No. 20-891

In the Supreme Court of the United States

AMERICAN AXLE & MANUFACTURING, INC.,

Petitioner,

v.

NEAPCO HOLDINGS LLC AND
NEAPCO DRIVELINES LLC,

Respondents.

ON PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

BRIEF OF *AMICUS CURIAE* HOUSTON INTELLECTUAL PROPERTY LAW ASSOCIATION IN SUPPORT OF PETITIONER

L. LEE EUBANKS IV
Counsel of Record
EUBANKS PLLC
12777 Jones Rd.
Suite 465
Houston, Texas 77070
(281) 975-4005
leubanks@eubanksip.com

Counsel for Amicus Curiae

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Cases

Statutes

Other Authorities

INTEREST OF THE *AMICUS CURIAE*

The Houston Intellectual Property Law Association ("HIPLA") is an organization of intellectual property lawyers, patent agents, and law student affiliates. Through regular meetings, sponsored CLE opportunities, and *amicus* briefs, HIPLA promotes the development of intellectual property law. HIPLA has filed this *amicus* brief in support of the petition because the panel decision unnecessarily and wrongly creates confusion for patent owners, courts, and counsel over whether and when mechanical inventions are patent-eligible subject matter.[1]

SUMMARY OF ARGUMENT

HIPLA submits three points: 1) the panel decision in *American Axle & Manufacturing., Inc. v. Neapco Holdings LLC,* 967 F.3d 1285 (Fed. Cir. 2019), contradicts this Court's precedent in *Diamond v. Diehr*, 450 U.S. 175 (1981); 2) it runs contrary to the historical application of patent protection to mechanical inventions; and 3) the panel's decision will have a profound negative impact on patent practice and U.S. investment in research and development.

---

[1] No counsel for a party authored this brief in whole or in part, and no such counsel or party made a monetary contribution intended to fund the preparation or submission of this brief. No person other than *HIPLA* or its counsel made a monetary contribution to its preparation or submission. Pursuant to Rule 37.2(a), counsel of record for the respective parties were provided timely notice of HIPLA's intent to file this brief and consented in writing to the filing of this brief.

The panel held that claim 22 of the patent-in-suit, drawn to a mechanical product—a drive shaft with reduced vibration—was not patent-eligible because it simply implemented a law of nature. But all mechanical inventions do so at some level. In *Diehr,* the claims implemented a well-known mathematical theory to control a press mold for curing rubber. The mold was attached to a computer that adjusted temperature and time during each use of the mold. Here, like in *Diehr*, natural law is behind the mechanical method to build drive shafts that vibrate less than prior drive shafts.

The Wright brothers' seminal patent on a "flying-machine," U.S. Patent No. 821,393, never would have issued under *American Axle* because it claims the mechanism and method to create "wing warp," to steer the plane by exploiting airflow and gravity. *American Axle* undermines the historical application of patent protection for mechanical inventions.

The evenly split vote by the Federal Circuit denying *en banc* review, and the differences between the opinions below, highlight the turmoil in U.S. patent law surrounding 35 U.S.C. § 101. Indeed, if the Federal Circuit judges cannot agree on whether they should follow over 200 years of patent practice on when a mechanical invention is patentable, the system is truly broken.

ARGUMENT

I. THE PANEL OPINION UNDOES D*IEHR* AND WOULD INVALIDATE LANDMARK U.S. PATENTS

American Axle wiped out a mechanical patent on the basis that it exploited a natural law, "Hooke's law."[2] *Am. Axle*, 967 F.3d at 1292. However, all mechanical inventions channel and exploit natural law. *American Axle* undermines this Court's seminal decision in *Diehr,* which held mechanical inventions that implement laws of nature are patentable subject matter.

A. Mechanical Inventions that Exploit Natural Laws Are Patentable

Diehr dealt with a process for molding raw rubber that used an algorithm based on the Arrhenius equation. *Diehr*, 450 U.S. at 177-78. The Arrhenius equation was "discovered" at the end of the 19th century as a way to calculate the timing of chemical reactions.[3] A digital computer connected to

---

[2] Hooke's law is "a statement in physics: the stress within an elastic solid is proportional to the strain responsible for it." *Hooke's law*, MERRIAM-WEBSTER DICTIONARY, http://www.merriam-webster.com/dictionary/Hooke%27s%20law (last visited Feb. 28, 2021).

[3] The Arrhenius equation is "an equation describing the mathematical relationship between temperature and the rate of a chemical reaction." *Arrhenius equation*, MERRIAM-WEBSTER DICTIONARY, http://www.merriamwebster.com/dictionary/Arrhenius%20equation (last visited Feb. 28, 2021).

the mold used the Arrhenius equation to calculate when to open the lid based on the internal temperature and other variables during the process. *Id.* at 178-79, 179 n.2.

An exemplary claim from the patent at issue in *Diehr* reads:

> 1. A method of operating a rubber-molding press for precision molded compounds with the aid of a digital computer, comprising:
>
> providing said computer with a data base for said press including at least,
>
> natural logarithm conversion data (ln),
>
> the activation energy constant (C) unique to each batch of said compound being molded, and
>
> a constant (x) dependent upon the geometry of the particular mold of the press,
>
> initiating an interval timer in said computer upon the closure of the press for monitoring the elapsed time of said closure,
>
> constantly determining the temperature (Z) of the mold at a location closely adjacent to the mold cavity in the press during molding,
>
> constantly providing the computer with the temperature (Z),
>
> repetitively calculating in the computer, at frequent intervals during each cure, **the**

> **Arrhenius equation for reaction time during the cure, which is**
>
> **ln v = CZ + x**
>
> **where v is the total required cure time**,
>
> repetitively comparing in the computer at said frequent intervals during the cure each said calculation of the total required cure time calculated with the Arrhenius equation and said elapsed time, and
>
> opening the press automatically when a said comparison indicates equivalence.

Id. at 179 n.5 (emphasis added). The invention improved upon prior art molding methods by constantly measuring the actual temperature inside the mold, recalculating the ideal cure time, and automatically opening the press when the ideal cure time equaled the actual time elapsed. *Id.* at 178-79.

The *Diehr* Court began by recognizing that a mathematical formula like the Arrhenius equation is not itself patent-eligible subject matter, even if limited to a particular technological environment or accompanied by "insignificant post-solution activity." *Id.* at 191-92. Conversely, the Court wrote "a process is not unpatentable simply because it contains a law of nature or a mathematical algorithm." *Id.* at 187 (citing *Parker v. Flook*, 437 U.S. 584, 590 (1978)).

The *Diehr* Court held the claims were eligible subject matter because they were drawn to a "process of curing rubber beginning with the loading

of the mold and ending with the opening of the press and the production of a synthetic rubber product that has been perfectly cured—a result heretofore unknown in the art." *Id.* at 193 n.15. According to the Court, "when a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect . . . then the claim satisfies the requirements of § 101." *Id.* at 192. And while the patented process employed "a well-known mathematical equation," the claims did not "pre-empt the use of that equation" in all circumstances, but only in "the use of that equation in conjunction with all of the other steps in their claimed process." *Id.* at 187.

B. *American Axle* Conflicts with *Diehr*

American Axle addresses claims to a method for manufacturing drive shafts for automobiles. *Am. Axle*, 967 F.3d at 1305. The patent claims an improved method to deal with the problem of vibration by inserting and positioning "tuned liners" into the drive shafts:

> 22. A method for manufacturing a shaft assembly of
>
> a driveline system, the driveline system further including a first driveline component and a second driveline component, the shaft assembly being adapted to transmit torque between the first driveline component and the second driveline component, the method 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.

Id. at 1290. The specification describes how to perform the steps of the method, which is an application of Hooke's law. For example, one can "tun[e] a mass and a stiffness of at least one liner" by shaping the liner "in a desired manner," including shaping a liner's "fingers"; forming "void spaces" in the liner; adjusting the liner's wall thickness or material; adjusting the location and manner by which the liner is inserted into the hollow drive shaft, and more. *See id.* at 1291, 1300 n.12.

The panel held the claims showed insignificant activity in addition to implementation of Hooke's law while effectively precluding others from using it. *Id.* at 1298-1300, 1304. But the claims are more narrow, limited to adding "tuned" tubes into drive shafts and thus, do not pre-empt other means to adjust stiffness, such as employing metallurgy or dampers on the outside of the shaft, among other means.

American Axle has been criticized as recasting an enablement issue in terms of subject matter

patentability, but this distracts from a more important point: A mechanical claim is not patent ineligible because it exploits a law of nature. Where there are mechanical components, and novel mechanical steps are applied to produce a useful mechanical result, the invention is patentable.

C. *American Axle* Would Invalidate the Wright Brothers' "Flying-Machine" Patent

American Axle undermines the historical scope of the patentability of mechanical inventions. Orville and Wilbur Wright's patent on their mechanism and method for controlling their "flying-machine" is a good example. The Wright brothers' patent taught a configuration of the wing and manipulation process that resulted in "wing warp" to exploit aerodynamic forces and gravity to steer the "flying-machine." *See* Flying Mach., U.S. Patent No. 821,393 (issued May 22, 1906). This was one of the Wright brothers' landmark patents that they used in the courts to protect their invention. Claim 1 reads:

1. In a flying-machine,

   a normally flat aeroplane having lateral marginal portions capable of movement to different positions above or blow [sic] the normal plane of the body of the aeroplane,

   such movement being about an axis transverse to the line of flight,

   whereby said lateral marginal portions may be moved to different angles relatively to the normal plane of the body of the aeroplane,

> so as to present to the atmosphere different angles of incidence, and
>
> means for so moving said lateral marginal portions, substantially as described.

Id.

Both the Wright brothers' patent and the *American Axle* patent exploit natural laws to achieve novel, useful results. If "warping a wing" in the Wright brothers' patent to exploit air current and gravity to steer their "flying-machine" is patentable subject matter, so too is the method for placement of components to reduce vibration in a drive shaft.

II. *AMERICAN AXLE* IS SYMPTOMATIC OF A SYSTEM IN DISTRESS

Former Director of the U.S. Patent and Trademark Office, Andrei Iancu, used his farewell remarks to spotlight the risk to our country's competitiveness from the confusion in 35 U.S.C. § 101 jurisprudence:

> The most important technologies of the future are being impacted, including diagnostics, bioinformatics, artificial intelligence, digital processing, and many more. We must resolve this issue, and we must resolve it now. If not, we risk our nation being left behind as others fortify their IP laws and race towards

technological dominance in the Fourth Industrial Revolution.[4]

As illustrated with the Wright brothers' patent, *American Axl*e undoes the historical protection for mechanical inventions that helped to build this country. If the courts undo the principles that protected fundamental mechanical inventions in the past, then patent protection for future inventions puts U.S. innovation and competitiveness at risk.

American Axle runs contrary to the development of U.S. patent law from 1790 to the present. Mechanical patents are fundamental to commerce and innovation. If there is no certainty here, then there is no certainty anywhere.

We need help now.

---

[4] Andrei Iancu, Dir., USPTO, Farewell Remarks at the U.S. Chamber of Commerce event: How Innovation and Creativity Drive American Competitiveness (Jan. 19, 2021).

CONCLUSION

The petition for *writ of certiorari* should be granted.

Respectfully submitted,

L. LEE EUBANKS IV
Counsel of Record
EUBANKS PLLC
12777 Jones Rd.
Suite 465
Houston, Texas 77070
(281) 975-4005
leubanks@eubanksip.com

Counsel for Amicus Curiae Houston Intellectual Property Law Association

March 1, 2021