



# What is Eligible to be Patented?

By Colin Cicotte

Valuable intellectual property increasingly involves computer software as well as algorithmic and biologically implemented forms rather than tangible mechanical devices. In the past, courts were friendlier to viewing less-tangible technological forms as being eligible for patent protection. But in recent years, the courts have narrowed the scope of what is patent eligible and established a framework that can exclude the increasingly common formats of innovation. The narrowing largely focused on financial, medical diagnostic, and software-implemented method claims.

Recently, a three-judge panel of the U.S. Court of Appeals for the Federal Circuit further restricted patentable subject matter by finding a process of making a vehicle drive shaft a patent-ineligible law of nature.<sup>1</sup> A subsequent request for en banc rehearing resulted in a 6–6 split, affirming the panel decision and exposing a divide that exists within the Federal Circuit with respect to what is patentable subject matter.<sup>2</sup> A practical outcome of this split — given the random three-judge panel format of the Federal Circuit — is that eligibility determinations may depend on the judges assigned to the panel and their personal views on patent eligibility. Chief Judge Kimberly A. Moore succinctly summarized where the issue stands: “There is very little about which all twelve of us are unanimous, especially when it comes to [patent eligibility]. We were unanimous in our unprecedented plea for guidance.”<sup>3</sup>

Now, the U.S. Supreme Court is asked to sort it out — again.

## The rules

Not all new and useful inventions and discoveries are patentable. The test for patent eligibility is found in the U.S. Code and is deceptively simple:

“[W]hoever 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.”<sup>4</sup>

However, judicial exceptions to this test complicate the eligibility analysis. The judicial exceptions include laws of nature, natural phenomena (including products of nature), and abstract ideas.<sup>5</sup> Historically, patent eligibility has served as a coarse filter to prevent monopolization of “the basic tools of scientific and technological work,”<sup>6</sup> but the courts have been hard at work making that filter increasingly finer. Through the interpretation of these judicial exceptions, some technological achievements may be shut out of the patent system — not because they aren’t inventive, but rather because the patent system does not afford them protection in the first place.

## Earlier Supreme Court decisions expand eligibility of method steps

A triad of cases from the late 1970s helped form the contours of patent-eligible subject matter. The Supreme Court weighed in on a number of factual circumstances and ultimately established a more expansive view of what is patentable.

In *Gottschalk v. Benson*, the Court reviewed claim language capturing a method for converting binary-coded decimal numbers into binary numbers and found it to be an abstract idea preempting a mathematical formula.<sup>7</sup> But in *Parker v. Flook* and *Diamond v. Diehr*, the Court struck a more permissive tone.

*Parker* addressed a mathematical algorithm for determining whether hydrocarbon emissions are within prescribed boundaries.<sup>8</sup> The patent updated alarm limits relating to a catalytic conversion process.<sup>9</sup> The Court found the claims ineligible largely based on the rationale that the mathematical algorithm was already well known in the prior art but emphasized that “it is equally clear that a process is not unpatentable simply because it contains a law of nature or a mathematical algorithm.”<sup>10</sup> That is, if an inventive application of the mathematical algorithm or law of nature is claimed, then the subject matter is patent eligible.

The Court refined its guidance and subtly bolstered *Parker* several years later in *Diamond* when it considered eligibility

## At a Glance

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of a claim drafted to a process of curing synthetic rubber according to a number of factors related by a mathematical formula.<sup>11</sup> The factors were measured in a rubber mold by sensors, and a computer analyzed data from those sensors by calculating curing times based on the mathematical formula to determine when to open the mold.<sup>12</sup> The Court affirmed its recognition that using mathematical formulas per se is not patentable, but if a process uses a mathematical formula in a way that does not preempt use of that formula, the subject matter is patent eligible.<sup>13</sup> After *Diamond*, the topic remained relatively quiet for nearly 30 years.

### *Bilski*, *Mayo*, and *Alice* curtail eligibility of method steps

In the early 2000s, the U.S. Patent and Trademark Office (USPTO) faced an increasing number of patent applications that included claims reciting method steps directed to financial, medical diagnostic, or computer processes.<sup>14</sup> Both the USPTO and the courts sought to codify past eligibility analysis into a common rubric to determine eligibility for these innovations — but this has been elusive. As explained below, the Supreme Court responded by renewing its consideration of whether certain method steps were patent eligible. Yet, we appear to still lack clear guidance with respect to patent eligibility.

The Supreme Court in 2010 considered whether a method of hedging financial risks related to purchasing fixed-bill energy contracts in the marketplace met the patent eligibility requirements of 35 USC 101.<sup>15</sup> The Court gave some consideration

to whether the claim involved a “machine or transformation” but rejected solely using this test as too rigid, instead finding the claims ineligible because they were abstract.<sup>16</sup> That is, the concept of hedging risk is an unpatentable abstract idea and claims drafted to it would effectively grant a monopoly over that idea.<sup>17</sup> Highlighting the difficulty of the subject, the holding of the Court was unanimous, yet support for the outcome split into a number of opinions with no single opinion finding majority support.

Shortly thereafter, the Supreme Court revisited patent eligibility in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*<sup>18</sup> The patent claims at issue involved a method of “optimizing therapeutic efficacy for treatment of an immune-mediated gastrointestinal disorder.”<sup>19</sup> Put simply, the claim involved two steps: admin-

istering a drug and determining if the dosage level was within an upper and lower threshold.<sup>20</sup> The inventors identified optimum thresholds above which the drug caused side effects and below which the drug did not work. The Supreme Court relied on the law-of-nature judicial exception to patent eligibility and held that the correlation between decreased dose/inefficacy and increased dose/unwanted side effects captured a natural law, thereby seeking to monopolize a naturally occurring relationship.<sup>21</sup>

The Supreme Court’s latest eligibility case, *Alice Corp. Pty. Ltd. v. CLS Bank Int’l.*,<sup>22</sup> involved claims to a software algorithm that carried out an escrow service. Given the considerable number of recent computer-related innovations, the case attracted a great deal of attention and scrutiny. The Supreme Court spent some effort detailing a two-step analysis originally used in *Mayo* that identifies patent-eligible subject matter.<sup>23</sup> The first step determines if the claim is directed to an abstract idea or other judicial exception and, if so, then considers whether the claim involves “something more” that reflects an inventive concept.<sup>24</sup> If the claim is abstract and lacks that “something more,” it is not patent eligible. Under this test, the Court found that the escrow service was an abstract idea and implementing it as computer software didn’t provide that “something more” to make it patentable.<sup>25</sup> Or, to use the Court’s language, “[G]iven the ubiquity of computers, wholly generic computer implementation is not generally the sort of ‘additional feature’ that provides any ‘practical assurance that the process is more than a drafting effort designed to monopolize the abstract idea itself.’”<sup>26</sup>

Regardless of the scope of patent eligibility, its uncertainty leaves industry to guess what is patentable and what is not.

### American Axle further curtails eligibility

The two-step test in *Mayo* and *Alice* — used to limit the scope of patents directed to financial algorithms, natural phenomenon, and software in which the computer is the main focus of novelty — appears to be expanded by the Federal Circuit in *American Axle & Mfg. v. Neapco Holdings LLC* to exclude method claims that practically apply scientific principles to a particular problem. The patent at issue recognized that vehicle drive shafts are made from relatively thin-gauge aluminum or steel and are susceptible to unwanted vibration.<sup>27</sup> In response, the patent describes inserting a liner into a hollow drive shaft to lessen vibrations.<sup>28</sup> One of the claims at issue in *American Axle* recites:

A method for manufacturing a shaft assembly of a driveline system . . . comprising: providing a hollow shaft member; tuning a mass and a stiffness of at least one liner; and inserting the at least one liner into the shaft member; wherein the at least one liner is a tuned resistive absorber for attenuating shell mode vibrations and wherein the at least one liner is a tuned reactive absorber for attenuating bending mode vibrations.<sup>29</sup>

The court held that “claim 22 of the ’911 patent is directed to the use of a natural law: Hooke’s law.”<sup>30</sup> Hooke’s law relates the mass and/or stiffness of an object to the frequency with which that objection oscillates or vibrates.<sup>31</sup> Unlike previous consideration of patent eligibility, the identified natural law used to exclude the claimed subject matter is not clearly recited in the claims or even identified in the written description of the patent. The plaintiff has petitioned the Supreme Court for a writ of certiorari; given the circumstances, it is likely to be granted, giving the Court another chance to resolve the split at the Federal Circuit.<sup>32</sup>

Regardless of the scope of patent eligibility, its uncertainty leaves industry to guess what is patentable and what is not. Without legislative intervention or Supreme Court clarity, a prospective applicant with an invention related to financial, medical diagnostic, or software technologies should approach the patent system with the awareness that their invention may not be patentable. Further, if possible, the patent applicant should avoid method claims that can be attacked as abstract ideas using the current eligibility analysis while we await further guidance from the courts, lawmakers, or both. ■



Colin Cicotte is a shareholder at Reising Ethington in Troy and a past council member of the State Bar of Michigan Intellectual Property Law Section. His practice helps clients build global patent portfolios and enforce their patents. Cicotte has significant experience with complex electrical- and computer-based inventions that have regularly been the subject of patent eligibility analysis before the U.S. Patent and Trademark Office.

### ENDNOTES

1. *American Axle & Mfg v Neapco Holdings LLC*, 967 F3d 1285 (CA Fed, 2020).
2. *American Axle & Mfg v Neapco Holdings LLC*, 966 F3d 1347 (CA Fed, 2020) (reh’g en banc denied).
3. *American Axle & Mfg v Neapco Holdings LLC*, 977 F3d 1379, 1382 (CA Fed, 2020).
4. 35 USC 101.
5. *Ass’n for Molecular Pathology v Myriad Genetics, Inc.*, 569 US 576, 589; 186 L Ed 2d 124 (2013).
6. *Mayo Collaborative Svcs v Prometheus Labs, Inc.*, 566 US 66, 71; 132 S Ct 1289; 182 L Ed 2d 321 (2012) (quoting *Gottschalk v Benson*, 409 US 63, 67; 93 S Ct 253; 34 L Ed 2d 273 (1972)).
7. *Gottschalk v Benson*, 409 US 63; 93 S Ct 253; 34 L Ed 2d 273 (1972).
8. *Parker v Flook*, 437 US 584; 98 S Ct 2522; 57 L Ed 2d 451 (1978).
9. *Id.* at 585.
10. *Id.* at 590.
11. *Diamond v Diehr*, 450 US 175; 101 S Ct 1048; 67 L Ed 2d 155 (1981).
12. *Id.* at 177–179.
13. *Id.* at 187.
14. Duffy, *Why Business Method Patents?*, 63 Stan L Rev 1247 (2011), available at <<http://www.stanfordlawreview.org/wp-content/uploads/sites/3/2011/06/Duffy-63-Stan-L-Rev-1247.pdf>> [<https://perma.cc/J5UJ-SGWB>] (website accessed August 1, 2021).
15. *Bielski v Kappos*, 561 US 593; 130 S Ct 3218; 177 L Ed 2d 792 (2010).
16. *Id.* at 603–604.
17. *Id.* at 611.
18. *Mayo Collaborative Svcs*, 566 US at 66.
19. *Id.* at 74.
20. *Id.*
21. *Id.* at 88–92.
22. *Alice Corp Pty Ltd v CLS Bank Int’l*, 573 US. 208; 134 S Ct 2347; 189 L Ed 2d 296 (2014).
23. *Id.* at 217–218.
24. *Id.* at 217.
25. *Id.* at 218.
26. *Id.* at 223–224.
27. US Patent No 7,774,911 col 1, lines 39–52.
28. *Id.* col. 2 line 53–col. 3, line 31.
29. *American Axle & Mfg*, 967 F3d at 1290.
30. *American Axle & Mfg*, 967 F3d at 1298.
31. *American Axle & Mfg*, 967 F3d at 1294.
32. *American Axle & Mfg v Neapco Holdings LLC*, 967 F3d 1285 (CA Fed, 2020), petition for cert. filed (US, December 28, 2021) (No 20-891).