## United States Court of Appeals for the Federal Circuit

### STEPHEN THALER, Plaintiff-Appellant,

v.

# KATHERINE K. VIDAL, UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE, UNITED STATES PATENT AND TRADEMARK OFFICE, Defendants-Appellees

Appeal From the United States District Court for The Eastern District of Virginia in Case No. 1:20-CV-00903-LMB-TCB,

The Honorable Judge Leonie M. Brinkema

## CORRECTED PLAINTIFF-APPELLANT STEPHEN THALER COMBINED PETITION FOR PANEL REHEARING AND REHEARING EN BANC

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### UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

### **CERTIFICATE OF INTEREST**

Case Number	2021-2347			
<b>Short Case Caption</b>	Stephen Thaler v. Katherine K. Vidal, United States Patent and Trademark Office			
Filing Party/Entity	Stephen Thaler, Plaintiff-Appellant			
Instructions: Complete each section of the form. In answering items 2 and 3, be specific as to which represented entities the answers apply; lack of specificity may result in non-compliance. Please enter only one item per box; attach additional pages as needed and check the relevant box. Counsel must immediately file an amended Certificate of Interest if information changes. Fed. Cir. R. 47.4(b).				
I certify the following information and any attached sheets are accurate and complete to the best of my knowledge.  Date: 09/19/2022 Signature:				
	Name: Ryan Abbott			

1. Represented Entities. Fed. Cir. R. 47.4(a)(1).	2. Real Party in Interest. Fed. Cir. R. 47.4(a)(2).	3. Parent Corporations and Stockholders. Fed. Cir. R. 47.4(a)(3).
Provide the full names of all entities represented by undersigned counsel in this case.	Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities.	Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities.
	✓ None/Not Applicable	✓ None/Not Applicable
STEPHEN THALER		

 $\square$  Additional pages attached

<b>4. Legal Representatives.</b> List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).			
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### STATEMENT PURSUANT TO FED. CIR. R. APP. P. 35(b)(2)

Based on my professional judgment, I believe this appeal requires an answer to one or more precedent-setting questions of exceptional importance: Whether an artificial intelligence can be an inventor for purposes of patent law, which implicates the most fundamental aspects of patent law, namely, the nature of inventorship and therefore whether AI discoveries can be patented.

Dated: September 19, 2022 /s/ Ryan Abbott

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### The Panel Overlooked Three Relevant Points of Law

- 1. The Panel Opinion conflicts with *Mohamad v. Palestinian Auth.*, 566 U.S. 449, 454 (2012) which instructs to first look to the dictionary definition of "individual." Contrary to the Panel's reasoning, the very dictionary definitions used by the Panel *do* encompass "a single thing" and so necessarily include an AI system.
- 2. The Panel Opinion both conflicts with 35 U.S.C. § 103, which prohibits denying patent application based on how inventions are made, and contravenes *Diamond v. Chakrabarty*, 447 U. S. 303, 315-317 (1980), in which the Supreme Court held that a categorical rule denying patent protection for "inventions in areas not contemplated by Congress . . . would frustrate the purposes of the patent law." The Panel Opinion creates a categorical rule denying protection for inventions in areas not contemplated by Congress by prohibiting patentability based on the manner in which the present inventions were made.
- 3. The Panel Opinion contradicted the Supreme Court's approach to interpretating a statute in light of evolving technology, elucidated in *Google LLC v. Oracle Am., Inc.*, 141 S. Ct. 1183, 1197 (2021) and *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975). As explained regarding the Patent Act's sister Act, "[w]hen technological change has rendered its literal terms ambiguous, the Copyright Act must be construed in light of its basic purpose." *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975).

Instead, the Panel Opinion impermissibly relied on dicta from *University of Utah v. Max-Planck-Gesellschaft Zur Forderung Der Wissenschaften E.V.*, 734 F.3d 1315, 1318 (Fed. Cir. 2013) and *Beech Aircraft Corp. v. EDO Corp.*, 990 F.2d 1237, 1239-1248 (Fed. Cir. 1993) to interpret the Patent Act.

### **ARGUMENT**

### I. <u>INTRODUCTION</u>

Artificial Intelligence (AI) is the future of innovation. Yet despite the fact that AI can now generate inventions, the Panel has ruled that these inventions are unpatentable. This was based on an undefined term, "individual," in the Patent Act, even though dictionary definitions relied upon by the Panel actually include AI. The Panel Opinion disregards several critical Supreme Court precedents as well as the explicit language of 35 U.S.C § 103. It also goes against the purpose of the Patent Act to incentivize innovation, encourage disclosure of trade secrets, and promote commercialization of inventions.

### II. PROCEDURAL BACKGROUND

Dr. Thaler filed two patent applications with the United States Patent and Trademark Office ("USPTO"), assigned Application Serial Nos. 16/524,350 and 16/524,532 (collectively, "the Applications") on July 29, 2019. (Appx0021-0099).

The Applications were denied by the USPTO on the basis that they failed to disclose an inventor that was a natural person. (Appx0269-271, Appx0548-0550.) Dr. Thaler twice petitioned the agency to reconsider, but USPTO ultimately issued a final agency action upholding the denials on April 22, 2020. (Appx0343-0351, Appx0594-0602.).

Dr. Thaler then filed a civil action seeking review of the USPTO's decision and an order reinstating the Applications. (Appx0105-0129.) The District Court for the Eastern District of Virginia granted USPTO's Motion for Summary Judgment and denied Dr. Thaler's Motion for Summary Judgment based on a finding that the

Patent Act ("Act") unambiguously requires an individual be a human being. (Appx0001-0002.)

On August 5, 2022, the Panel affirmed the district court's opinion, finding that the term "individual" was unambiguous and could only refer to a human being. (*See* Panel Opinion ("Op.") at 11.) The Panel began its analysis with a reference to *Mohamad v. Palestinian Auth.*, 566 U.S. 449, 454 (2012), in which the Supreme Court said that without an indication to the contrary, an individual ordinarily means a human being. (Op. at 6.) The Panel found this consistent in the Act with ordinary usage, including based on dictionary definitions. (Op. at 6.) The Panel went on to analyze other sections within the Act for guidance on what an individual means, identifying the pronouns "himself" and "herself" and the oath requirement show an intent by Congress to only allow human beings to be inventors. (Op. at 7.)

In doing so, the Panel found that other provisions Thaler cited were unpersuasive, including the use of "whoever," stating that the meaning of whoever is broader than individual in the Dictionary Act. (Op. at 7-8.) Likewise, the Panel found the argument that the requirement that the Act be agnostic as to the manner of the invention's creation and the overall context unpersuasive. (Op. at 8.)

The Panel then looked to this Circuit's prior precedent to determine that individual in the Act does not apply to organizations, and therefore, only refers to humans. (Op. at 9.)

Finding an unambiguous statute, the Panel determined that an individual AI cannot qualify as an individual under the Act and that found there was no "reasonable" alternate interpretation.

# III. THE PANEL OPINION CONFLICTS WITH THREE SUPREME COURT DECISIONS REGARDING AN IMPORTANT QUESTION OF LAW

### A. The Panel Opinion Conflicts with Three Supreme Court Cases

1. *Mohamad v. Palestinian Auth.*, 566 U.S. 449 (2012)

The Panel got off on the wrong foot by misapplying Supreme Court precedent from *Mohamad*, which directs the court to look at ordinary usage in the dictionary. *See Mohamad v. Palestinian Authority*, 566 U.S. 449, 456-57 (2012). The Panel stated that, "[d]ictionaries confirm that this [a human being] is the common understanding of the word ["individual"]. *See, e.g., Individual*, Oxford English Dictionary (2022) (giving first definition of "individual" as "[a] single human being"); *Individual*, Dictionary.com (last visited July 11, 2022), https://www.dictionary.com/browse/individual (giving "a single human being, as distinguished from a group" as first definition for "individual")." (Op. at 6.)

However, the Panel Opinion neglected to note that the definitions cited *do* include an AI. The second<sup>1</sup> definition of "individual" in the Oxford English

<sup>&</sup>lt;sup>1</sup> The order of the numbered senses given in the definition of a word in a dictionary does not indicate what is more correct or popular in usage. As the Oxford English Dictionary explains, "[t]he sense section consists of one or more definitions, each with its paragraph of illustrative quotations, arranged chronologically." *Guide to the Third Edition of the OED*, Oxford English Dictionary (last visited September 14, 2022), https://www.oed.com/public/oed3guide/guide-to-the-third-edition-of; *see also Facts and Trivia*, Merriam-Webster.com (last visited September 12, 2022), https://www.merriam-webster.com/words-at-play/dictionary-facts-and-trivia ("Many words have multiple senses, and it is therefore necessary to arrange them in some sort of order... The one thing you should remember, however, is that the first sense presented to you is not, as is commonly

Dictionary includes "[a] thing which possesses properties peculiar to itself and which cannot be subdivided into other things of the same kind... [a] single entity, esp. as distinct from a group of like entities; a single member of a conceptual category or class." *Individual, Oxford English Dictionary* (2022). The third definition of "individual" in Dictionary.com is, "a distinct, indivisible entity; a single thing, being, instance, or item." *Individual*, Dictionary.com (last visited September 13, 2022.) The AI inventor in this case is, by either the OED or Dictionary.com definition cited in the Panel Opinion, an individual.

In *Mohamad*, the Supreme Court determined the meaning of "individual" in the context of the Torture Victim Protection Act, but this was also in the context of distinguishing between a singular entity and a collective, like a sovereign. *Id.* at 457. (These "definitions [] do not account even for petitioners' preferred interpretation of 'individual' in the Act, for foreign states.") Thus, following *Mohamad* should lead to the *opposite* finding here because dictionary definitions do include an AI. For instance, the Webster American English dictionary defines individual as "a single thing, being, or organism, esp., when regarded as a member of a class, species, group, etc." Webster's New World College Dictionary, 4th Edition; *see also* Webster's New Universal Unabridged Dictionary, (1989) ("a distinct, indivisible entity, a single thing, being, instance, or item."). The Supreme Court was also clear that, "[t]his is not to say that the word 'individual' invariably means 'natural person' when used in a

assumed, the most 'important,' or 'correct' meaning."). Thus, the order is chronological, and does not indicate any sense is more correct or more common in some way.

statute." *Mohamad*, 566 U.S. at 455. The Panel's Opinion that the plain language of the Act unambiguously precludes an AI inventor is therefore inconsistent with Supreme Court precedent, given that an AI literally fits the Act's statutory definition.

The Panel Opinion then supported its analysis by selectively citing to certain context—the use of various pronouns in the Act and the oath requirement. But even the USPTO admitted that pronouns are of "far less interpretative value" (App. Br. at 23). The Panel found pronouns dispositive based the uncited fiat that the Act "does not also use 'itself,' which it would have done if Congress intended to permit non-human inventors." This is speculation, as there is no evidence that Congress was making any effort to prevent AI inventorship when the Patent Act was written or amended. Ordinary meanings also change over time—a "computer" once referred to a natural person making computations, and many natural persons do not identify as either "himself" or "herself."

As to the oath requirement, both the Patent Act and the USPTO's own regulations account for situations in which an inventor cannot, or will not, make an oath. See 35 U.S.C. § 117; 37 C.F.R §1.43; 35 U.S.C. § 118. Even so, the correct inventor must still be listed. A patent requires at least one inventor. Pannu v. Iolab Corp., 155 F.3d 1344, 1350 (Fed. Cir. 1998). Also, "[a] patent is invalid if more or fewer than the true inventors are named." Gemstar-TV Guide Int'l, Inc. v. Int'l Trade Comm'n, 383 F.3d 1352, 1381 (Fed. Cir. 2004). In addition, individuals associated

<sup>&</sup>lt;sup>2</sup> One could easily come to the opposite conclusion. Many non-human animals can be referred to with gendered pronouns. Additionally, gendered pronouns are popularly used to refer to AI systems such as Siri or Alexa.

with the filing or prosecution of a patent are under a duty of disclosure, candor, and good faith under 37 C.F.R § 1.56, and inequitable conduct can render a patent unenforceable. *Minnesota Min. and Mfg. Co. v. Johnson Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1569 (Fed. Cir. 1992). By naming an individual other than the factual inventor of the present applications, Dr. Thaler would be violating his duty of disclosure and candor. Such an internally inconsistent interpretation of a statute has formed the basis for the Supreme Court previously defining "individual" to include artificial persons. *See Clinton v. City of New York*, 524 U.S. 417, 429 (1998) (the statutory context makes that intention clear, because any other reading of' individual in the statute as written "would produce an absurd and unjust result which Congress could not have intended.") (Internal quotations and citations omitted).

The Panel Opinion should have looked to the purpose of the Act to help determine the appropriate meaning of individual. The Supreme Court recently emphasized this approach with regard to the ACA, holding that "Congress passed the Affordable Care Act to improve health insurance markets, not to destroy them. If possible, we must interpret the Act in a way that is consistent with the former and avoids the latter." *King v. Burwell* 576 U.S. 473, 498 (2015). Dr. Thaler's proposed interpretation is not only logical and consistent with Supreme Court precedent, it uses the plain definition of "individual" to avoid frustration of the Act.

### 2. *Diamond v. Chakrabarty*, 447 U. S. 303 (1980)

The Panel Opinion neglected to consider the Act's overarching purpose. Instead, it selectively emphasized certain context in clear defiance of *Diamond v*. *Chakrabarty* 447 U. S. 303, 317 (1980). In *Diamond*, the Supreme Court held that a

categorical rule denying patent protection for "inventions in areas not contemplated by Congress . . . would frustrate the purposes of the patent law." *Id.* at 315. The Court noted that Congress chose expansive language to protect a broad range of patentable subject matter, including those that had not or could not have been foreseen. *Id.* at 316 ("Congress employed broad general language in drafting § 101 precisely because such inventions are often unforeseeable."). As technology has advanced, patent law has historically evolved to accommodate and further encourage such advances. *See id.* at 315. ("[A] statute is not to be confined to the 'particular application[s]...contemplated by the legislators.") (Quoting *Barr v. United States*, 324 U.S. 83, 90 (1945). Yet, when faced with a new application of the statute that was not foreseen—an inventive AI—the Panel Opinion came to the opposite conclusion and confined the Act to natural persons.

The Panel held that the prohibition in Section 103 was restricted to non-obviousness determinations. However, nothing in the language of Section 103 so limits its application. "Patentability shall not be negated by the manner in which the invention was made." 35 U.S.C. § 103. Applying the Panel Opinion's own logic, if Congress had wanted Section 103 to only apply to non-obviousness, this sentence would have read, "Non-obviousness shall not depend on the manner in which the invention was made."

The Panel Opinion effectively resurrects the long-prohibited Flash of Genius Test in the form of the Flash of Human Genius Test. In the present case, the AI being the factual inventor *is* the method of the invention coming about, and under the Panel's Opinion this does impact, and in fact entirely prohibits, patentability. Section

103 is critical to defining "individual" in the context of the Act. It cannot be handwaved so easily and divorced from the result on patentability.

### 3. Google LLC v. Oracle Am., Inc., 141 S. Ct. 1183 (2021)

Given that the dictionary definition of "individual" includes a thing or a person and given the clear intent of Congress not to prohibit patents based on the manner in which an invention is made, at most it is ambiguous whether an AI can be an inventor under the Patent Act. The Supreme Court has made it clear that technological changes *must* be considered when interpreting a statute, because "[w]e have understood the provision to set forth general principles, the application of which requires judicial balancing, depending upon relevant circumstances, including 'significant changes in technology." *Google LLC v. Oracle Am., Inc.*, 141 S. Ct. 1183, 1197 (2021) (quoting *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 430 (1984).)

As explained by the Supreme Court regarding the Copyright Act, "[w]hen technological change has rendered its literal terms ambiguous, the Copyright Act must be construed in light of its basic purpose." *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975). The purpose of the Patent Act is clear: to promote innovation, disclosure of trade secrets, and commercialization of inventions.

Regarding the Patent Act's sister Act, the Supreme Court has consistently relied on the principle that "our inquiry cannot be limited to ordinary meaning and legislative history, for this is a statute that was drafted long before the development of the electronic phenomena with which we deal here." *Fort. Corp. v. United Artists Television, Inc.*, 392 U.S. 390, 395 (1968). Thus, "[w]e must read the statutory

language of 60 years ago in the light of drastic technological change." *Id.* In doing so, the Supreme Court defined an airing over its airwaves as a "performance" of copyrighted work. *Id.* 

Instead of considering the purpose of the Patent Act when faced with a new technology, the Panel Opinion held that dicta regarding the definition of "individual" in different contexts defined the term. In *University of Utah*, the eponymous University brought a lawsuit to correct inventorship of two patents, and the questions presented were "the issues of sovereign immunity and federal jurisdiction that arise when state universities are involved on both sides of an inventorship dispute." *University of Utah v. Max-Planck-Gesellschaft Zur Forderung Der Wissenschaften E.V.*, 734 F.3d 1315, 1318 (Fed. Cir. 2013). No party in the case advanced the proposition than the University was an inventor. *Id.* at 1323.

Likewise, in *Beech Aircraft Corp.*, the question presented was whether "the district court's holding that BEECH is not precluded by res judicata, the compulsory counterclaim rule, or the applicable statute of limitations from asserting this assignment claim in the present suit," as well as "that part of the district court's decision vacating an interference decision" that was based on claims the Court had previously stated was "moot," and "the district court's holding that all of the remaining summary judgment motions are moot." *Beech Aircraft Corp. v. EDO Corp.*, 990 F.2d 1237, 1239-1248 (Fed. Cir. 1993). Again, no party argued that either Beech Aircraft or EDO Corp. was an inventor. *Beech*, 990 F.2d at 1247-48.

The question presented in both cases was entirely procedural, and the issue of inventorship was not relevant for their ultimate resolution. This makes the discussion

dicta and nonbinding. *National American Ins. Co. v. U.S.*, 498 F.3d 1301, 1306 (Fed. Cir. 2007) ("Dicta, as defined by this court, are statements made by a court that are 'unnecessary to the decision in the case, and therefore, not precedential....") (Internal citations omitted and quotation cleaned up).

At minimum, the Panel Opinion should have wrestled with the ambiguity created by technological evolution, and the results that flow from prohibiting patents on AI-generated inventions.

### B. The Patentability of AI-Generated Inventions Is of Exceptional Importance in The U.S. And Globally

With AI having invented as an undisputed matter of fact,<sup>3</sup> and given the undisputed improving capabilities and industry adoption of AI, the Court's decision will have a tremendous impact on innovation in the United States and worldwide. *The Final Report*, National Security Commission on Artificial Intelligence (last visited on September 15. 2022), https://www.nscai.gov/2021-final-report/.

The Panel did not go into detail at the oral argument regarding the ramifications of upholding the USPTO's denial, but it did ask if the result would be to render the present inventions unpatentable. The USPTO confirmed that was indeed the outcome. (Oral Argument at 19:30-20:00.) The Panel Opinion ignored the implications of this interpretation, though Judge Stark, who wrote the opinion, had previously noted that AI leads to innovation, holding that "the Court is persuaded that the merger may well

<sup>&</sup>lt;sup>3</sup> As noted by the district court, and never challenged on appeal by the USPTO, all factual statements in the patent applications including the capability of the AI to create a patentable invention must be taken as true. (Appx0007.)

promote innovation" because, among other reasons, "Farelogix Chief Technology Officer Tim Reiz credibly predicted that the merger will allow him to develop new projects (such as a next-generation PSS) using artificial intelligence." *United States v. Sabre Corp.*, 452 F.Supp.3d 97, 148 (D. Del. 2020), *vacated* 2020 WL 4915824 (3d Cir., July 20, 2020, No. 20-1767).

There are already numerous law review articles discussing this case specifically, as well as the importance of AI inventorship and AI-generated inventions generally. E.g., W. Michael Schuster, Artificial Intelligence and Patent Ownership, 75 Wash. & Lee L. Rev. 1945, 2004 (2018) ("the rights to AI patent should be allocated to AI users (i.e., parties using AI to create new technologies) to maximize economic efficiency."); Heinz Goddar & Lakshmi Kumaran, Patent Law Based Concepts for Promoting Creation and Sharing of Innovations in the Age of Artificial Intelligence and Internet of Everything, 54 Les Nouvelles 282 (2019); Ernest Fok, Challenging the International Trend: The Case for Artificial Intelligence Inventorship in the United States, 19 Santa Clara J. Int'l L. 51 (2021); Justyn Millamena, How Artificial Intelligence Machines Can Legally Become Inventors: An Examination of and Solution to the Decision on Dabus, 30 J.L. & Pol'y 270 (2021); Anna Carnochan Comer, AI: Artificial Inventor or the Real Deal?, 22 N.C. J. L. & Tech. 447, 477 (2021).

Beyond the U.S., the patents at issue in this case have been filed in numerous foreign jurisdictions, some of which have come to different conclusions. South Africa issued a patent to Dr. Thaler for the applications with DABUS listed as the inventor.

Patent

ZA2021/03242

(https://iponline.cipc.co.za/Publications/PublishedJournals/E\_Journal\_July%20 2021%20Part%202.pdf (page 255). In a split decision, the United Kingdom Court of Appeal upheld a denial of Dr. Thaler's applications, but on August 12, 2022, the United Kingdom Supreme Court granted permission to appeal that decision. *Permission to Appeal*, UK Supreme Court (last accessed on September 13, 2022), https://www.supremecourt.uk/news/permission-to-appeal-july-august-2022.html. The United Kingdom Supreme Court, like the United States Supreme Court, grants such permission rarely. *See Annual Report*, UK Supreme Court (last accessed on September 13, 2022), https://www.supremecourt.uk/docs/annual-report-2021-2022.pdf.

The European Patent Office (EPO) Legal Board of Appeal issued a decision, J 0008/20 (Designation of inventor/DABUS) of 21.12.2021, in which it held that while an inventor must be a natural person under the European Patent Convention (EPC), "[t]he Board is not aware of any case law which would prevent the user or the owner of a device involved in an inventive activity to designate himself as inventor under European patent law. The EPC, in turn, does not prevent the applicant from providing information in the application which is not relevant for carrying out the invention but may satisfy the fairness concerns [i.e., noting that the AI owner is not the factual inventor] identified by the appellant in the addendum of 24 July 2019." (emphasis added).

A divisional application filed in one of the European cases will presumably allow a patent to be granted on this basis—namely, that in the case of an AI-generated invention lacking a traditional human inventor, the owner of an AI can be

listed as an inventor simply by virtue of *owning* an inventive AI. That approach cannot work in the United States due to the requirement that an inventor have directly conceived of an invention (i.e., the legal inventor must be the factual inventor). Nevertheless, the result will be that Dr. Thaler and future applicants will be able to obtain patents under the EPC but not in the United States.

Finally, the question of inventorship has a been a major topic of importance in this circuit for quite some time, arising many times over many years. *See e.g. Solvay S.A. v. Honeywell Intern., Inc.*, 622 F.3d 1367, 1374 (Fed. Cir. 2010); *Eli Lilly and Co. v. Aradigm Corp.*, 376 F.3d 1352, 1356 (Fed. Cir. 2004); *University of Colorado Foundation, Inc. v. American Cyanamid Co.*, 196 F.3d 1366, 1373 (Fed. Cir. 1999); *Application of Bergy*, 596 F.2d 952, 962 (C.C.P.A. 1979), *vacated in part sub nom. Diamond v. Chakrabarty* 444 U.S. 1028 (1980), and *aff'd sub nom. Diamond v. Chakrabarty* 447 U.S. 303 (1980).

While this case specifically concerns whether an AI can be an inventor, it implicates the related question of whether an artificial person such as a corporation can be an inventor. Corporate inventorship is a potential solution to the problem of protecting AI-generated inventions. This court has never seriously considered the issue of corporate inventorship.

Thus, to ensure that the right decision is made for an issue of paramount importance, more than a cursory look at "plain language" that ignores inconsistent context, evolving technology, and the purpose of the Act is needed.

### IV. **CONCLUSION**

Dr. Thaler respectfully asks this Court to reconsider the definition of

"individual" and thus its ruling, or in the alternative, convene en banc to reconsider the ruling, given the importance of the issue presented.

Dated: September 19, 2022 Respectfully Submitted,

/s/ Ryan Abbott

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Counsel for Plaintiff-Appellant

## United States Court of Appeals for the Federal Circuit

### STEPHEN THALER,

Plaintiff-Appellant

v.

KATHERINE K. VIDAL, UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE, UNITED STATES PATENT AND TRADEMARK OFFICE,

Defendants-Appellees

2021-2347

Appeal from the United States District Court for the Eastern District of Virginia in No. 1:20-cv-00903-LMB-TCB, Judge Leonie M. Brinkema.

Decided: August 5, 2022

RYAN BENJAMIN ABBOTT, Brown, Neri, Smith & Khan, LLP, Los Angeles, CA, argued for plaintiff-appellant.

Dennis Barghaan, Jr., Office of the United States Attorney for the Eastern District of Virginia, United States Department of Justice, Alexandria, VA, argued for defendants-appellees. Also represented by Jessica D. Aber; Farheena Yasmeen Rasheed, Peter John Sawert,

THALER v. VIDAL

MEREDITH HOPE SCHOENFELD, Office of the Solicitor, United States Patent and Trademark Office, Alexandria, VA.

MITCHELL APPER, Jerusalem, Israel, amicus curiae, pro se.

Before Moore, Chief Judge, Taranto and Stark, Circuit Judges.

STARK, Circuit Judge.

This case presents the question of who, or what, can be an inventor. Specifically, we are asked to decide if an artificial intelligence (AI) software system can be listed as the inventor on a patent application. At first, it might seem that resolving this issue would involve an abstract inquiry into the nature of invention or the rights, if any, of AI systems. In fact, however, we do not need to ponder these metaphysical matters. Instead, our task begins — and ends — with consideration of the applicable definition in the relevant statute.

The United States Patent and Trademark Office (PTO) undertook the same analysis and concluded that the Patent Act defines "inventor" as limited to natural persons; that is, human beings. Accordingly, the PTO denied Stephen Thaler's patent applications, which failed to list any human as an inventor. Thaler challenged that conclusion in the U.S. District Court for the Eastern District of Virginia, which agreed with the PTO and granted it summary judgment. We, too, conclude that the Patent Act requires an "inventor" to be a natural person and, therefore, affirm.

T

Thaler represents that he develops and runs AI systems that generate patentable inventions. One such system is his "Device for the Autonomous Bootstrapping of THALER v. VIDAL 3

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Unified Science," which Thaler calls "DABUS." Thaler has described DABUS as "a collection of source code or programming and a software program." Supp. App. at 781.

In July 2019, Thaler sought patent protection for two of DABUS' putative inventions by filing two patent applications with the PTO: U.S. Application Nos. 16/524,350 (teaching a "Neural Flame") and 16/524,532 (teaching a "Fractal Container"). He listed DABUS as the sole inventor on both applications. Thaler maintains that he did not contribute to the conception of these inventions and that any person having skill in the art could have taken DABUS' output and reduced the ideas in the applications to practice. <sup>2</sup>

In lieu of an inventor's last name, Thaler wrote on the applications that "the invention [was] generated by artificial intelligence." App. at 28, 69. He also attached several documents relevant to inventorship. First, to satisfy 35 U.S.C. § 115's requirement that inventors submit a sworn oath or declaration when applying for a patent, Thaler

<sup>1</sup> The administrative records for both applications are materially identical.

While inventorship involves underlying questions of fact, see Dana-Farber Cancer Inst., Inc. v. Ono Pharm. Co., 964 F.3d 1365, 1370 (Fed. Cir. 2020), cert. denied, 141 S. Ct. 2691 (2021), for purposes of this litigation the PTO has not challenged Thaler's representations, see D. Ct. Dkt. No. 25, at 11. Accordingly, our analysis must be consistent with the undisputed facts in the administrative record, drawing inferences in favor of the non-moving party. See Safeguard Base Operations, LLC v. United States, 989 F.3d 1326, 1349 (Fed. Cir. 2021) (discussing when it is appropriate to supplement administrative record and noting "[t]he focal point for judicial review should be the administrative record already in existence") (quoting Camp v. Pitts, 411 U.S. 138, 142 (1973)).

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submitted a statement on DABUS' behalf. Second, Thaler provided a supplemental "Statement on Inventorship" explaining that DABUS was "a particular type of connectionist artificial intelligence" called a "Creativity Machine." App. at 198-203, 483-88. Third, Thaler filed a document purporting to assign himself all of DABUS' rights as an inventor.

The PTO concluded both applications lacked a valid inventor and were, hence, incomplete. Accordingly, it sent Thaler a "Notice to File Missing Parts of Nonprovisional Application" for each application and requested that Thaler identify valid inventors. In response, Thaler petitioned the PTO director to vacate the Notices based on his Statements of Inventorship. The PTO denied Thaler's petitions on the ground that "a machine does not qualify as an inventor." App. at 269-71, 548-50. Thaler sought reconsideration, which the PTO denied, explaining again that inventors on a patent application must be natural persons.

Thaler then pursued judicial review of the PTO's final decisions on his petitions, under the Administrative Procedure Act (APA). See 5 U.S.C. §§ 702-704, 706.<sup>3</sup> The parties agreed to have the District Court adjudicate the challenge based on the administrative record made before the PTO and filed cross-motions for summary judgment. After briefing and oral argument, the Court granted the PTO's motion for summary judgment and denied Thaler's request to reinstate his applications. The District Court concluded that an "inventor" under the Patent Act must be an "individual"

<sup>3</sup> The District Court had jurisdiction under 28 U.S.C. § 1331. *See also* 5 U.S.C. § 702 ("A person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant

statute, is entitled to judicial review thereof.").

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and the plain meaning of "individual" as used in the statute is a natural person.

Thaler appealed. We have jurisdiction under 28 U.S.C. § 1295. See Odyssey Logistics & Tech. Corp. v. Iancu, 959 F.3d 1104, 1108 (Fed. Cir. 2020) (explaining that Federal Circuit has jurisdiction over appeals from district court decisions raising APA claims against PTO regarding patents).

II

We review grants of summary judgment according to the law of the regional circuit, in this case the Fourth Circuit. See Supernus Pharms., Inc. v. Iancu, 913 F.3d 1351, 1356 (Fed. Cir. 2019). In the Fourth Circuit, a district court's grant of summary judgment is reviewed de novo. See id. (citing Gallagher v. Reliance Standard Life Ins. Co., 305 F.3d 264, 268 (4th Cir. 2002)). Challenges to PTO petition decisions are governed by the APA and pertinent administrative law standards. Thus, we may set aside the judgment resulting from an administrative adjudication only if the agency's decision is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" or if the agency's actions are "in excess of statutory jurisdiction, authority, or limitations." 5 U.S.C. § 706. "Statutory interpretation is an issue of law that we review de novo." Facebook, Inc. v. Windy City Innovations, LLC, 973 F.3d 1321, 1330 (Fed. Cir. 2020).

Α

The sole issue on appeal is whether an AI software system can be an "inventor" under the Patent Act. In resolving disputes of statutory interpretation, we "begin[] with the statutory text, and end[] there as well if the text is unambiguous." *BedRoc Ltd. v. United States*, 541 U.S. 176, 183 (2004). Here, there is no ambiguity: the Patent Act requires that inventors must be natural persons; that is, human beings.

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The Patent Act expressly provides that inventors are "individuals." Since 2011, with the passage of the Leahy-Smith America Invents Act, the Patent Act has defined an "inventor" as "the *individual* or, if a joint invention, the *individuals* collectively who invented or discovered the subject matter of the invention." 35 U.S.C. § 100(f) (emphasis added). The Act similarly defines "joint inventor" and "coinventor" as "any 1 of the *individuals* who invented or discovered the subject matter of a joint invention." § 100(g) (emphasis added). In describing the statements required of an inventor when applying for a patent, the statute consistently refers to inventors and co-inventors as "individuals." *See* § 115.

The Patent Act does not define "individual." However, as the Supreme Court has explained, when used "[a]s a noun, 'individual' ordinarily means a human being, a person." Mohamad v. Palestinian Auth., 566 U.S. 449, 454 (2012) (internal alteration and quotation marks omitted). This is in accord with "how we use the word in everyday parlance": "We say 'the individual went to the store,' 'the individual left the room,' and 'the individual took the car,' each time referring unmistakably to a natural person." *Id.* Dictionaries confirm that this is the common understanding of the word. See, e.g., Individual, Oxford English Dictionary (2022) (giving first definition of "individual" as "[a] single human being"); *Individual*, Dictionary.com (last visited July 11, 2022), https://www.dictionary.com/browse/individual (giving "a single human being, as distinguished from a group" as first definition for "individual"). So, too, does the Dictionary Act, which provides that legislative use of the words "person" and "whoever" broadly include ("unless the context indicates otherwise") "corporations, companies, associations, firms, partnerships, societies, and joint stock companies, as well as individuals." 1 U.S.C. § 1 (emphasis added). "With the phrase 'as well as,' the definition marks 'individual' as distinct from the list of artificial entities that precedes it," showing that Congress understands

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"individual" to indicate natural persons unless otherwise noted. *Mohamad*, 566 U.S. at 454.

Consequently, the Supreme Court has held that, when used in statutes, the word "individual" refers to human beings unless there is "some indication Congress intended" a different reading. *Id.* at 455 (emphasis omitted).<sup>4</sup> Nothing in the Patent Act indicates Congress intended to deviate from the default meaning. To the contrary, the rest of the Patent Act supports the conclusion that "individual" in the Act refers to human beings.

For instance, the Act uses personal pronouns – "himself" and "herself" – to refer to an "individual." § 115(b)(2). It does not also use "itself," which it would have done if Congress intended to permit non-human inventors. The Patent Act also requires inventors (unless deceased, incapacitated, or unavailable) to submit an oath or declaration. See, e.g., id. (requiring oath or declaration from inventor that "such individual believes himself or herself to be the original inventor or an original joint inventor of a claimed invention in the application"). While we do not decide whether an AI system can form beliefs, nothing in our record shows that one can, as reflected in the fact that Thaler submitted the requisite statements himself, purportedly on DABUS' behalf.

Thaler directs us to several provisions of the Patent Act as supposed support for his position that "inventor" should be broadly read to include AI software, but each fails to persuade. First, Thaler points to the use of "whoever" in

While *Mohamad* interpreted a statute other than the Patent Act, the Court's reasoning is directly applicable here. *See generally Legal Def. Fund v. Dep't of Agric.*, 933 F.3d 1088, 1093-94 (9th Cir. 2019) (concluding that "individual" refers to human beings and not animals, based in part on *Mohamad*).

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35 U.S.C. §§ 101 and 271. Section 101 provides that "[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." As this very section makes clear, however, patents must satisfy the "conditions and requirements of" Title 35 of the U.S. Code, including its definition of "inventor." Section 271, in setting out what constitutes infringement, repeatedly uses "whoever" to include corporations and other non-human entities. That non-humans may infringe patents does not tell us anything about whether non-humans may also be inventors of patents. The question before us inevitably leads back to the Patent Act's definition of "inventor," which uses the word "individual" - and does not use "whoever." Furthermore, as we noted already, the Dictionary Act establishes that Congress uses "whoever" as a much broader term than "individual." See 1 U.S.C. § 1.

Second, Thaler contends that AI software programs must qualify as inventors because otherwise patentability would depend on "the manner in which the invention was made," in contravention of 35 U.S.C. § 103. Section 103 is not about inventorship. Instead, it provides, in relevant part, that inventions may still be nonobvious even if they are discovered during "routine" testing or experimentation. See Honeywell Int'l Inc. v. Mexichem Amanco Holding S.A. de C.V., 865 F.3d 1348, 1356 (Fed. Cir. 2017); see also Graham v. John Deere Co., 383 U.S. 1, 15 (1966) (explaining that second sentence of § 103 was intended to clarify that "flash of creative genius" is unnecessary for patentability). This statutory provision relates to how an invention is

<sup>&</sup>lt;sup>5</sup> While the PTO also initially relied on the use of "whoever" in § 101 of the Patent Act, the PTO has also consistently explained that "individual" is limited to natural persons, a position we now uphold.

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made and does not trump a provision that specifically addresses *who* may be an inventor.

Third, Thaler emphasizes that the term "inventor" must be interpreted with attention to the "context in which that language is used[] and the broader context of the statute as a whole." *Yates v. United States*, 574 U.S. 528, 537 (2015) (internal quotation marks omitted). We have undertaken precisely this task. For the reasons explained above, the Patent Act, when considered in its entirety, confirms that "inventors" must be human beings.

В

Our holding today that an "inventor" must be a human being is supported by our own precedent. See Univ. of Utah v. Max-Planck-Gesellschaft zur Forderung der Wissenschaften E.V., 734 F.3d 1315, 1323 (Fed. Cir. 2013) ("[I]nventors must be natural persons and cannot be corporations or sovereigns.") (emphasis added); Beech Aircraft Corp. v. EDO Corp., 990 F.2d 1237, 1248 (Fed. Cir. 1993) ("[O]nly natural persons can be 'inventors."). While these opinions addressed different questions — concluding that neither corporations nor sovereigns can be inventors—our reasoning did not depend on the fact that institutions are collective entities. The two cases confirm that the plain meaning of "inventor" in the Patent Act is limited to natural persons.

C

Statutes are often open to multiple reasonable readings. Not so here. This is a case in which the question of statutory interpretation begins and ends with the plain meaning of the text. See Bostock v. Clayton Cnty., 140 S. Ct. 1731, 1749 (2020) ("This Court has explained many times over many years, when the meaning of the statute's terms is plain, our job is at an end."). In the Patent Act, "individuals" – and, thus, "inventors" – are unambiguously natural persons. Accordingly, we have no need to consider

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additional tools of statutory construction. See Matal v. Tam, 137 S. Ct. 1744, 1756 (2017) ("[I]nquiry into the meaning of the statute's text ceases when the statutory language is unambiguous and the statutory scheme is coherent and consistent.") (internal quotation marks omitted).

#### Ш

We briefly address Thaler's additional arguments.

Thaler argues that inventions generated by AI should be patentable in order to encourage innovation and public disclosure. Thaler's policy arguments are speculative and lack a basis in the text of the Patent Act and in the record. In any event, the text before us is unambiguous, and we may not "elevate vague invocations of statutory purpose over the words Congress chose." *Sw. Airlines Co. v. Saxon*, 142 S. Ct. 1783, 1792-93 (2022). Moreover, we are not confronted today with the question of whether inventions made by human beings with the *assistance* of AI are eligible for patent protection.

Thaler invokes the canon of constitutional avoidance. In Thaler's view, permitting AI programs to be inventors would support the constitutional purpose of patents "[t]o promote the progress of science and the useful arts." U.S. Const. art. I, § 8, cl. 8. It follows, Thaler continues, that not recognizing AI as an inventor undermines such progress, raising potential constitutional concerns we should be careful to avoid. Thaler is incorrect. The constitutional provision he cites is a grant of legislative power to Congress; Congress has chosen to act pursuant to that power by passing the Patent Act. Thaler does not (and cannot) argue that limiting inventorship to human beings is unconstitutional. Therefore, the canon of constitutional avoidance is simply inapplicable. See Veterans4You LLC v. United States, 985 F.3d 850, 860-61 (Fed. Cir. 2021) (explaining that this canon may be helpful when there is serious question regarding statute's constitutionality); see also

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Warger v. Shauers, 574 U.S. 40, 50 (2014) (noting that canon of constitutional avoidance "has no application in the absence of . . . ambiguity") (internal quotation marks omitted).

Thaler also notes that South Africa has granted patents with DABUS as an inventor. This foreign patent office was not interpreting our Patent Act. Its determination does not alter our conclusion.

We have considered Thaler's additional arguments and find they do not merit discussion.

### IV

When a statute unambiguously and directly answers the question before us, our analysis does not stray beyond the plain text. Here, Congress has determined that only a natural person can be an inventor, so AI cannot be. Accordingly, the decision of the district court is affirmed.

### **AFFIRMED**

#### Costs

Costs shall be assessed against Appellant.

KeyCite Yellow Flag - Negative Treatment Proposed Legislation

United States Code Annotated

Title 35. Patents (Refs & Annos)

Part II. Patentability of Inventions and Grant of Patents (Refs & Annos)

Chapter 10. Patentability of Inventions (Refs & Annos)

35 U.S.C.A. § 100

§ 100. Definitions

Effective: May 13, 2015 Currentness

When used in this title unless the context otherwise indicates--

- (a) The term "invention" means invention or discovery.
- **(b)** The term "process" means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.
- (c) The terms "United States" and "this country" mean the United States of America, its territories and possessions.
- (d) The word "patentee" includes not only the patentee to whom the patent was issued but also the successors in title to the patentee.
- (e) The term "third-party requester" means a person requesting ex parte reexamination under section 302 who is not the patent owner.
- **(f)** The term "inventor" means the individual or, if a joint invention, the individuals collectively who invented or discovered the subject matter of the invention.
- **(g)** The terms "joint inventor" and "coinventor" mean any 1 of the individuals who invented or discovered the subject matter of a joint invention.
- (h) The term "joint research agreement" means a written contract, grant, or cooperative agreement entered into by 2 or more persons or entities for the performance of experimental, developmental, or research work in the field of the claimed invention.
- (i)(1) The term "effective filing date" for a claimed invention in a patent or application for patent means-

### ADDENDUM012

- (A) if subparagraph (B) does not apply, the actual filing date of the patent or the application for the patent containing a claim to the invention; or
- **(B)** the filing date of the earliest application for which the patent or application is entitled, as to such invention, to a right of priority under section 119, 365(a), 365(b), 386(a), or 386(b) or to the benefit of an earlier filing date under section 120, 121, 365(c), or 386(c).
- (2) The effective filing date for a claimed invention in an application for reissue or reissued patent shall be determined by deeming the claim to the invention to have been contained in the patent for which reissue was sought.
- (j) The term "claimed invention" means the subject matter defined by a claim in a patent or an application for a patent.

### CREDIT(S)

(July 19, 1952, c. 950, 66 Stat. 797; Pub.L. 106-113, Div. B, § 1000(a)(9) [Title IV, § 4603], Nov. 29, 1999, 113 Stat. 1536, 1501A-567; Pub.L. 112-29, § 3(a), Sept. 16, 2011, 125 Stat. 285; Pub.L. 112-211, Title I, § 102(1), Dec. 18, 2012, 126 Stat. 1531.)

### Notes of Decisions (46)

35 U.S.C.A. § 100, 35 USCA § 100

Current through P.L. 117-167. Some statute sections may be more current, see credits for details.

**End of Document** 

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United States Code Annotated

Title 35. Patents (Refs & Annos)

Part II. Patentability of Inventions and Grant of Patents (Refs & Annos)

Chapter 10. Patentability of Inventions (Refs & Annos)

35 U.S.C.A. § 103

§ 103. Conditions for patentability; non-obvious subject matter

Effective: March 16, 2013 Currentness

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

### CREDIT(S)

(July 19, 1952, c. 950, 66 Stat. 798; Pub.L. 98-622, Title I, § 103, Nov. 8, 1984, 98 Stat. 3384; Pub.L. 104-41, § 1, Nov. 1, 1995, 109 Stat. 351; Pub.L. 106-113, Div. B, § 1000(a)(9) [Title IV, § 4807(a)], Nov. 29, 1999, 113 Stat. 1536, 1501A-591; Pub.L. 108-453, § 2, Dec. 10, 2004, 118 Stat. 3596; Pub.L. 112-29, § § 3(c), 20(j)(1), Sept. 16, 2011, 125 Stat. 287, 335.)

Notes of Decisions (3097)

35 U.S.C.A. § 103, 35 USCA § 103

Current through P.L. 117-167. Some statute sections may be more current, see credits for details.

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### UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

### **CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITATIONS**

Case N	Number:	2021-2347	
Short Case C	Caption:	Stephen Thaler v. Katherine K. Vida	l, United States Patent and Trademark Office
<b>Instructions:</b> When computing a word, line, or page count, you may exclude any items listed as exempted under Fed. R. App. P. 5(c), Fed. R. App. P. 21(d), Fed. R. App. P. 27(d)(2), Fed. R. App. P. 32(f), or Fed. Cir. R. 32(b)(2).			
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<del></del>	the filing has been prepared using a monospaced typeface and includes lines of text.		
lin	the filing contains pages / words / lines of text, which does not exceed the maximum authorized by this court's order (ECF No).		
Date: 09/19/2022		_ Signature:	Ryan Abbott
		Name:	Ryan Abbott

### **CERTIFICATE OF SERVICE**

I hereby certify that I served a copy of this petition on counsel of record on September 18, 2022 by CMECF.

Dated: September 19, 2022 /s/ Ryan Abbott

Los Angeles, California Ryan Abbott

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