] United States Patent and Trademark Office, Changes in Examination Procedure Pertaining to Subject Matter Eligibility (Apr. 18, 2018); *see also* United States Patent and Trademark Office, Recent Subject Matter Eligibility Decision (Berkheimer v. HP, Inc.) (Apr. 19, 2018), https://www.uspto.gov/sites/default/files/documents/memo-berkheimer-20180419.PDF.

[13] United States Patent and Trademark Office, October 2019 Update: Subject Matter Eligibility Guidelines, https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf.

[14] IPOA Section 101 Legislation Task Force, *Proposed Amendments to Patent Eligible Subject Matter Under 35 U.S.C. § 101* (Feb. 7, 2017) (available at https://ipo.org/wp-content/uploads/2017/02/20170207_IPO-101-TF-Proposed-Amendments-and-Report.pdf).

[15] STRONGER Patents Act of 2019, H.R.3666 — 116th Congress (2019-2020) (available at https://www.congress.gov/bill/116th-congress/house-bill/3666/text); see also John R. Thomas, Patentable Subject Matter Reform, Congressional Research Service (Sept. 8, 2017) (available at https://fas.org/sgp/crs/misc/R44943.pdf).

[16] https://www.uspto.gov/sites/default/files/documents/OCE-DH_AdjustingtoAlice.pdf

[17] Benjamin N. Roin, *The Case for Tailoring Patent Awards Based on Time-to-Market*, 61 UCLA L. Rev. 672 (Feb. 2014).

[18] *See* Dani Kass, *Justices Reject 3 More Cases Challenging Alice*, Law 360 (January 27, 2020, 3:12 PM), https://www.law360.com/articles/1236828.

[19] *See* Hikma Pharms. USA Inc. v. Vanda Pharms. Inc., 2019 U.S. S. Ct. Briefs Lexis 7155 (the Solicitor General emphasizing the Court's recent decisions have departed from the previous course and recommends that the "Court should await a case in which lower courts' confusion about the proper application of Section 101 and this Court's precedents makes a practical difference."); *see also*, Hannah Lee, *The Whole Enchilada: The Necessity of Looking at Claims as a Whole to Determine Patent Eligibility* (Jan. 9, 2020), https://www.kramerlevin.com/en/perspectives-search/the-whole-enchilada-the-necessity-of-looking-at-claims-as-a-whole-to-determine-patent-eligibility.html

[20] *See* IPWatchdog Institution Patent Masters Symposium, *Patent Law Reform and Competition Policy: A Federal Trade Commission Perspective Remarks*, 10 (March 25, 2019) ("Confusion about what is patentable is particularly pernicious."), https://www.ftc.gov/system/files/documents/public_statements/1509026/patent_law_reform_a

nd_competition_policy_speech_abbott.pdf; *see also* Fed. Trade Comm'n, The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition (March 2011), https://www.ftc.gov/sites/default/files/documents/reports/evolving-ip-marketplace-aligning-patent-notice-and-remedies-competition-report-federal-trade/110307patentreport.pdf.

[21] *See id.*

[22] Or some other intellectual property rights.

[23] Chris Sloan & Emily Brackstone, *Corporate and Intellectual Property Considerations for Startups Seeking Venture Capital Funding*, II Landslide 5 (May/June 2019) https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2017-18/july-august/corporate-intellectual-property-considerations-startups-seeking-venture-capital-funding/; *see also* Mary Juetten, *Pay Attention To Innovation And Intangibles – They're More Than 80% of Your Business' Value*, (Oct. 2, 2014, 11:00 AM), https://www.forbes.com/sites/maryjuetten/2014/10/02/pay-attention-to-innovation-and-intangibles-more-than-80-of-your-business-value/#4548f4761a67 ("intangible assets account for more than 80% of a business's value. For early-stage companies, that number is more like 90%.").

[24] United States Patent and Trademark Office, Adjusting to Alice USPTO patent examination outcomes after Alice Corp. v. CLS Bank Intn'l (Apr. 3 2020), https://www.uspto.gov/sites/default/files/documents/OCE-DH_AdjustingtoAlice.pdf.

[25] United States Patent and Trademark Office, Adjusting to Alice USPTO patent examination outcomes after Alice Corp. v. CLS Bank Intn'l (Apr. 3 2020), https://www.uspto.gov/sites/default/files/documents/OCE-DH_AdjustingtoAlice.pdf.

[26] *See* Benjamin N. Roin, *The Case for Tailoring Patent Awards Based on Time-to-Market*, 61 UCLA L. Rev. 672 (Feb. 2014).

[27] *See id.*

[28] *See* Dmitry Karshtedt, *Upstream Inventions*, 10.2139/ssrn.2465581 (Jan. 1, 2014), https://www.law.berkeley.edu/files/Karshtedt_Dmitry_IPSC_paper_2014.pdf (explaining a "research patent" may be a viable alternative to pursue new technological innovation).

[29] *See Id.* at 757. (The longer an invention's time-to-market is one of the economic forces that "create a need for greater patent protection under both models of innovation." Both models of innovation refer to (1) the stand-alone model (by lengthening inventions' time-to-market and by raising R&D costs) and (2) the cumulative model (the cumulative nature of innovation).

[30] *Id.* at 740.