2018-1763

United States Court of Appeals for the Federal Circuit

AMERICAN AXLE & MANUFACTURING, INC.,

Plaintiff-Appellant,

– v. –

NEAPCO HOLDINGS LLC, NEAPCO DRIVELINES LLC,

Defendants-Appellees.

Appeal from the United States District Court for the District of Delaware in Case No. 1:15-cv-01168-LPS, Judge Leonard P. Stark

BRIEF OF *AMICI CURIAE* 12 PATENT LAW SCHOLARS IN SUPPORT OF PLAINTIFF-APPELLANT

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July 6, 2018

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

American Axle & Manufacturing **v.** Neapco Holdings LLC

Case No. 2018-1763

CERTIFICATE OF INTEREST

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☐ (petitioner) ☐ (appellant) ☐ (respondent) ☐ (appellee) ☒ (amicus) ☐ (name of party)
12 Patent Law Scholars

certifies the following (use "None" if applicable; use extra sheets if necessary):

1. Full Name of Party Represented by me	2. Name of Real Party in interest (Please only include any real party in interest NOT identified in Question 3) represented by me is:	3. Parent corporations and publicly held Companies that own 10 % or more of stock in the party
See Appendix A	N/A	None

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court (**and who have not or will not enter an appearance in this case**) are:

PORZIO, BROMBERG & NEWMAN P.C.,
Scott A.M. Chambers, Matthew D. Zapadka

5. The title and number of any case known to counsel to be pending in this or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal. See Fed. Cir. R. 47. 4(a)(5) and 47.5(b).

None

July 6, 2018 /s/ Matthew D. Zapadka
Date Signature of counsel

Please Note: All questions must be answered Matthew D. Zapadka
Printed name of counsel

cc:

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INTEREST OF AMICI CURIAE[1]

The *amici curiae* are patent law scholars that teach and write on patent law and policy. They are concerned that the law properly promotes and protects inventions in all sectors of the economy, including innovation in traditional manufacturing fields like the automotive industry. They have no stake in the parties or in the outcome of the case. The names and affiliations of the members of the *amici* are set forth in Appendix A below.

SUMMARY OF ARGUMENT

The district court's decision below represents an improper application of 35 U.S.C. § 101. *See American Axle & Manufacturing Inc. v. Neapco Holdings, LLC*, No. 15-1168-LPS, 2018 WL 1061371 (D. Del. Feb. 27, 2018). The parties in their briefs address the relevant innovation covered by American Axle's patent,[2] as well as the application of the Supreme Court's and the Court of Appeals for the Federal Circuit's § 101 jurisprudence. Here, *amici* offer additional insights concerning the legal and policy problems with the district court's misunderstanding and

[1] No party's counsel authored this brief in whole or part; no party or party's counsel contributed money intended to fund preparing or submitting this brief; and no person other than *amici*, their members, or counsel contributed money intended to fund preparing or submitting this brief. Consent was sought from each party. Appellee Neapco Holdings LLC expressly withheld its consent to the filing of this brief. Fed. Cir. R. 29(c). A motion for leave is being filed with this brief.

[2] Although there are three patents at issue in the case, the underlying decision only deals with U.S. Patent No. 7,774,911 (the "'911 patent").

misapplication of the "*Mayo-Alice* test." *See Alice Corp. Pty. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014); *Mayo Collaborative Servs v. Prometheus Labs., Inc.*, 566 U.S. 66, 87 (2012).

This decision follows from courts progressively narrowing the range of subject matter eligibility as a result of misapplying the two-step *Mayo-Alice* test. District courts and the U.S. Patent and Trademark Office ("PTO") have adopted an *overly restrictive* approach to the patent eligibility analysis, invalidating legitimate patented innovation under § 101 and leaving inventors or patent attorneys with little predictability as to how the law will be applied to the fruits of their inventive labors. Although this trend began with the Supreme Court's analysis of claims covering certain financial transactions in *Bilski v. Kappos*, 561 U.S. 593 (2010), the problems in applying patent-eligibility doctrine have grown immeasurably since that time.

This case exemplifies this problem of an overly restrictive approach to patent eligibility. Here, the district court found a patent claim directed to a method of manufacturing components in an engine—a classic example of nineteenth-century technology promoted and secured by the U.S. patent system—to be a "law of nature." Unless this Court corrects this profound misunderstanding of the *Mayo-Alice* test, the U.S. patent system will continue to erode.

The Supreme Court has recognized that the plain meaning of the language of § 101 indicates that the scope of patentable subject matter is broad. *See Assoc. for Molec. Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 577 (2013); *Diamond v. Chakrabarty*, 447 U.S. 303, 315 (1980). This is why the Supreme Court consistently has held that "[t]he § 101 patent-eligibility inquiry is only a threshold test." *Bilski*, 561 U.S. at 602. Accordingly, this "threshold test" is necessarily followed by the more exacting statutory requirements of assessing a claim as a whole according to the standard of a person having skill in the art as to whether it is novel, useful, nonobvious, and fully disclosed as required by the *quid pro quo* offered to inventors by the patent system. *Id.*

Unfortunately, courts have applied the two-step *Mayo-Alice* test from the Supreme Court's recent § 101 cases in an unbalanced and legally improper manner that conflicts with settled precedent by the Supreme Court and this Court on how to construe patent claims under the Patent Act. These improper practices often include dissecting claims—either into particular claim elements or particular aspects within a claim element—and then reframing the dissected portions in highly generalized terms and characterizations untethered to the claim as a whole. Thus, as happened in this case, a district court all too often merely asserts a conclusory finding that the claim—actually, a specific element dissected out of the

claim as a whole—covers an ineligible law of nature to conclude that a patented invention is ineligible under § 101.

The lower courts' unduly stringent and restrictive approach to patent eligibility under the *Mayo-Alice* test produces results such as the district court's decision in this case. This improper application of the *Mayo-Alice* test inevitably leads to § 101 findings of ineligibility of patentable product and method inventions; here, the district court rejected an innovative invention in the automotive sector directed to producing an improved driveshaft in an automobile engine. Surprisingly, years ago, *amici* previously proposed this particular decision—analytically reducing an automobile engine down to merely an application of the laws of thermodynamics—as a *reductio ad absurdum* hypothetical. *See* Adam Mossoff, *A Brief History of Software Patents (and Why They're Valid)*, 56 Ariz. L. Rev. Syllabus 65, 71 (2014). The district court has now made this absurdity a reality. The district court here used § 101, not as a "threshold test" to prevent claims of abstract ideas or laws of nature, *see Bilski*, 561 U.S. at 602, but to invalidate a real-world, concrete innovation that has long been protected through the patent system since the nineteenth century.

ARGUMENT

I. The Supreme Court has affirmed that the scope of the exceptions to patent eligibility is narrow.

District courts have been improperly applying the *Mayo-Alice* test, creating a patent-eligibility doctrine under § 101 that is overly restrictive. This problem is exemplified perfectly by this case, in which the district court invalidated a patent on an invented process in the manufacturing arts. Like the district court in this case, too many courts are finding too many legitimate inventions to fall within the judicially-created exceptions. This Court must enforce the plain language of § 101 and the Supreme Court's interpretation of this statutory mandate as a narrow threshold test.

Section 101 provides that a patent can be obtained by "[w]hoever invents or discovers any new and useful process, machine manufacture or composition of matter, or any new and useful improvement thereof." 35 U.S.C. § 101. The expansiveness of these terms conveys that the subject matter covered by the patent laws should be given wide scope. Although laws of nature, physical phenomena, and abstract ideas are judicially defined exceptions to the statutory rule and thus not patentable, the scope of these exceptions is narrow. *See, e.g., Alice,* 134 S. Ct. at 2354 ("[W]e tread carefully in construing this exclusionary principle [of finding claims patent-ineligible under § 101] lest it swallow all of patent law.").

The Supreme Court has repeatedly cautioned against an overly restrictive interpretation of the patent laws, which Congress enacted according to the constitutional grant of authority to promote the progress of the useful arts. Courts "should not read into the patent laws limitations and conditions which the legislature has not expressed." *Diamond v. Chakrabarty*, 447 U.S. at 308 (*citing United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 199 (1933)). This is particularly true for § 101. The Supreme Court has repeatedly taken judicial notice of the harms that follow from unduly restricting subject-matter eligibility according to the § 101 exceptions. *See, e.g., Alice*, 134 S. Ct. at 2354; *Chakrabarty*, 447 U.S. at 316; *Bilski*, 561 U.S. at 601.

Unfortunately, no scientific or technological field is immune to the possibility that a § 101 exception will be applied improperly to cover real-world and concrete innovation. In *Mayo*, the Supreme Court warned "that too broad an interpretation of this exclusionary principle could eviscerate patent law." *Mayo*, 566 U.S. at 71. "[A]ll inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas." *Id*. This is a truism. It is as true of automotive manufacturing relying on the laws of thermodynamics, just as much as it is true of drugs that rely on the natural phenomena of how molecules are processed by and affect the human body, and of the software in modern computers that rely on abstract ideas of mathematical algorithms. Each of these

innovations—engine components, drugs, and software—have been long-recognized by the Supreme Court and this Court as representing real-world technological applications deserving of patent protection.

The limiting principle prohibiting courts from disintegrating innovation down into its foundational elements representing a law of nature or abstract idea was ignored by the district court in this case. This limiting principle is a common refrain throughout the Supreme Court's § 101 jurisprudence. *See, e.g., Alice*, 134 S. Ct. at 2354-55 (stating that "an invention is not rendered ineligible for patent simply because it involves an abstract concept" in some of its distinct claim elements); *Mayo*, 566 U.S. at 71-72 (recognizing same); *Diamond v. Diehr*, 450 U.S. 175, 187 (1981) ("[A]n application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection."). This case is an ideal opportunity for this Court to restate expressly this basic principle in § 101 to ensure that the judicial exceptions on patent eligibility are not applied in manner that overly restricts the scope of protections long provided by the U.S. patent systems to innovators.

II. Claims assessed under § 101 must be analyzed "as a whole" to ensure the individual claim terms are not construed in isolation as the claimed invention, as the district court did in this case.

The district court ignored the mandate from the *Alice* Court that "we consider the elements of each claim both individually *and* 'as an ordered

combination.'" *Alice*, 134 S. Ct. at 2355 (quoting *Mayo*, 566 U.S. at 79, emphasis added). This proposition—that courts should assess claim elements individually *and* as a whole—has been improperly construed by lower courts in the disjunctive, *i.e.*, as equally acceptable alternative approaches in construing claims under § 101. The *Alice* Court, however, used the conjunctive "and," and not an "or"; thus, both methods of claim construction are required by the *Mayo-Alice* test.

In considering Appellant's claims as "an ordered combination," *id.*, the claimed methods in this patent are directed to manufacturing a driveshaft in an engine. This is clearly more than a mere application of a law of nature. As confirmation, the claims place *specific physical requirements* on the key item used in the manufacture of the driveshaft.

The claimed method for manufacturing a driveshaft provides a way to reduce vibrations when the automobile engine is operating. Specifically, the claims instruct the manufacturer to tune the mass and stiffness of a liner, insert the liner into a hollow driveshaft, and require that the liner absorb two modes of vibrations (shell and bending) via two mechanisms (resistive and reactive absorption). *Am. Axle & Mfg, Inc. v. Neapco Holdings, LLC*, No. 15-1168-LPS, 2018 WL 1061371 at *2 (D. Del. Feb. 27, 2018). Additionally, some claims in the patent require a particular amount of damping by the positioning of the liner in the driveshaft. *Id.* Contrary to the district court's assertion that it was focusing on the "character as a

whole" of the claim, the district court dissected the claim solely into the "tuning" limitations, and thus concluded that it was merely an application of Hooke's law and friction damping. *Id.* at *5.[3]

The district court's legal error in applying the *Mayo-Alice* test is particularly notable because it failed to give any consideration of the inventive contribution of all of the claim limitations at step two. For example, the patent-owner maintained that there is an inventive concept in the claim limitation requiring that the liner be tuned to two different vibration modes. *Id.* at *6-7. Rather than address whether such "dual-tuning" had been contemplated in the prior art, or was routine and conventional, the district court dismissed the limitation as only "the result that is achieved from performing the method rather than an active step in the method." *Id.*[4] Thus, rather than consider the substantive impact of the claim limitation, the

[3] Hooke's law is the linear relationship between force F and displacement x of a spring with stiffness k, specifically F=kx. *Am. Axle & Mfg.*, 2018 WL 1061371 at *5. The district court only substantively considered the "tuning" limitations in its analysis because it asserted all other limitations were "well-understood, routine, and conventional" and undisputed between the parties. *Id.* at *6 n.2. Even if the prior use of liners for manufacturing driveshafts existed in the art, the relevance of the manufacturing process to the claim as a whole was disputed by the parties. *See, e.g.*, Brief in Support of Motion for Summary Judgment of No Invalidity of Am. Axle & Mfg., D.I. 163, at 7 (redacted document, sealed document at D.I. 160).

[4] The district court relied on a statement from one of the inventors that "tuning" a liner with multiple degrees of freedom can be simplified as single degree of freedom systems. *Am. Axle & Mfg.*, 2018 WL 1061371 at *5. This reliance oversimplifies the record, removes the statement from its technological context, and may have contributed to the district court's improper conclusions that "tuning"

court chose to ignore it to limit its analysis to the claim limitation said to be the law of nature.

The failure to properly consider factual issues related to § 101 issues has been the subject of recent cases at the Federal Circuit, particularly in the context of motions to dismiss. *See, e.g.*, *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368-69 (Fed. Cir. 2018). Although this case is on appeal from a summary judgment decision, the failure to properly consider factual issues relevant to the innovative value of claim limitations, either individually or as an ordered combination, is no less important. In ignoring evidence about the separate claim limitations, the court could not but ultimately rely on its gut reaction or basic sense of the "gist" of the invention. This violates a fundamental requirement in the Patent Act that has long served to ensure that innovation is properly secured under the law: the patentability tests are to be assessed according to the person having skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). To allow the § 101 analysis to be conducted without proper consideration of factual matters permits judges to substitute their judgment for that of people skilled in the art.

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is merely the application of Hooke's Law. *See Id.* at *6-7. Brief in Support of Motion for Summary Judgment of No Invalidity of Am. Axle & Mfg., D.I. 163, at 6. Furthermore, the argument of *amici* is that the claim as a whole is directed to a manufacturing method that, like all manufacturing methods, relies on the laws of physics regardless of whether the relevant laws are simple or complex.

III. This case perfectly represents the legal indeterminacy being created by courts in § 101 analyses because the district court refused to assess the claim as a whole.

The Supreme Court has repeatedly warned that the exceptions to patent eligibility should not be allowed to swallow the patentability rule. *See, e.g.*, *Mayo*, 566 U.S. at 71 ("too broad an interpretation of this exclusionary principle could eviscerate patent law"). Here, the district court disintegrated the claim into its elements, ignored specific limitations, and thus generalized improperly that the invented manufacturing method improves the driveshaft merely as a result of applying a law of nature. *Am. Axle & Mfg.*, 2018 WL 1061371 at *6. This approach to claim construction in patent eligibility assessments under § 101 is wrong. *See Diehr*, 450 U.S. at 188 ("It is inappropriate to dissect the claims into old and new elements and then to ignore the presence of the old elements in the analysis."). As a result, it is sowing indeterminacy in the law, because it is impossible for inventors or lawyers to predict when a court will or will not engage in a similar approach in disintegrating a claim into one of its elements, ignoring other claim limitations, and thus asserting that the invention is patent ineligible.

This case exemplifies the fundamental legal uncertainty resulting from haphazard court decisions based upon when some courts choose to construe the claim as a whole and when others do not. For example, the district concluded that Appellant's patented process tuning a driveshaft liner to two modes is directed to a

"law of nature" under § 101. The Court of Federal Claims found a patent *eligible* under § 101, which was directed toward a method for manufacturing carbon fiber with specific properties, where the carbon fiber's properties were controlled by heating. *See Zoltek Corp. v. U.S.*, No. 96-166C, 2014 WL 1279152 at *3-*4 (Fed. Cl., March 31, 2014), *rev'd on other grounds*, 815 F.3d 1302 (Fed. Cir. 2016). In *Zoltek*, the court specifically noted that "[w]hile the claims may be directed in part to what can be reasonably characterized as a mathematical relationship (as between heat treatment temperature and surface resistance), they do something significant beyond state a law of nature: they direct application of that law to produce controlled surface resistivity carbon fiber sheet products." *Id.* at *4. In the *Zoltek* opinion, if one replaces "mathematical relationship" with "Hooke's law" and replaces "produce controlled surface resistivity carbon fiber sheet products" with "dual-tuned lined driveshafts," then one has the exact same statement as in this case, but with a different result.

There is no reasonable legal principle or policy justifying why manufacturing methods that produce objects with particular properties are valid under § 101 when producing carbon fiber, but claims are invalid "laws of nature" under § 101 when producing driveshafts. For this reason, this Court should correct the fundamental error committed by the district court in this case. This Court should hold that this manufacturing method for making a driveshaft is patent

eligible under § 101. In so doing, it should provide further guidance to all lower courts and the PTO that they should apply the *Mayo-Alice* test under § 101 only to *the claimed invention as a whole*. *See Alice*, 134 S. Ct. at 2355 (claim elements should be evaluated "both individually and '*as an ordered combination*'") (emphasis added).

IV. This case exemplifies the problem of over-restrictiveness in patent-eligibility doctrine today, as the district court denied patent protection to long-protected methods for manufacturing and using automobile engines.

The lower courts and PTO's indeterminate and overly restrictive application of the *Mayo-Alice* test matters because it contravenes the *Bilski* Court's admonition that § 101 should not impede the progress of future innovation. *See Bilski*, 561 U.S. at 605 (Section 101 is a "dynamic provision designed to encompass new and unforeseen inventions."). Twenty-first-century innovation in manufacturing and automotive improvements—like the method of tuning a driveshaft liner to reduce vibrations—exemplify the "Progress of . . . useful Arts" the patent system is intended to promote and secure to its creators. U.S. CONST. art. 1, § 8, cl. 8.

The district court's patent eligibility analysis in this case denies the fact that every claim to a manufacturing process must necessarily apply a law of nature. After all, the whole point of manufacturing is to use the laws of nature, such as the laws of thermodynamics, to produce new goods. By dissecting a claim as a whole into separate elements, the district court improperly ignored the precise article

being used as well as how the use of this article effects the end product. This explains the district court's generalized and highly conclusory assertion that the claim represented merely an application of a natural law, *i.e.*, Hooke's Law.

This technological innovation for improving the manufacture of an engine driveshaft is exactly the type of development in the "useful Arts" that the patent system promotes. It represents continued improvement in manufacturing and using everyday objects that improve everyone's lives today. The district court's dismissal of this new, inventive manufacturing method solely because it relies—in part—on a law of nature contradicts the very nature of invention: *all* inventions build upon laws of nature, abstract ideas, and prior inventions because they all solve functional problems human have had (and will continue to have).

Humans invent basic tools to control and alter material objects around them: the plow, the saw, the hammer, the sewing machine, and the nuclear reactor. Humans then invent instruments and tests to measure physical aspects of the world, such as scales, clocks, and microscopes. For each of these advancements, there are countless innovations in how they are manufactured or used that make them cheaper or more effective. At each stage of evolution in technology, although the specific nature of the inventions is different, the purpose is always the same: to solve a functional problem of humans.

The basic commercial need to continually improve products to compete in the marketplace is a key driver of innovation throughout modern history. In the evolution of the technology of automobiles—from the internal combustion engine to gas-electric hybrids, from lap seat belts to five-point harnesses in baby seats, and a myriad of other technologies incorporated into every car, each innovation improves the product for the consumer and in—some manner—used one or more laws of nature. Each progressive step answered problems in the prior technology, as well as resolved different problems created by the new technology. The manufacturing method at issue in this case may solve only one problem for modern automobiles, but it is a clear example of how an overly restrictive analysis of subject matter eligibility can eliminate whole categories of valuable innovation.

In sum, any claim to a method of manufacturing can be analytically dissected down into its component elements that comprise foundational laws of nature. That is not because such claims are directed to the law of nature without an inventive step, but because all such claims necessarily *apply* laws of nature to create the desired goods. This is why the Supreme Court specifically warned lower courts and the PTO against doing this. *See Diamond v. Diehr*, 450 U.S. 175, 187 (1981) ("[A]n application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection."); *see also Alice*, 134 S. Ct. at 2354-55 (stating that "an invention is not rendered ineligible for

patent simply because it involves an abstract concept" in some of its distinct claim elements); *Mayo*, 566 U.S. at 71-72 (recognizing same); *Funk Brothers Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948) ("If there is to be [patentable] invention . . . it must come from the application of the law of nature to a new and useful end"). This Court must remind the district court in this case to respect this basic principle in applying the *Mayo-Alice* test in assessing the patent eligibility of inventions directed to methods of manufacturing.

V. The district count found a type of invention to be patent ineligible that has been long-protected in the patent system since the nineteenth century, contradicting substantial Supreme Court case law.

In the nineteenth century, the Supreme Court held that both the telegraph and the telephone, although involving inventive, real-world *applications* of laws of nature and physical phenomena, were eligible for patent protection. *See Dolbear v. American Bell Telephone Company*, 126 U.S. 1 (1888) (telephone); *O'Reilly v. Morse*, 56 U.S. 62 (1853) (telegraph). These are significant precedents that the modern Supreme Court continues to rely on in its § 101 jurisprudence. *See Bilski*, 561 U.S. at 620 n.2; *Gottschalk v. Benson*, 409 U.S. 63, 68-69 (1972); *see also Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1309 (Fed. Cir. 2016) (Reyna, J., dissenting) (observing that "the abstract idea exception runs clear through the Supreme Court's jurisprudence from the nineteenth century to the present day," citing *Dolbear* and *Morse*). The problem with the district court's

patent eligibility analysis in this case, and with the same general approach adopted by many other courts, is that if it was applied to these classic patented innovations, it inexorably produces the same result the district court reached here: the telegraph and telephone inventions are ineligible for patent protection. Although we describe only these two cases to make clear the legal conflicts that now exist in patent law involving the district court's misapplication of the *Mayo-Alice* test, many others have been identified. *See* Michael Risch, *Nothing is Patentable*, 67 FLORIDA L. REV. F. 45 (2015) (identifying classic patents called into doubt).

First, the district court's misunderstanding of the *Mayo-Alice* test conflicts with the Supreme Court's decision affirming the validity of Samuel F.B. Morse's patent on the electro-magnetic telegraph. Many cite to *Morse* today because the Supreme Court invalidated Claim 8 of Morse's patent as an unpatentable abstract idea, *see, e.g.*, *Alice*, 134 S. Ct. at 2354. More importantly, though, the Supreme Court explicitly affirmed the validity of the first seven claims in Morse's patent. *See Morse*, 56 U.S. at 112 ("We perceive no well-founded objection . . . to his right to a patent for the first seven inventions set forth in the specification of his claims."). Morse's Claim 1 recites a method of operating an electro-magnetic telegraph that would likely be invalid under the district court's application of the *Mayo-Alice* test in this case. This is compelling evidence of the district court's misunderstanding of the *Mayo-Alice* test.

Claim 1 is not quoted in *Morse*, and so to understand this point, it is necessary to quote the relevant language:

> First. . . . what I specially claim as my invention and improvement, is making use of the motive power of magnetism, when developed by the action of such current or currents substantially as set forth in the foregoing description of the first principal part of my invention, as means of operating or giving motion to machinery which may be used to imprint signals upon paper or other suitable material, or to produce sounds in any desired manner, for the purpose of telegraphic communication at any distances.

U.S. Reissue Patent No. 117 (issued June 13, 1848).

According to the district court's application of the Mayo-*Alice* test in this case, this claim covers an unpatentable law of nature or at least merely a conventional application of a law of nature. Under step one of the *Mayo-Alice* test, according to the district court's analysis, Morse's Claim 1 begins with a patent ineligible natural law ("the motive power of magnetism") and ends with the result that merely applies the natural law ("communication at any distances"). Under the second step, the *Mayo-Alice* test requires assessing whether the claim recites merely "well-understood, routine, and conventional activity." *Mayo,* 132 S. Ct. at 1294. According to the district court's approach, each remaining element in Morse's Claim 1 recites merely conventional activity for the art in Morse's time. First, Morse explicitly acknowledges in his specification that, prior to his invention, "it had been essayed to use the currents of electricity or galvanism for telegraphic purposes," and he even acknowledges later in Claim 1 that "[t]here are

various known methods of producing motion by electro-magnetism." U.S. Reissue Patent No. 117. Second, the steps in Claim 1 of "operating or giving motion to machinery," "imprinting signals upon paper or other suitable material," and "produc[ing] sounds," when *assessed individually* were undeniably routine and conventional in the 1830s when Morse invented his electro-magnetic telegraph, and the depositions and testimonial evidence in that case confirms this fact.[5]

This is no different than the district court's conclusions in this case that the claim covered merely an application of a law of nature, *i.e.*, Hooke's Law, and that the single claim limitation of inserting liners was routine and conventional. *Am. Axle & Mfg.*, 2018 WL 1061371 at *7. If this approach of disintegrating claims into their individual elements, ignoring some elements, and generally characterizing a claim as merely an unpatentable application of a law of nature was applied to Morse's Claim 1, it leads to the conclusion that Morse's Claim 1 is unpatentable subject matter, contrary to the Supreme Court's explicit decision.

Another example of how far the district court in this case has misunderstood the guidance of the Supreme Court's *Mayo-Alice* test in applying § 101, the district court's analysis here would invalidate Claim 5 of Alexander Graham Bell's patent on the telephone. *See* U.S. Patent No. 174,465 (issued Mar. 7, 1876). Like Morse's

[5] For a complete analysis of the invention, patent applications, and litigation of Morse's electro-magnetic telegraph, *see* Adam Mossoff, *O'Reilly v. Morse* (Aug. 18, 2014), available at http://ssrn.com/abstract=2448363.

Claim 1, the Supreme Court affirmed Bell's Claim 5 as patentable subject matter in *Dolbear v. American Bell Telephone Company*, 126 U.S. 1, 531-35 (1888). Bell's Claim 5 reads as follows:

> The method of and apparatus for transmitting vocal or other sounds telegraphically . . . by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds.

U.S. Patent No. 174,465 at 5.

In following the analysis of the district court here, a court should break up Bell's claim into its separate elements, ignore some elements, and conclude that the remaining elements are merely an application of a law of nature or are conventional activities. Under step one, Claim 5 begins and ends with "vocal and or other sounds," and concerns generally the mere transmission of those sounds by "electrical undulations." Vocal sounds and electrical undulations are natural phenomena, and are thus patent ineligible on their own. Under step two, Claim 5 does not recite anything significantly more that was not routine, well-understood and conventional: telegraphic transmission of sounds and electrical undulation had been long-known in the art by the time of Bell's invention. *See* CHRISTOPHER BEAUCHAMP, INVENTED BY LAW: ALEXANDER GRAHAM BELL AND THE PATENT THAT CHANGED AMERICA 58-85 (2014) (recounting claims in the litigation of Bell's patent of many prior and existing uses of electrical currents in telegraphic communication). Again, the district court's § 101 analysis in this case leads to the

conclusion that Bell's Claim 5 is arguably directed toward unpatentable subject matter, making the claim subject matter ineligible.

The district court's substantive and methodological contradictions in applying past Supreme Court decisions—and the resulting legal uncertainty—was predicted by a few of the *amici* here. *See* Risch, *Nothing is Patentable*, *supra*. Several years ago, one of the *amici* specifically explained how the argument that computer software programs are "just math" and thus are patent ineligible as "abstract ideas"

> would invalidate all patents if applied equally to other inventions, especially processes and methods. All inventions of practically applied processes and machines are reducible to mathematical abstractions and algorithms; for example, a patentable method for operating a combustion engine is really just an application of the law of PV=nRT, the principles of thermodynamics, and other laws of nature comprising the principles of engineering.

Adam Mossoff, *A Brief History of Software Patents (and Why They're Valid)*, 56 Ariz. L. Rev. Syllabus 65, 71 (2014). What an academic considered to be a *reductio ad absurdum* in criticizing overly restrictive theories of patent eligibility—that a method for operating a combustion engine is really just an application of the principles of thermodynamics—the district court in this case made a legal reality for innovators in the automobile industry and all innovators working in the mechanical arts relating to the improvement of the functioning of machines.

VI. The overly restrictive approach to patent eligibility doctrine, including the failure to assess a claim as a whole, has resulted in legal uncertainty that undermines the innovation industries relying on reliable and effective patent rights.

The improper application of § 101 by the district court in this case, and by other district courts more generally, is harming inventors and the U.S. innovation economy. The misapplication of the *Mayo-Alice* test, especially when disintegrating claims into their separate elements with resulting conclusory assertions of invalidity, is evidenced by inordinately high invalidation rates. As of June 1, 2017, the invalidation rate under the *Mayo-Alice* test in the lower courts is 61.7%. *See #Alicestorm: April Update and the Impact of TC Heartland on Patent Eligibility,* Bilski Blog (June 1, 2017), *http://www.bilskiblog.com/blog/2017/06/alicestorm-april-update-and-the-impact-of-tc-heartland.html.* This follows naturally from judges and patent examiners only assessing individual claim elements, ignoring other elements that comprise the claim as a whole, and ignoring key factual questions that must be properly considered.

These high rates of invalidation present an unstable and uncertain patent landscape for inventors, which is harmful to economic growth generally. There is a strong relationship between reliable and effective patent rights and growing innovation economies. *See* Stephen Haber, *Patents and the Wealth of Nations*, 23 Geo. Mason L. Rev. 811 (2016). The failure to provide sufficiently reliable patent

rights results in reduced economic output for several reasons, including reduced specialization and reduced investment in new ideas. *Id.* at 813-14. There is a proven causal relationship between a startup having a patent and a higher probability of it receiving venture capital funding, and thus hiring more employees, making it to market faster, and thus ultimately succeeding in becoming an established firm. *See* Joan Farre-Mensa, Deepak Hegde, & Alexander Ljungqvist, *What is a Patent Worth? Evidence from the U.S. Patent "Lottery"* (USPTO Econ. Working Paper 2015-5, 2017), *available at* https://ssrn.com/abstract=2704028.

Considering the intense global competition in the automotive industry and the need to promote and secure significant innovations in this key industrial sector, it is imperative to reverse this trend if the patent system is to continue its purpose of promoting innovative improvements to commercial products. This Court should direct district courts to adhere to the language of the *Mayo-Alice* test in properly considering a claim as a whole, as well as adhering to longstanding Supreme Court decisions that recognize that the § 101 inquiry is only a threshold legal test that is not meant to be applied in an overly restrictive manner to invalidate all types of innovation long secured by the U.S. patent system.

CONCLUSION

Amici urge this Court to reverse the district court's decision on summary judgment that Appellant's patent is ineligible under § 101 and to remand back to the district court for further proceedings.

Dated: July 6, 2018

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APPENDIX

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CERTIFICATE OF SERVICE

I hereby certify that, on this 6th day of July, 2018, I filed the foregoing with the Clerk of the United States Court of Appeals for the Federal Circuit via the CM/ECF system, which will send notice of such filing to all registered CM/ECF users.

Dated: July 6, 2018

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CERTIFICATE OF COMPLIANCE

Pursuant to Fed. R. App. P. 32(a)(7)(C), the undersigned hereby certifies that this brief complies with the type-volume limitation of Fed. R. App. P. 29(d), 32(a)(7)(B) and Circuit Rule 32(b).

1. Exclusive of the exempted portions of the brief, as provided in Fed. R. App. P. 32(a)(7)(B), the brief contains 5,704 words.

2. The brief has been prepared in proportionally spaced typeface using Microsoft Word 2010 in 14 point Times New Roman font. As permitted by Fed. R. App. P. 32(a)(7)(C), the undersigned has relied upon the word count feature of this word processing system in preparing this certificate.

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