

No.

IN THE
Supreme Court of the United States

STEPHEN THALER,

Petitioner,

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,
Respondents.

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

PETITION FOR A WRIT OF CERTIORARI

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QUESTION PRESENTED

“The primary meaning of the word ‘invention’ in the Patent Act unquestionably refers to the inventor’s conception.” *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 60 (1998). Here, it is undisputed that an artificial intelligence (AI) system known as DABUS used generalized background knowledge of a technical field to conceive of two novel inventions and then recognize their utility, all without specific guidance from a human being. Thus, only DABUS fits the statutory definition of “inventor” under the Patent Act: the “individual ... who invented or discovered the subject matter of the invention.”

Nevertheless, the U.S. Patent and Trademark Office rejected patent applications on both inventions solely because the inventor listed in the applications was an AI system rather than a human being. The Federal Circuit, like the district court below it, upheld that rejection on the same basis. As both parties agree, this holding—which overlooks that “individual” may simply refer to a single entity as opposed to a collective such as a corporation or government—completely denies patent protection to any and all inventions created by an AI system without a human inventor.

The question presented is:

Does the Patent Act categorically restrict the statutory term “inventor” to human beings alone?

RELATED PROCEEDINGS

Thaler v. Vidal, No. 21-2347 (Fed. Cir. judgment entered Aug. 5, 2022)

Thaler v. Hirshfeld, No. 1:20-cv-00903-LMB-TCB (E.D. Va. judgment entered Sept. 2, 2021)

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INTRODUCTION

The Founders charged Congress with “promot[ing] the Progress of Science and useful Arts” by creating proper incentives for innovation. U.S. Const. art. I, § 8, cl. 8. Congress responded with broad patent protections, promising that any person that “*invents or discovers* any new and useful process, machine, manufacture, or composition of matter ... may obtain a patent therefor.” 35 U.S.C. § 101 (emphasis added). And it extended that protection to every invention made by an “inventor”—a term Congress defined as the “individual ... who invented or discovered the subject matter of the invention.” 35 U.S.C. § 100(f). By defining “inventor” in functional terms, Congress indicated its intent to extend patent protection broadly, to any sufficiently new and useful invention.

The Federal Circuit, however, has determined that an entire category of inventions does not qualify, no matter how new and useful they may be. In this case, an artificial intelligence (AI) system called DABUS learned no more than background knowledge of scientific disciplines and then arrived at two separate inventions, one for an innovative emergency beacon, and another for an innovative container for liquids. Yet the U.S. Patent and Trademark Office (USPTO) rejected patent applications on both, and the district court and Court of Appeals upheld that rejection on judicial review. Neither the agency nor the courts below dispute that DABUS conceived of these inventions autonomously, acting with no inventive contribution from its owner or any other human being. Nor has the government raised any challenge to the novelty or utility of the devices

DABUS invented. Each rejection rests solely on the ground that DABUS—the entity that all accept “invented or discovered the subject matter”—is not human.

That holding runs counter to the text and structure of the Patent Act and to this Court’s precedent. Nowhere in the text of the Patent Act has Congress restricted the term “inventor”—or the word “individual” within its definition—solely to natural persons. Nor does the plain meaning of the word do so; a host of dictionaries indicate that the word “individual” refers to any singular thing, rather than a collection. And by defining “inventor” in terms of function, Congress extended patent protection to the inventions of any entity. Expansive language throughout the Patent Act only confirms this conclusion. The Federal Circuit’s reading cramps the broad intent of the statute’s drafters in ways that this Court has repeatedly counseled against. Statutes like the Patent Act employ broad language that is meant to accommodate technological change.

This case is an ideal vehicle to consider the interpretation of “inventor” and “individual” under the Patent Act. It presents a pure question of statutory interpretation, the question was fully raised and squarely addressed in the proceedings below and is outcome-determinative, and no party disputes any material fact in the record.

The question presented is exceptionally important. AI-generated inventions are upon us. They are already appearing in industries from pharmaceuticals to energy, promising more rapid and cost-

effective development of new technologies and treatments. By denying patent protection to that whole category of innovation, the decision below curtails our patent system’s ability—and thwarts Congress’s intent—to optimally stimulate innovation and technological progress in this country, and, in addition, does so at a moment when nations across the world are examining the same question. The Court of Appeals’ ruling is wrong on a matter of great consequence, and this Court should grant review.

OPINIONS AND ORDERS BELOW

The Federal Circuit’s opinion is reported at 43 F.4th 1207 and reproduced at Pet. App. 1a-13a. The Federal Circuit’s denial of panel rehearing and rehearing en banc is unreported and reproduced at Pet. App. 52a-53a. The district court’s decision is reported at 558 F. Supp. 3d 238 and reproduced at Pet. App. 14a-37a.

JURISDICTION

The Court of Appeals affirmed the judgment of the district court on August 5, 2022, and denied panel rehearing and rehearing en banc on October 20, 2022. On January 10, 2023, this Court granted a 60-day extension of time to file a petition for certiorari, until March 19, 2023. This Court has jurisdiction under 28 U.S.C. § 1254(1).

STATUTORY PROVISIONS INVOLVED

35 U.S.C. § 101 provides:

Whoever 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.

35 U.S.C. § 100(f) provides:

The term “inventor” means the individual or, if a joint invention, the individuals collectively who invented or discovered the subject matter of the invention.

35 U.S.C. § 115(a) provides:

An application for patent that is filed under section 111(a) or commences the national stage under section 371 shall include, or be amended to include, the name of the inventor for any invention claimed in the application. Except as otherwise provided in this section, each individual who is the inventor or a joint inventor of a claimed invention in an application for patent shall execute an oath or declaration in connection with the application.

STATEMENT OF THE CASE

An Artificial Intelligence System Makes New Discoveries, Which Petitioner Seeks To Patent

Petitioner, Dr. Stephen Thaler, Ph.D., develops artificial intelligence systems that use machine learning to develop new concepts, products, and processes. Through “neural networks,” which simulate the way the human brain operates, these AI systems can generate inventive output on their own, without human direction or guidance.

One of the early AI systems that Dr. Thaler developed was called the Creativity Machine, which contained at least two neural networks; the first was trained with data from a particular knowledge area, and then generated novel ideas based on altering that data, while a second measured the novelty, utility, and value of the resulting ideas to identify which to pursue further. That system evolved to become DABUS, an acronym for “Device for the Autonomous Bootstrapping of Unified Sentience.” Pet. App. 16a n.3. The DABUS system includes a larger number of neural networks, each of which represents an individual concept such as “temperature,” or a positive outcome like “enjoyment” or “survival.” In supervised training, an external trainer combines individual concepts into simple consequence chains—for example, a drink at the appropriate temperature results in enjoyment. Later, in unsupervised activity, DABUS autonomously extends and combines those simple chains into more complex chains that result in positive outcomes, *e.g.*, fractal geometry increases surface area, greater surface area on a container improves grip,

improved grip promotes container functionality, greater functionality results in user enjoyment, etc.

DABUS developed two novel concepts at issue here. First, it generated the Neural Flame, an emergency light beacon that flashes in a specific pattern to attract the attention of rescuers and, thus, helps its users survive. DABUS also generated the Fractal Container, a beverage container that improves grip function and promotes heat transfer to increase the user's enjoyment. Pet. App. 16a-17a.

On July 29, 2019, Dr. Thaler filed, as the applicant and owner, two patent applications with USPTO for the Neural Flame and Fractal Container, which were assigned U.S. Application Serial Nos. 16/524,350 ('350 application) and 16/524,532 ('532 application) (collectively, the Applications). Pet. App. 15a-17a.

In the data sheets accompanying the Applications, Dr. Thaler identified the inventor's "given name" as "DABUS," and under "family name" wrote "Invention generated by artificial intelligence." Pet. App. 17a. Plaintiff included a "Statement on Inventorship" in the Applications "to explain that the inventor of the subject matter of the instant invention of the present application is an AI machine, being a type of 'creativity machine' named 'DABUS.'" Pet. App. 17a.

Petitioner also included a "Substitute Statement" under 37 C.F.R. § 1.64 in lieu of a declaration under 35 U.S.C. § 115(d), stating that the "inventor," DABUS, was "a Creativity Machine (i.e., an artificial

intelligence), with no legal personality or capability to execute this substitute statement.” Pet. App. 17a. Dr. Thaler therefore signed the substitute statement as the “the Applicant and the Assignor of the abovementioned application, as well as the owner of said Creativity Machine, DABUS.” Pet. App. 17a.

USPTO Denies The Patent Applications Because The Inventor Is Not A Human Being

After its initial review of the Applications, USPTO issued a “Notice to File Missing Parts of Non-Provisional Application.” Pet. App. 19a. USPTO gave Dr. Thaler two months to submit the missing items, noting that the “application data sheet or inventor’s oath or declaration does not identify each inventor or his or her legal name.” Pet. App. 19a. Dr. Thaler then filed a petition with USPTO’s Director under 37 C.F.R. § 1.181, asking USPTO to vacate its “Notice to File Missing Parts” and explaining why DABUS—the lone originator of the inventions claimed in each application—should be listed as the inventor. Pet. App. 19a.

Throughout the examination—and indeed throughout the legal proceedings that followed—USPTO has never disputed these factual statements, including Dr. Thaler’s unequivocal statement that DABUS, and DABUS alone, conceived of the two inventions at issue and recognized their utility.

On December 17, 2019, USPTO issued a written decision dismissing Dr. Thaler’s petition. As its sole reason for dismissal, the agency stated that “the United States patent laws do not support Petitioner’s

position that an inventor can be a machine.” Pet. App. 41a, 48a. Because it found that “a machine does not qualify as an inventor,” USPTO concluded that it had “properly issued the Notice ... noting the inventor was not identified by his or her legal name.” Pet. App. 43a, 49a-50a. Dr. Thaler sought reconsideration, which USPTO denied in a final written decision on April 22, 2020.

The District Court Holds AI-Generated Inventions Unpatentable, And The Court Of Appeals Affirms

Dr. Thaler sought review of USPTO’s decision in the Eastern District of Virginia under the Administrative Procedure Act. Pet. App. 15a-16a. Dr. Thaler sought an order compelling USPTO to reinstate the Applications and a declaration that “a patent application for an AI-generated invention should not be rejected on the basis that no natural person is identified as an inventor.” Pet. App. 16a.

After the parties filed cross-motions for summary judgment, the district court granted USPTO’s motion and denied Dr. Thaler’s request to reinstate the Applications. The district court held that, under the Patent Act, “an ‘inventor’ must be a natural person.” Pet. App. 25a.

The Court of Appeals affirmed. Pet. App. 13a. The court reasoned that, since 2011, 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.” Pet. App. 7a (quoting 35 U.S.C. § 100(f)).

Although the court acknowledged that the statute does not define “individual,” it stated that, when used “as a noun, ‘individual’ ordinarily means a human being, a person.” Pet. App. 7a (quoting *Mohamad v. Palestinian Auth.*, 566 U.S. 449, 454 (2012)). The court also relied on several dictionary definitions, which in its view “confirm that this is the common understanding of the word.” Pet. App. 7a.

The court held that there was “no ambiguity: the Patent Act requires that inventors must be natural persons; that is, human beings.” Pet. App. 7a. It added that its holding was supported by two prior Federal Circuit decisions, which stated that inventors must be natural persons. Pet. App. 11a (citing *Univ. of Utah v. Max-Planck-Gesellschaft zur Forderung der Wissenschaften E.V.*, 734 F.3d 1315, 1323 (Fed. Cir. 2013), and *Beech Aircraft Corp. v. EDO Corp.*, 990 F.2d 1237, 1248 (Fed. Cir. 1993)). The court acknowledged, however, that those opinions “addressed different questions—concluding that neither corporations nor sovereigns can be inventors.” Pet. App. 11a.

The court rejected Dr. Thaler’s textual arguments, which noted that several provisions of the Patent Act supported his position that “inventor” can include an AI system. Pet. App. 8a-11a. It also rejected his argument that AI-generated inventions should be patentable to support the statutory purpose of the Patent Act and constitutional purpose of patents under Article 1, Section 8, namely, to encourage innovation, public disclosure, and commercialization of inventions. Pet. App. 12a-13a.

The court concluded: “In the Patent Act, ‘individuals’—and, thus, ‘inventors’—are unambiguously natural persons.” Pet. App. 11a.

REASONS FOR GRANTING THE WRIT

I. The Decision Below Conflicts With The Text And Structure Of The Patent Act.

A. The plain text and context of the Patent Act do not restrict “inventors” to human beings alone.

In any question of statutory interpretation, this Court “begins where all such inquiries must begin: with the language of the statute itself.” *United States v. Ron Pair Enters., Inc.*, 489 U.S. 235, 241 (1989); *see also Bittner v. United States*, 143 S. Ct. 713, 719 (2023) (“To resolve who has the better reading of the law, we begin with the terms of the most immediately relevant statutory provisions.”). Here, USPTO’s rejection of the Applications, and both of the opinions below, hinge entirely upon the statutory requirement that a patent application name the “inventor” of the claimed invention. *See, e.g.*, Pet. App. 4a-5a.

But the statutory definition of “inventor” does not bar an AI system from qualifying. Under the Patent Act, “[t]he term ‘inventor’ means 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). The Patent Act similarly defines “joint inventor” as “any 1 of the individuals who invented or discovered the subject matter of a joint invention.” 35 U.S.C. § 100(g). Neither of these

definitions speak in terms of natural persons or human beings. See *Bittner*, 143 S. Ct. at 719. Instead, both definitions turn on the role that an inventor plays in the inventive process. And neither USPTO nor the courts below denied that DABUS played the inventive role in the conception of both claimed inventions. Nor could they in the present procedural posture—as the Federal Circuit acknowledged, its analysis “must be consistent with the undisputed facts in the administrative record,” including the fact, attested to by Dr. Thaler, that DABUS alone conceived of the inventions here. Pet. App. 4a n.2, 16a-17a. For that reason—because it is undisputed that DABUS “invented or discovered the subject matter of the invention”—the decision below is inconsistent with the plain text of the statute.

The decision below claimed to find the exclusion it imposed in the word “individual.” But while both statutory provisions above use the term “individual,” neither defines it. Under such circumstances, this Court “look[s] first to the word’s ordinary meaning.” *Mohamad*, 566 U.S. at 454. And while under some circumstances “the word ‘individual’” may refer to natural persons, it does not “invariably mean[] ‘natural person’ when used in a statute.” *Id.* at 455. Instead, the *Mohamad* Court turned to its normal tools of statutory analysis, tools that show the Federal Circuit’s interpretation of the word “individual” in this context is too narrow.

Dictionary definitions support the notion that an “individual” is a single entity rather than a collective such as a corporation or government. Each dictionary examined in *Mohamad* includes among its primary

definitions, “a person” or “a particular person.” *See, e.g.*, 7 Oxford English Dictionary 880 (2d ed. 1989) (OED); Random House Dictionary of the English Language 974 (2d ed. 1987) (Random House); Webster’s Third New International Dictionary 1152 (1986). And while these dictionaries include alternate and more specific definitions, each includes at least one focusing on the singular nature of the individual—excluding collective entities such as corporations—rather than on its human or non-human nature. For example, Webster’s has for decades given “a single or particular being or thing” and “a particular being or thing as distinguished from a class, species, or collection” as its primary definitions of “individual,” before ever mentioning human beings. Webster’s Third New International Dictionary 1152 (1986); *see also* Webster’s Seventh New Collegiate Dictionary 428 (1967). Random House similarly lists “a distinct, indivisible entity; a single thing, being, instance, or item.” Random House, *supra*, 974. And the OED’s first two definitions of “individual” are “[i]nseparable things” and “[a] single object or thing ...; a single member of a natural class.” OED, *supra*, 879. Other dictionaries do much the same. Black’s Law Dictionary defines the adjective “individual” as “[e]xisting as an indivisible entity” and “[o]f or relating to a single person or thing, as opposed to a group.” Black’s Law Dictionary 843 (9th ed. 2009). And the New Oxford American Dictionary defines “individual” as “a single member of a class.” New Oxford American Dictionary 885 (3d ed. 2010).

Notably, the *Mohamad* Court supplemented its examination of dictionaries with a functional analysis of how the term “individual” is used “in everyday

parlance.” 566 U.S. at 454. And again, this Court’s examples underscore that the most relevant distinction is between single and collective entities. It noted that in ordinary use, “no one ... refers ... to an organization as an ‘individual.’” *Id.* Instead, it noted, an “individual” may “le[ave] the room” or “t[ake] the car”—things that a corporation, or the government entity under examination in *Mohamad*, is categorically incapable of doing by itself. *Id.*

Thus, as the Court noted, Congress typically uses the term “individual” to distinguish an “individual” from various collective entities. *Id.* But where Congress wants to specifically address whether an “individual” is human, it knows how to do so and uses much more specific language. For example, in one part of the Dictionary Act, Congress specifically expanded the definition of “individual” (among other terms such as “person” and “child”) to include “every infant member of the species homo sapiens who is born alive.” 1 U.S.C. § 8(a). Had Congress wished to use specific terms in the Patent Act to restrict the definition of “individual” solely to human beings, it certainly could have done so. But it did not, choosing instead to define “inventor” in functional terms and to leave the definition of “individual” open. The Court of Appeals’ decision fails to respect that drafting choice.

B. The structure and context of the Patent Act indicate that the Act recognizes a broad category of inventors.

The structure of the Patent Act further indicates that the term “inventor” encompasses a broad category of “persons,” not just human persons.

For example, in 35 U.S.C. § 103 Congress instructed that patentability cannot be denied based on “the manner in which the invention was made.” Notably, the text of § 103, though falling within a section pertaining to whether an invention is obvious in light of existing knowledge, is not expressly limited to that obviousness inquiry. Rather, it precludes any bar to “patentability” resulting solely from how the invention was conceived or discovered. As this Court recognized long ago in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), that statutory sentence was intended to abolish the so-called “flash of genius” test for patentability, instead making it possible to achieve patent protection for an invention resulting from the *mechanical* process of investigating possibilities until hitting upon a new and workable invention. *See id.* at 15-16 & n.8 (the second sentence of § 103 makes it “immaterial whether [the invention] resulted from long toil and experimentation or from a flash of genius”). Yet the Court of Appeals’ decision, if left in place, would resurrect that bar, categorically denying patentability to an invention merely because it was conceived by an AI system such as DABUS rather than a human being. And it flies in the face of the fact—undisputed in the record—that DABUS both conceived of these inventions and recognized their utility.

Similarly, 35 U.S.C. § 101 provides that “[w]hoever invents or discovers” something in one of the patentable categories of inventions “may obtain a patent therefor.” This broad statement of patent eligibility is not limited to natural persons, either. Indeed, within the Patent Act, Congress used the term “whoever” to refer to both human and non-human “persons,” such

as unauthorized practitioners of a patented invention who may be held liable for infringement, *see* 35 U.S.C. § 271, and unauthorized disclosers of private patent applications, *see* 35 U.S.C. § 186. To be sure, the formulation of patent eligibility in § 101 is “subject to the conditions and requirements of this title,” but none of those conditions and requirements by their terms excludes AI systems from the set of those that may invent or discover useful innovations.

Other sections of the Patent Act likewise indicate that a broad class of “persons” can both make inventions and be disclosed as inventors. For example, § 102(a) provides that “[a] person shall be entitled to a patent” which is not anticipated by the prior art in the relevant field, and § 102(c) provides that information disclosed to co-inventors “shall be deemed to have been owned by the same person” and therefore is not considered prior art in that analysis. 35 U.S.C. § 102. Similarly, the co-inventorship provisions in § 116 refer to the inventor named in a patent application using the broad term “person.” *See* 35 U.S.C. § 116(a) (“When an invention is made by two or more persons jointly, they shall apply for patent jointly and each make the required oath...”); *see also* 35 U.S.C. § 116(c) (“Whenever through error a person is named in an application for patent as the inventor...”).

No section of the Patent Act cited by the Court of Appeals is to the contrary. The decision below opined that the Patent Act “uses personal pronouns—‘himself’ and ‘herself’—to refer to an ‘individual’” but “does not also use ‘itself,’ which it would have done if Congress intended to permit non-human inventors.” Pet. App. 8a-9a (citing 35 U.S.C. § 115(b)(2)). As discussed

in further detail below, § 115 indicates at most that Congress was not thinking about whether individuals using other pronouns might fall within its definition of “inventor.” Yet that by itself is not sufficient to place an entire category of potential inventors outside the statute’s scope. *See infra* 22. Indeed, under the Court of Appeals’ analysis, any human inventors who elected not to identify themselves using the pronoun “him” or “her” might be denied the protection of the patent laws—an absurd result that could not be Congress’s intent. And by the same token, some computerized systems (for example, digital assistants like Amazon’s “Alexa” and Apple’s “Siri”) are referred to by both their creators and the general public using gendered pronouns. Congress could not have intended inventorship to turn on which pronouns are used to describe a given inventor.

The Court of Appeals’ abbreviated analysis of § 115(b)(2) also reflects an unwarranted skepticism of AI’s capacities. While examining the requirement that an inventor submit an oath or declaration that “such individual *believes* himself or herself to be the original inventor,” the Court of Appeals carefully did not “decide whether an AI system can form beliefs” but nevertheless observed that “nothing in our record shows that one can.” Pet. App. 9a (emphasis added). Yet the question whether DABUS could form beliefs was not considered by USPTO—it raised no objection to the filed declaration—and thus was not before the Court of Appeals.¹ And as noted above, it is

¹ USPTO also did not dispute that under current law, DABUS is *legally* unable to offer a sworn oath or declaration,

undisputed that DABUS conceived of these inventions and recognized their utility.

C. Other statutes and regulations likewise reflect an expansive rather than restrictive scope of the term “individual.”

Neither do other Congressional enactments suggest that the term “individual” should exclude AI systems. To be sure, Congress has not always defined the scope of the term “individual” standing alone. But the instances where it has done so do not preclude it from encompassing AI systems.

Rather, where Congress takes up the question at all, it typically employs only inclusive language that adds to the plain meaning of the word “individual.” For example, a section of the tax code provides that “[f]or purposes of this paragraph,” certain organizations and trusts that are set up for specific defined purposes “shall be considered an individual.” 26 U.S.C. § 542(a)(2). Similarly, as noted above, the Dictionary Act makes clear that unless otherwise noted, acts of Congress referencing “individuals” apply to any human being that is born alive. Definitions such as these are expansive in nature; they do not exclude anything, including AI systems, from the scope of the term.

thus necessitating the substitute statement filed by Dr. Thaler, who is the owner of the applications and any ultimately granted patents.

Where Congress *does* wish to restrict a particular statute to apply solely to human beings, it typically does so explicitly by employing more specific language that leaves no doubt. For example, in 43 U.S.C. § 390bb(4), pertaining to water rights, Congress defined “individual” as “any natural person, including his or her spouse, and including other dependents thereof” under the tax code. Government agencies do likewise in their regulations. *See, e.g.*, 45 C.F.R. § 5b.1(e) (defining, for purposes of regulations under the Privacy Act, “[i]ndividual” as “a living person who is a citizen of the United States or an alien lawfully admitted for permanent residence”). In other instances, Congress chose instead to define narrower compound terms such as “young individual,” 42 U.S.C. § 12302(6), “homeless individual,” 42 U.S.C. § 290cc-34(2), and “individual with mental illness,” 42 U.S.C. § 10802(4), each of which turns on characteristics possessed only by human beings. Further, even when portions of the U.S. Code do limit the meaning of individual to human beings, the definition is generally accompanied by a disclaimer that it only applies to that particular statutory provision. *See, e.g.*, 43 U.S.C. § 390bb(4) (“As used in this subchapter ... [t]he term ‘individual’ means ...”). The Court of Appeals’ narrow statutory construction in this case was unwarranted.

II. The Decision Below Conflicts With This Court’s Prior Decisions.

The decision below also conflicts with the reasoning of several cases of this Court.

A. Although the Federal Circuit relied on language from *Mohamad*, 566 U.S. 449, defining “individual,” Pet. App. 7a-8a, its analysis missed the forest for the trees. In *Mohamad*, this Court considered whether two organizations (the Palestinian Authority and the Palestinian Liberation Organization) could be sued under the Torture Victim Protection Act (TVPA), which authorizes a cause of action against “[a]n individual’ for acts of torture and extrajudicial killing committed under authority or color of law of any foreign nation.” *Mohamad*, 566 U.S. at 451. The Court held that “the term ‘individual’ as used in the [TVPA] encompasses only natural persons,” and therefore “does not impose liability against organizations.” *Id.* at 451-52.

Mohamad did not consider whether the statutory term “individual” could encompass a *non-human*, but only whether it could encompass an *organization*. This is consistent with the way that “individual” is regularly used—to distinguish the singular from the collective. Indeed, as noted above, several of the dictionary definitions used in *Mohamad* can cover a singular person or thing, but not groups, such as corporations or organizations. *See supra* 11-12. As the Court explained, “federal statutes routinely distinguish between an ‘individual’ and an organizational entity of some kind.” *Mohamad*, 566 U.S. at 455.²

² Likewise, when lower courts have examined the term “individual,” they have generally distinguished it from collective entities such as corporations, organizations, or government entities. *See, e.g., Michigan Flyer LLC v. Wayne Cnty. Airport Auth.*, 860 F.3d 425, 431 (6th Cir. 2017) (holding that

Nor did *Mohamad* define “individual” for all statutory contexts: “This is not to say that the word ‘individual’ invariably means ‘natural person’ when used in a statute.” *Id.* Rather, the Court looked to the surrounding statutory context to support its interpretation of the term. *Id.* at 455-56. The TVPA consistently referred to “individuals” as both the perpetrators and victims of torture. Only natural persons, and not organizations, could fit that context, since “[o]nly a natural person can be a victim of torture or extrajudicial killing.” *Id.* at 456. The Court therefore explained that “the statutory context strengthens ... the

“individual” under Americans with Disabilities Act “does not include corporations”); *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.”); *In re Spookyworld, Inc.*, 346 F.3d 1, 7 (1st Cir. 2003) (“There is currently a circuit split. Two circuits hold that the term ‘individual’ [in the Bankruptcy Code] includes corporations, and four circuits hold that it does not.”); *Beech Aircraft Corp. v. EDO Corp.*, 990 F.2d 1237, 1248 (Fed. Cir. 1993) (The corporation “could never have been declared an ‘inventor,’ as [it] was merely a corporate assignee and only natural persons can be ‘inventors.’”); *Mar. Asbestosis Legal Clinic v. LTV Steel Co.*, 920 F.2d 183, 184-85 (2d Cir. 1990) (holding that “individual” under the Bankruptcy Code means “human beings” rather than “corporations and other legal entities”). *Cf. United States v. Middleton*, 231 F.3d 1207, 1210-13 (9th Cir. 2000) (holding that “individual” in statute criminalizing computer crime includes both natural persons and corporations); *United States v. Badische & Co.*, 3 U.S. Cust. App. 528, 530 (Ct. Cust. App. 1913) (explaining that “individual,” as a noun, “means one distinct being, a single one, and when spoken of the human kind it means one man or one woman,” but “[a]s used in statutes relative to taxation the term applies equally to corporations and individuals”).

conclusion that Congress intended to create a cause of action against natural persons alone.” *Id.* at 455.

The Patent Act, by contrast, focuses on the act of conception, referring to the “individual” as the one who “invented or discovered the subject matter of the invention.” 35 U.S.C. § 100(f). There is no indication that only a human being can invent or discover something new. Indeed, only DABUS came up with the inventions under the undisputed facts here. *See supra* 7, 11. And there is no indication that the Patent Act should be read narrowly to silently exclude such inventions from patentability.

B. Far from requiring a narrow reading of the Patent Act, this Court demands breadth. In *Diamond v. Chakrabarty*, for example, the Court “cautioned that courts ‘should not read into the patent laws limitations and conditions which the legislature has not expressed.’” 447 U.S. 303, 308 (1980) (quoting *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 199 (1933)). The Court explained that the Patent Act purposefully uses broad terms: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter ... may obtain a patent therefor” *Id.* at 307 (quoting 35 U.S.C. § 101). “In choosing such expansive terms as ‘manufacture’ and ‘composition of matter,’ modified by the comprehensive ‘any,’ Congress plainly contemplated that the patent laws would be given wide scope.” *Id.* at 308 (quoting 35 U.S.C. § 101).

Looking back to the Patent Act of 1793, the Court stated that the “relevant legislative history also supports a broad construction” of the patent laws.

Chakrabarty, 447 U.S. at 308. The Patent Act, authored by Thomas Jefferson, “embodied Jefferson’s philosophy that ‘ingenuity should receive a liberal encouragement.’” *Id.* at 308-09 (quoting 5 Writings of Thomas Jefferson 75-76 (Washington ed. 1871)). Section 101’s provisions therefore “have been cast in broad terms to fulfill the constitutional and statutory goal of promoting ‘the Progress of Science and the useful Arts’ with all that means for the social and economic benefits envisioned by Jefferson.” *Id.* at 315.

As a result, courts cannot arbitrarily restrict a statute “to the ‘particular application[s] ... contemplated by the legislators.’” *Id.* (quoting *Barr v. United States*, 324 U.S. 83, 90 (1945)). “This is especially true in the field of patent law,” where “the inventions most benefiting mankind are those that ‘push back the frontiers of chemistry, physics, and the like.’” *Id.* at 316 (quoting *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 154 (1950) (Douglas, J., concurring)). “Congress employed broad general language in drafting § 101 precisely because such inventions are often unforeseeable.” *Id.*; see also 35 U.S.C. § 103 (“Patentability shall not be negated by the manner in which the invention was made.”).

Similarly, courts cannot create categorical rules denying patent protection for “inventions in areas not contemplated by Congress” because doing so would “frustrate the purposes of the patent law.” *Chakrabarty*, 447 U.S. at 315. The decision below runs counter to these admonitions. As described in more detail below, it renders an entire class of novel and useful inventions—crucial to American

enterprise—categorically outside the protection of the patent laws.

C. As this Court recently reaffirmed, where the march of technological progress renders the literal terms of a statute like the Patent Act ambiguous, the statute “must be construed in light of its basic purpose.” *Google LLC v. Oracle Am., Inc.*, 141 S. Ct. 1183, 1197 (2021) (quoting *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975)). Put another way, statutes addressing and protecting intellectual property—the Patent Act here and the Copyright Act in *Google*—“set forth general principles, the application of which requires judicial balancing, depending upon relevant circumstances, including ‘significant changes in technology.’” *Id.* (quoting *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 430 (1984)).

Congress has exercised its constitutional authority to broadly protect inventions under the Patent Act. Courts cannot withdraw that protection for inventors absent clear congressional intent to do so. *See Goldstein v. California*, 412 U.S. 546, 561 (1973) (“These terms [of the Intellectual Property Clause of the Constitution] have not been construed in their narrow literal sense but, rather, with the reach necessary to reflect the broad scope of constitutional principles.”); *see also Pfizer, Inc. v. Gov’t of India*, 434 U.S. 308, 318-19 (1978) (“Nothing in the [Sherman] Act, its history, or its policy, could justify so restrictive a construction of the word ‘person’” so as “[t]o exclude foreign nations from the protections of our antitrust laws”); *Urie v. Thompson*, 337 U.S. 163, 181-82 (1949) (“To read into this all-inclusive wording a restriction ... would

be contradictory to the wording, the ... purpose, and the constant and established course of liberal construction of the [Federal Employers' Liability] Act followed by this Court."); *Provost v. United States*, 269 U.S. 443, 458 (1926) ("Nor are we able to find in the [Revenue Act] any expression of a general purpose to exclude from the application of its express language the type of transactions now under consideration."). The decision below is at odds with this Court's teachings.

III. This Case Presents An Ideal Vehicle For Resolving The Question Presented.

This case is ideal for resolving the question presented, for several reasons.

This case squarely and cleanly presents a pure and outcome-determinative question of law. The Patent Act requires that each patent application list the "inventor" of any inventions claimed in the application. 35 U.S.C. § 115(a). USPTO and both courts below have reached no further than the Act's definition of "inventor." The Court of Appeals described the "sole issue on appeal" as a pure question of statutory interpretation: "whether an AI software system can be an 'inventor' under the Patent Act." Pet. App. 6a. The agency's rejection of the Applications and the district court's holding also rely exclusively on a categorical denial that the patent laws can protect inventions conceived by an AI system. *See* Pet. App. 40a-42a, 47a-49a; Pet. App. 14a, 29a-31a. This Court's reversal on that purely legal question would therefore remove the basis for USPTO's rejection of the Applications and revive the ordinary examination process for each.

No barriers prevent this Court from reaching that question. As noted, at no stage of this case has USPTO disputed any relevant factual issue, including the critical fact that DABUS—and DABUS alone—conceived of the two inventions described and claimed in the Applications. *See supra* 7, 11. Rather, USPTO’s rejection of patentability was premised solely on its interpretation of the inventorship requirement in the Patent Act. Both parties have pressed their positions on that legal question at each stage of judicial review below. *See supra* 6-10. Both lower courts not only rendered a holding on that question, but relied exclusively on that holding in rendering their decisions and judgments. *See supra* 8-10. Thus, the legal question is presented in pristine form for this Court’s review.

Critically, this case likely presents this Court with the only opportunity it will have to decide the question presented. Because the Federal Circuit is the only court of appeals with jurisdiction over questions of patent law, no percolation can occur among the courts of appeals. And the Federal Circuit has already denied en banc rehearing on the question presented, in this very case. *See* Pet. App. 53a. As a result, if the decision below is allowed to stand, no district court in the United States will be able to uphold a patent for an invention conceived by an AI system. Applicants will not even file such applications, preferring either to inaccurately designate a human being as the “inventor”—thus potentially rolling the dice on a later court battle over patent validity—or to forgo the patent system entirely in favor of other avenues, such as trade secret protection. *See Gemstar-TV Guide Int’l, Inc. v. Int’l Trade Comm’n*, 383 F.3d 1352,

1381 (Fed. Cir. 2004) (“A patent is invalid if more or fewer than the true inventors are named.”).

The decision below also truncates USPTO’s ability to reconsider its stance on AI-generated inventions in the face of advancements in artificial intelligence. The agency has recently suggested that it wishes to undertake such a reconsideration process, acknowledging that “there is a growing consensus that AI is playing a greater role in the innovation process” in industries ranging from drug development to microchip design, and even that AI systems may currently “be able to contribute at the level of a joint inventor in some inventions today.” Request for Comments Regarding Artificial Intelligence and Inventorship, 88 Fed. Reg. 9492, 9493, 9494 (Feb. 14, 2023). Consequently, USPTO plans to hold stakeholder engagement sessions on “inventorship and AI-enabled innovation” and has called for public comments regarding the use of AI “in the invention creation process.” *Id.* at 9494. But its call for comments also implicitly acknowledges the constraints imposed by the decision below—it asks not whether it should acknowledge AI systems as inventors under the existing statute, but rather whether and how humans can work around the current jurisprudence to obtain patent protection for inventions conceived by or alongside AI systems. *See id.* Thus, if left standing, the decision below will cramp the agency’s ability ultimately to utilize its technical expertise, adapt to the rapidly changing technical landscape of artificial intelligence, and acknowledge the advent of AI systems that generate inventions on their own.

IV. The Patentability Of AI-Generated Inventions Is Exceptionally Important To The United States And Across The World.

A. The question presented is of enormous consequence. The aim of the U.S. patent system—and the goal of the Patent Act’s drafters—is to foster innovation, incentivize technological progress, and promote creativity and investment by offering protection to novel and useful inventions. Yet the practical effect of the decision below is to make many legitimate inventions—those that are conceived of and generated by AI systems—unpatentable in the United States.

The ramifications of the Court of Appeals’ ruling are extraordinarily serious. The AI revolution is upon us. Mark Minevich, *The Generative AI Revolution Is Creating The Next Phase Of Autonomous Enterprise*, *Forbes*, Jan. 29, 2023. AI will be integral to many forthcoming technological breakthroughs that are likely to revolutionize global industries.

As one example, AI research in the U.S. pharmaceutical industry has already gone well past the theoretical stage. *See, e.g.*, Madura K.P. Jayatunga et al., *AI in small-molecule drug discovery: a coming wave?*, 21 *Nature Reviews Drug Discovery* 175-76 (Feb. 2022). In 2020, an AI system able to independently “learn new patterns unknown to human experts” identified a new antibiotic, more effective than existing treatments, from a pool of more than 100 million molecules. Jo Marchant, *Powerful antibiotics discovered using AI*, *Nature*, Feb. 20, 2020. And 2022 saw phase one trials on the first wholly AI-developed drug; an AI system independently identified an unknown

protein it could link to a disease, and then developed a small-molecule drug to target it in less than half the typical time and at a tiny fraction of the typical cost. Calum Chace, *First Wholly AI-Developed Drug Enters Phase 1 Trials*, *Forbes*, Feb. 25, 2022. Other complex industries, like those in the energy sector, have also turned to AI, in part because new, original innovation done by humans is becoming prohibitively expensive. David Rotman, *AI is reinventing the way we invent*, *MIT Tech. Rev.*, Feb. 15, 2019.

AI-generated inventions are increasingly important in many sectors of the economy. But without a reliable ability to patent their breakthroughs, companies large and small will have little protection for the significant investments they must make in research and innovation. The Federal Circuit’s categorical denial of patent protection for AI-generated inventions threatens to discourage technological advancement and needlessly squander the United States’ opportunity to be the global leader at the forefront of AI and the law.

B. There can be little question that the decision below makes AI-generated inventions entirely unpatentable. The government conceded as much at oral argument in the Federal Circuit. Oral Argument at 0:18:50-0:19:10, *Thaler v. Vidal*, No. 21-2347 (Fed. Cir. June 6, 2022), <https://tinyurl.com/22sjec2h> (on this record, “there is no doubt that there is no patentability ... of this subject matter”). And its recent call for comments only underscores USPTO’s belief that under the Federal Circuit’s decision, it now has no flexibility to grant a patent for an AI-generated invention. *See* 88 Fed. Reg. 9493-94.

Nor is any viable workaround available. Dr. Thaler cannot properly list himself as the inventor with respect to either of the two applications at issue—to claim inventorship, he must attest that he at least “contribute[d] in some significant manner to the conception ... of the invention.” *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 (Fed. Cir. 1998); *see also* 35 U.S.C. § 115(b)(2) (inventor must “believe[] himself or herself to be the original inventor or an original joint inventor of a claimed invention in the application”). He cannot do that because he provided DABUS with only general information about the state of the art in multiple scientific fields. *See Caterpillar Inc. v. Sturman Indus., Inc.*, 387 F.3d 1358, 1377 (Fed. Cir. 2004) (a co-inventor must do “more than explain to the real inventors concepts that are well known [in] the current state of the art” (alteration in original) (quoting *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997))). He expressly did *not* “hav[e] a firm and definite idea of the claimed combination as a whole,” which is required of any inventor. *Nartron Corp. v. Schukra U.S.A., Inc.*, 558 F.3d 1352, 1356 (Fed. Cir. 2009) (quoting *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998)). Even had Dr. Thaler suggested the “idea of a result to be accomplished, rather than means of accomplishing it,” or reviewed and opined on “the acceptability of [DABUS’s] offered products,” he could not be recognized as an inventor. *Id.* at 1359 (citations omitted); *Drone Techs., Inc. v. Parrott S.A.*, 838 F.3d 1283, 1306 (Fed. Cir. 2016) (Newman, J., concurring). But in any event, Dr. Thaler did none of those things—it is undisputed here that Dr. Thaler simply trained DABUS and provided

it with information. DABUS’s creations are attributable only to DABUS itself, not to Dr. Thaler.

As a result, the government’s narrow interpretation of the patent statutes leaves an entire class of otherwise novel, useful inventions entirely without patent protection under U.S. law. This is “an ‘absurd’ result Congress could not plausibly have intended.” *Mohamad*, 566 U.S. at 455 (discussing *Clinton v. City of New York*, 524 U.S. 417 (1998)). The Constitution bestowed upon Congress the authority “[t]o promote the Progress of Science.” U.S. Const. art. 1, § 8, cl. 8. Patent systems exist to foster technological innovation through economic incentives. *Patents*, World Intellectual Prop. Org., <https://www.wipo.int/patents/en> (last visited Mar. 14, 2023); Kevin J. Hickey, Cong. Rsch. Serv., R46525, *Patent Law: A Handbook for Congress* 1 (2020). The decision below, if left standing, will result in a patent system contrary to the intentions of Congress—a patent system that excludes a whole category of inventions, and, indeed, a category that may ultimately represent one of this era’s landmark technological leaps.

C. The issue is not just a domestic one. At a time when many other countries are considering the relationship between AI and inventorship, the decision below threatens without basis to cut the United States out of the conversation, and thereby leave other countries to lead in our stead.

As is common with patent applications, the applications in this case have been filed in numerous foreign jurisdictions—jurisdictions which are now considering the patentability of AI-generated

inventions. South Africa has granted Dr. Thaler a patent with DABUS listed as the inventor (Application No. 2021/03242), and Saudi Arabia has accepted Dr. Thaler’s ownership of an application with DABUS listed as the inventor (Application No. 521422019). The European Patent Office has recognized that the “owner of a device involved in an inventive activity” may designate himself or herself as the inventor—a workaround not available under our Patent Act. Legal Board of Appeal, EPO, Case No. J 0008/20, ¶ 4.6.6 (Dec. 21, 2021). The Supreme Court of the United Kingdom is currently addressing the patentability of foreign counterparts of the present applications, having heard oral arguments in March 2023. *Thaler v. Comptroller-General of Patents, Designs and Trade-marks*, Supreme Court Case No. 2021/0201. Australia is currently the only jurisdiction where the inventions have been held unpatentable in a non-appealable decision. The Federal Court of Australia originally granted Dr. Thaler’s petition, *Thaler v. Commissioner of Patents*, [2021] FCA 879 (July 30, 2021), before reversing course after an en banc hearing, *Commissioner of Patents v. Thaler*, [2022] FCAFC 62 (Apr. 13, 2022). And there are pending, related patent applications in Germany, Brazil, Canada, China, India, Israel, Japan, New Zealand, Republic of Korea, Singapore, Switzerland, and Taiwan, either before patent offices or in the process of judicial review. *See, e.g.*, WIPO IP Portal, <https://tinyurl.com/nh96443e> (last visited March 15, 2023). To be sure, Dr. Thaler’s case in each of these countries implicates the patent law of that specific nation. But the broad array of proceedings highlights the importance of carefully

examining the interaction of AI with existing patent systems.

Especially against this backdrop, the question presented is of exceptional importance to the American economy and its relationship with the rest of the world. Embracing useful inventions that meet all the substantive criteria for patentability set forth by Congress is fully consistent with the statutory text, legislative intent, and underlying purposes of the current and past versions of the Patent Act. The Federal Circuit's decision nonetheless effectively bans patents for AI-generated inventions in the United States. The decision of the Court of Appeals is fundamentally misconceived and warrants this Court's review.

CONCLUSION

The Court should grant this petition for a writ of certiorari.

Respectfully submitted,

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March 17, 2023

**APPENDIX OF THE PETITION FOR A WRIT
OF CERTIORARI**

APPENDIX A	Opinion of the Federal Circuit (Aug. 5, 2022).....	1a
APPENDIX B	Memorandum Opinion of the Eastern District of Virginia (Sept. 2, 2021).....	14a
APPENDIX C	Decisions on Petitions of the U.S. Patent and Trademark Office (Dec. 17, 2019)	38a
APPENDIX D	Order of the Federal Circuit Denying Petition for Rehearing (Oct. 20, 2022)	52a

1a

APPENDIX A

**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, 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—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.

I

Thaler represents that he develops and runs AI systems that generate patentable inventions. One such system is his "Device for the Autonomous Bootstrapping of 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").¹ 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

¹ The administrative records for both applications are materially identical.

taken DABUS' output and reduced the ideas in the applications to practice.²

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 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

² 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)).

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, 706.³ 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” 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)

³ 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.”).

(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).

A

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.

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 “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).⁴ 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

⁴ 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*).

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 35 U.S.C. §§ 101 and 271. Section 101 provides that “[w]henever anyone 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.”⁵ 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 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

⁵ 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.

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.

B

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

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).

III

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 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.

APPENDIX B

IN THE UNITED STATES DISTRICT COURT FOR
THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

STEPHEN THALER,)	
)	
Plaintiff,)	
)	
v.)	1:20-cv-903
)	(LMB/TCB)
ANDREW HIRSHFELD,)	
Performing the Functions)	
and Duties of the Under)	
Secretary of Commerce for)	
Intellectual Property and)	
Director of the United States		
Patent and Trademark		
Office, et al.,		
Defendants.		

MEMORANDUM OPINION

Before the Court are the parties’ cross-motions for summary judgment, which address the core issue—can an artificial intelligence machine be an “inventor” under the Patent Act? Based on the plain statutory language of the Patent Act and Federal Circuit authority, the clear answer is no. Accordingly, Defendants’ Motion for Summary Judgment [Dkt. No. 23] will be granted and

Plaintiffs Motion for Summary Judgment [Dkt. No. 18] will be denied.¹

I. BACKGROUND

This civil action concerns two patent applications that plaintiff Stephen Thaler (“plaintiff” or “Thaler”) filed with the United States Patent and Trademark Office (“USPTO”), which were assigned U.S. Application Serial Nos. 16/524,350 (the “350 application”) and 16/524,532 (the “532 application”) (collectively, “the Applications”).² Plaintiff filed the Applications with the USPTO on July 29, 2019. Administrative Record (“AR”) 1-96; 284-379. In his one-count complaint brought under the Administrative Procedure Act (“APA”), plaintiff alleges that the refusal of defendants Andrew Hirshfeld and the USPTO (collectively “defendants”) to process the Applications was “arbitrary, capricious, an abuse of discretion and not in

¹ Also before the Court is a document titled as a “Motion to Take Leave to Accept Attached Amicus Curiae Memorandum Opposing MSJ” and a “Motion to Waive Fees” [Dkt. No. 27] filed *pro se* by Mitchell Apper (“Apper”), who “is an engineer and inventor of a portfolio of 31 inventions that make extensive use of AI and various types of machine learning and is also a registered patent practitioner.” [Dkt. No. 27] at 2. The motion will be granted and the amicus brief will be filed; however, the information in the amicus brief is not of help to the Court’s evaluation of the legal arguments in this civil action.

² Because the administrative proceedings with respect to the Applications were identical (including the dates on which pertinent events occurred), this Opinion treats the Applications collectively and provides citations to the administrative record that the USPTO has filed with respect to both Applications.

accordance with the law; unsupported by substantial evidence, and in excess of Defendants' statutory authority." [Dkt. No. 1] ¶ 70. Plaintiff seeks an order compelling defendants to reinstate the Applications and vacate the prior decision on plaintiffs petitions filed under 37 C.F.R. § 1.181. He also seeks "[a] declaration that a patent application for an AI-generated invention should not be rejected on the basis that no natural person is identified as an inventor"; "[a] declaration that a patent application for an AI-generated invention should list an AI where the AI has met inventorship criteria"; and an award of the costs and reasonable attorneys' fees plaintiff incurred in this litigation. [Dkt. No. 1] ¶¶ A-E.

As a civil action brought under the APA, review of the final agency action is limited to considering the administrative record. The factual assertions made by plaintiff during the application process are taken as true. Plaintiff alleges that he "is in the business of developing and applying advanced artificial intelligence (AI) systems that are capable of generating patentable output under conditions in which no natural person traditionally meets inventorship criteria," [Dkt. No. 1] ¶ 1, and is the owner of DABUS,³ an artificial intelligence machine listed as the inventor of the '350 application, which claimed a "light beacon that flashes in a new and inventive manner to attract attention ('Neural Flame')," and the '532 application, which claimed a

³ "DABUS" is an acronym for "Device for the Autonomous Bootstrapping of Unified Sentience." [Dkt. No. 19] at 1.

“beverage container based on fractal geometry (Fractal Container).” *Id.* ¶ 15.

In the Application Data Sheets accompanying the Applications, plaintiff identified the inventor’s “given name” as “DABUS,” and under “family name” wrote “Invention generated by artificial intelligence,” identifying his own mailing address as the “mailing address of inventor.” AR 10; 299. Plaintiff also included a “Statement on Inventorship” in the Applications explaining that “[t]he unique aspects under which the instant invention was conceived prompted the inclusion of such statement in order to explain that the inventor of the subject matter of the instant invention of the present application is an AI machine, being a type of ‘creativity machine’ named ‘DABUS,’” and arguing why plaintiff thought DABUS should be considered an “inventor” under the Patent Act and the USPTO’s regulations. AR 60-65; 345-50.

Because DABUS could not execute the necessary oath or declaration that the Patent Act requires of an inventor, plaintiff included with the Applications a “Substitute Statement Under 37 CFR 1.64 in Lieu of Declaration Under 35 USC § 115(d),” which explained that the “inventor,” DABUS, was “under legal incapacity in view of the fact that the sole inventor is a Creativity Machine (i.e., an artificial intelligence), with no legal personality or capability to execute this substitute statement.” AR 26-27; 311-12. Accordingly, Thaler, as the “the Applicant and the Assignor of the abovementioned application, as well as the owner of said Creativity Machine, DABUS” signed the substitute statement. *Id.*

The Applications also included a document through which DABUS had ostensibly assigned all intellectual property rights in the claimed invention to plaintiff. That document, entitled “Assignment,” provided in pertinent part:

DABUS, the Creativity machine that has produced the below-detailed invention, as the sole inventor (represented in this assignment by its owner, Stephen L. Thaler, hereinafter called the “Assignor”), hereby assigns and transfers to:

Stephen L. Thaler
[Address Omitted]

(hereinafter called the “Assignee”), its successors, assignees, nominees, or other legal representatives, the Assignor’s entire right, title, and interest, including, but not limited to, copyrights, trade secrets, trademarks and associated good will and patent rights in the Invention and the registrations to the invention ...

...

In view of the fact that the sole inventor is a Creativity Machine, with no legal personality or capability to execute said agreement, and in view of the fact that the assignee is the owner of said Creativity Machine, this Assignment is considered enforceable without an explicit execution by the inventor. Rather, the owner of DABUS, the

Creativity Machine, is signing this Assignment on its behalf.

Similarly, DABUS, being a machine and having no legal personality, does not have the capability to receive any consideration, and therefore, Stephen L. Thaler, as its owner/representative, acknowledges the receipt and sufficiency of good and valuable consideration for this assignment.

AR 21; 310. The assignment document was signed by both “Stephen L. Thaler, On Behalf of DABUS, Assignor,” as well as “Stephen L. Thaler, Assignee.” *Id.*

After its initial review of the Applications, the USPTO issued plaintiff a “Notice to File Missing Parts of Non-Provisional Application,” allowing him two months to submit proper information regarding inventorship because the “application data sheet or inventor’s oath or declaration does not identify each inventor or his or her legal name.” AR 97-98; 380-81. On August 29, 2019, plaintiff filed a petition with the USPTO Director pursuant to 37 C.F.R. § 1.181⁴ in which he asked the USPTO to vacate its “Notice to File Missing Parts,” and essentially reiterated the “Inventorship Statement” that he had submitted with the Applications arguing that DABUS should be listed as the inventor. AR 111-16; 394-99. On

⁴ Pursuant to 37 C.F.R. § 1.181(a)(3), an applicant may file an administrative petition asking the USPTO Director “[t]o invoke the supervisory authority of the Director in appropriate circumstances.”

December 17, 2019, the USPTO issued a written decision dismissing plaintiff's petition, in which it explained that the explicit statutory language that Congress has used to define the term "inventor"—e.g., "individual" and "himself or herself"—was uniquely trained on human beings. AR 131-33; 410-12. The USPTO also explained that the Federal Circuit had twice held that an inventor could only be a natural person. *Id.* (quoting *Univ. of Utah v. Max-Planck-Gesellschaft*, 734 F.3d 1315, 1323 (Fed. Cir. 2013) ("*Max-Planck*"); *Beech Aircraft Corp. v. EDO Corp.*, 990 F.2d 1237, 1248 (Fed. Cir. 1993)). "Because a machine does not qualify as an inventor," the USPTO concluded that it had "properly issued the Notice ... noting the inventor was not identified by his or her legal name." *Id.* The USPTO further explained the way for plaintiff to patent the inventions:

the use of a machine as a tool by natural person(s) does not generally preclude natural person(s) from qualifying as an inventor or joint inventors if the natural person(s) contributed to the conception of the claimed invention. *See* MPEP § 2137.01.... Where an application names an incorrect inventor, the applicant could submit a request to correct inventorship under 37 CFR 1.48. *See* MPEP § 602.01(c) et seq.; *see also* MPEP § 706.03(a), subsection IV.

AR 133; 412.

On January 20, 2020, plaintiff sought reconsideration of the USPTO's decision by filing a

“Petition to the Director Under 37 CFR 1.181 – Request for Reconsideration.” AR 135-46; 414-25. On April 22, 2020, the USPTO denied plaintiff’s request for reconsideration in a final written decision, which plaintiff challenges in this civil action. AR 205-13; 456-64. Relying on multiple sections of Title 35 of the United States Code, the USPTO explained that “the patent statutes preclude such a broad interpretation” of “inventor” to cover machines. AR 209; 460. Additionally, although the USPTO acknowledged that the relevant Federal Circuit decisions holding that “only natural persons can be ‘inventors’” were “in the context of states and corporations,” it concluded that “the discussion of conception as being a ‘formation in the mind of the inventor’ and a ‘mental act’ is equally applicable to machines and indicates that conception—the touchstone of inventorship—must be performed by a natural person.” AR 210; 461 (quoting *Max-Planck*, 734 F.3d at 1323; *Beech Aircraft*, 990 F.2d at 1248). The USPTO also pointed to “numerous references to the inventor as a ‘person’ in Title 37 of the Code of Federal Regulations,” and the definition of “conception” in the Manual of Patent Examining Procedure (“MPEP”) as “the complete performance of the mental part of the inventive act” and “the formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice” as further underscoring that only a natural person may be an “inventor.” AR 211; 462. The USPTO addressed plaintiff’s remaining arguments, including policy considerations, and held that “they do not overcome the plain language of the patent laws as

passed by the Congress and as interpreted by the courts.” AR 212; 463 (citing *Glaxo Ops. UK Ltd. v. Quigg*, 894 F.2d 392, 399-400 (Fed. Cir. 1990) for the holding that the USPTO and courts must honor the plain meaning of the patent statutes when Congress has spoken on an issue, and that striking policy balances when crafting legislative language is within the province of Congress).

Plaintiff filed this civil action seeking review of the USPTO’s decision, and, after an agreed briefing schedule was entered, plaintiff and defendants filed their cross-motions for summary judgment without having engaged in discovery. The parties’ motions have been fully briefed, and oral argument was heard on the record by teleconference due to the COVID-19 pandemic.

II. DISCUSSION

A. Standard of Review

Under the APA, 701 U.S.C. § 701, *et seq.*, a court may only set aside a final agency action if it is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A). An action is arbitrary and capricious if the agency “relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*,

463 U.S. 29 (1983). “A court reviewing the agency decision ‘must consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment.’” *Burandt v. Dudas*, 528 F.3d 1329, 1332 (Fed. Cir. 2008) (quoting *Bowman Transp., Inc. v. Arkansas-Best Freight Sys., Inc.*, 419 U.S. 281, 285 (1974)). “An abuse of discretion occurs where the decision is based on an erroneous interpretation of the law, on factual findings that are not supported by substantial evidence, or represents an unreasonable judgment in weighing relevant factors.” *Id.* “The focal point for judicial review [under the APA] should be the administrative record already in existence.” *SourceAmerica v. United States Dep’t of Educ.*, 368 F. Supp. 3d 974, 986 (E.D. Va. 2019) (alterations in original) (quoting *Camp v. Pitts*, 411 U.S. 138, 142 (1973)), *vacated in part on other grounds by* 826 F. App’x 272 (2020). Under Fed. R. Civ. P. 56(a), summary judgment is appropriate where the movant shows that there is no “genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.”

B. Analysis

The USPTO argues that its interpretation of the various provisions of the Patent Act at issue here—primarily 35 U.S.C. §§ 100 and 115—is entitled to deference pursuant to the Supreme Court’s decision in *Skidmore v. Swift & Co.*, which accords deference to agency interpretations of statutory provisions that “constitute a body of experience and informed judgment to which courts and litigants may properly resort for guidance to the extent that those decisions

have the power to persuade.” 323 U.S. 134 (1944). “The weight of such a judgment in a particular case will depend upon the thoroughness evident in its consideration, the validity of its reasoning, its consistency with earlier and later pronouncements, and all those factors which give it power to persuade, if lacking power to control.” *Id.* Similarly, the Federal Circuit has held that

the Supreme Court intends for us to defer to an agency interpretation of the statute that it administers if the agency has conducted a careful analysis of the statutory issue, if the agency’s position has been consistent and reflects agency-wide policy, and if the agency’s position constitutes a reasonable conclusion as to the proper construction of the statute, even if we might not have adopted that construction without the benefit of the agency’s analysis.

Cathedral Candle Co. v. ITC, 400 F.3d 1352, 1366 (Fed. Cir. 2005).

Plaintiff argues that defendants are not entitled to *Skidmore* deference because defendants did not “consider alternative interpretations or statutory constructions or the constitutional imperative in rejecting the Applications,” did not “provide any evidence that Congress intended to exclude AI-[g]enerated [i]nventions from patentability,” and did “not engage with the effects of their interpretation.” [Dkt. No. 28] at 9. Plaintiff’s arguments are rejected because they attempt to add requirements for *Skidmore* deference that are counter to Supreme

Court and Federal Circuit holdings. Contrary to plaintiff's unsupported assertions as to inadequate consideration of "alternative interpretations," the USPTO's interpretation of the Patent Act was carefully considered and was consistent with the Patent Act's language and the caselaw. The decision also explained why plaintiff's policy arguments as to the effects of the agency's interpretation were rejected, and the decision reached a reasonable conclusion regarding the proper construction of the statute. Plaintiff has pointed to no USPTO policies with which the decision is inconsistent. Accordingly, the USPTO's interpretation that an "inventor" must be a natural person is entitled to deference.

Even if no deference were due, the USPTO's conclusion is correct under the law. The question of whether the Patent Act requires that an "inventor" be a human being is a question of statutory construction. Accordingly, the plain language of the statute controls. *See, e.g., Shoshone Indian Tribe v. United States*, 364 F.3d 1339, 1345 (Fed. Cir. 2004). As the Supreme Court has held: "The preeminent canon of statutory interpretation requires us to 'presume that [the] legislature says in a statute what it means and means in a statute what it says there.' Thus, our inquiry begins with the statutory text, and ends there as well if the text is unambiguous." *BedRoc Ltd., LLC v. United States*, 541 U.S. 176, 183 (2004) (quoting *Connecticut Nat. Bank v. Germain*, 503 U.S. 249, 253-54 (1992)) (internal citations omitted).

Using the legislative authority provided by the Constitution's Patent Clause, *see* U.S. Const. art. I, §

8, cl. 8, Congress codified the Patent Act in 1952, *see Dawson Chem. Co. v. Rohm & Haas Co.*, 448 U.S. 176, 180 (1980), and has amended the Patent Act a number of times in the ensuing sixty years. In 2011, Congress promulgated the America Invents Act, which, as relevant here, formally amended the Patent Act to provide an explicit statutory definition for the term “inventor” to mean “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). The America Invents Act also added that “joint inventor” means “any one of the individuals who invented or discovered the subject matter of a joint invention.” *Id.* § 100(g). Additionally, Congress has required that “[a]n application for patent shall be made, or authorized to be made, by the inventor ... in writing to the Director.” 35 U.S.C. § 111(a)(1). “[E]ach individual who is the inventor or a joint inventor of a claimed invention in an application for patent shall execute an oath or declaration in connection with the application” which “shall contain statements that— ... such individual believes himself or herself to be the original inventor or joint inventor of [the] claimed invention.” *Id.* § 115(b). An applicant may also submit a “substitute statement” to the USPTO “in lieu of” the oath or declaration:

A substitute statement under paragraph (1) is permitted with respect to any individual who—

(A) is unable to file the oath or declaration under subsection (a) because the individual—

- (i) is deceased;
- (ii) is under legal incapacity; or
- (iii) cannot be found or reached after diligent effort; or

(B) is under an obligation to assign the invention but has refused to make the oath or declaration required under subsection (a).

Id. § 115(d)(2). The “substitute statement” must also “identify the individual to whom the statement applies” as well as the circumstances triggering the exception to the oath or declaration requirement. *Id.* § 115(d)(3).

As the statutory language highlights above, both of the definitions provided by Congress for the terms “inventor” and “joint inventor” within the Patent Act reference an “individual” or “individuals.” 35 U.S.C. §§ 100(f)-(g). Congress used the same term—“individual”—in other significant provisions of the Patent Act which reference an “inventor,” including requiring that “each individual who is the inventor or a joint inventor” execute an oath or declaration, and permitting a substitute statement in lieu of the oath or declaration “with respect to any individual who” meets the requirements. *Id.* § 115(a)(1). Similarly, the oath or declaration must contain a statement that “such individual believes himself or herself to be the original inventor or joint inventor of [the] claimed invention.” *Id.* § 115(b)(2). Accordingly, the issue of whether an artificial intelligence

machine can be an “inventor” turns on the plain meaning of the statutory term “individual.”

The Supreme Court recently conducted a statutory construction analysis regarding Congress’s use of the term “individual” in the Torture Victim Protection Act (“TVPA”), ultimately concluding that “[t]he ordinary meaning of the word, fortified by its statutory context,” referred to a “natural person[].” *Mohamad v. Palestinian Auth.*, 566 U.S. 449, 453-54 (2012). Although the TVPA and Patent Act concern different subject matter, the Supreme Court’s statutory analysis of the term “individual” remains applicable here. “Because the [Patent Act] does not define the term ‘individual,’ we look first to the word’s ordinary meaning.” *Id.* at 454. When used “[a]s a noun, ‘individual’ ordinarily means ‘[a] human being, a person.’” *Id.* (quoting 7 Oxford English Dictionary 880 (2d ed. 1989)) (also citing Random House Dictionary of the English Language 974 (2d ed. 1987) (“a person”); Webster’s Third New International Dictionary 1152 (1986) (“a particular person”)). As the Supreme Court recognized, these definitions 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. And no one, we hazard to guess, refers in normal parlance to an organization as an “individual.” Evidencing that common usage, this Court routinely uses “individual” to denote a natural person, and in particular to

distinguish between a natural person and a corporation.

Id. Similarly, the Patent Act uses the term “individual” as a noun, and therefore “‘individual’ ordinarily means ‘[a] human being, a person.’” *Id.* at 454. As in *Mohamad*, this definition is consistent with the ordinary usage of the term “individual” to refer to a human being, as artificial intelligence machines or systems are not normally referred to as “individuals” in ordinary parlance.

Relying on the Dictionary Act’s denotation of “individual” as “distinct from the list of artificial entities that precedes it,” the Supreme Court explained that “Congress does not, in the ordinary course, employ the word any differently” from its common usage. *Id.* (citing 1 U.S.C. § 1). The Dictionary Act applies to all congressional enactments, and similarly applies to the Patent Act. *See Ngiraingas v. Sanchez*, 495 U.S. 182, 190 (1990) (holding that the Dictionary Act “supplied[s] rules of construction for all legislation”). Notably, although “Congress remains free, as always, to give the word a broader or different meaning before we will assume it has done so, there must be *some* indication Congress intended such a result.” *Mohamad*, 566 U.S. at 455 (emphasis in original).

Congress’s use of the term “individual” in the Patent Act strengthens the conclusion that an “inventor” must be a natural person. Congress provided that in executing the oath or declaration accompanying a patent application, the inventor must include a statement that “such *individual*

believes himself or herself to be the original inventor or an original joint inventor of a claimed invention in the application.” 35 U.S.C. § 115(b)(2) (emphasis added). The Supreme Court has recognized the principle that “a word is known by the company it keeps (the doctrine of *noscitur a sociis*)” and that this principle is a “rule we rely upon to avoid ascribing to one word a meaning so broad that it is inconsistent with its accompanying words, thus giving ‘unintended breadth to the Acts of Congress.’” *Gustafson v. Alloyd Co.*, 513 U.S. 561, 575 (1995) (quoting *Jarecki v. G.D. Searle & Co.*, 367 U.S. 303, 307 (1961)). By using personal pronouns such as “himself or herself” and the verb “believes” in adjacent terms modifying “individual,” Congress was clearly referencing a natural person. Because “there is a presumption that a given term is used to mean the same thing throughout a statute,” the term “individual” is presumed to have a consistent meaning throughout the Patent Act. *Mohamad*, 566 U.S. at 456. As the USPTO correctly observes, plaintiff relies on no statutory text within the Patent Act to support his argument that Congress intended to deviate from the typical use of “individual” as meaning a natural person. Instead, plaintiff argues that “[e]ven if statutory and judicial language refers to inventors as individuals, none of this has been in the context of AI-[g]enerated [i]nventions.” [Dkt. No. 19] at 17. That argument does not undercut that the ordinary meaning of the word “individual,” fortified by its statutory context, refers to natural persons, which necessarily excludes artificial intelligence machines.

This conclusion is further buttressed by the Federal Circuit's consistent holdings that under current patent law "inventors must be natural persons." *Max-Planck*, 734 F.3d at 1323; *see also Beech Aircraft*, 990 F.2d at 1248. In *Max-Planck*, the Federal Circuit evaluated whether a state was the real party in interest where a state university sued officials of another state university (but not the university itself) to correct inventorship of a patent. In holding that "a State has no core sovereign interest in inventorship," the Federal Circuit stated that "[i]t is axiomatic that inventors are the individuals that conceive of the invention: [c]onception is the touchstone of inventorship," and that "[t]o perform this mental act [of conception], inventors must be natural persons and cannot be corporations or sovereigns." 734 F.3d at 1323. In *Beech Aircraft*, the Federal Circuit stated that a corporation "could never have been declared an 'inventor,' as [the corporation] was merely a corporate assignee and only natural persons can be 'inventors.'" 990 F.2d at 1248 (citing 35 U.S.C. §§ 115-118). Although these cases did not squarely address the issue raised in this civil action, the unequivocal statements from the Federal Circuit that "inventors must be natural persons" and "only natural persons can be 'inventors'" support the plain meaning of "individual" in the Patent Act as referring only to a natural person and not to an artificial intelligence machine. *Max-Planck*, 734 F.3d at 1323; *Beech Aircraft*, 990 F.2d at 1248.

Having neither facts nor law to support his argument, plaintiff's main argument is that policy considerations and the general purpose of the

Constitution's Patent Clause and the Patent Act require that the statute be read to encompass artificial intelligence machines as "inventors." Plaintiff argues that:

Allowing patents for AI-Generated Inventions will result in more innovation. It will incentivize the development of AI capable of producing patentable output by making that output more valuable.... Patents also incentivize commercialization and disclosure of information, and this incentive applies with equal force to a human and an AI-Generated Invention. By contrast, denying patent protection for AI-Generated Inventions threatens to undermine the patent system by failing to encourage the production of socially valuable inventions.

Patent law also protects the moral rights of human inventors and listing an AI as an inventor where appropriate would protect these human rights.... [I]t will discourage individuals from listing themselves as inventors without having contributed to an invention's conception merely because their name is needed to obtain a patent. Allowing a person to be listed as an inventor for an AI-Generated Invention would not be unfair to an AI, which has no interest in being acknowledged, but allowing people to take credit for work they have not done would devalue human inventorship.

[Dkt. No. 19] at 11-12. Accordingly, plaintiff argues that the Court should seek to give effect to Congress’s intent “to create a system that would encourage innovation, as well as to promote disclosure of information and commercialization of new technologies.” *Id.* at 12. Plaintiff provides no support for his argument that these policy considerations should override the plain meaning of a statutory term. Moreover, the Supreme Court has held that there must be “*some* indication” that Congress intended a particular provision to be one of the “rare statute[s]” that contains a different meaning for the term “individual.” *Mohamad*, 566 U.S. at 455 (emphasis in original). Accordingly, plaintiffs position that the USPTO must “provide ... evidence that Congress intended to prohibit patents on AI-[g]enerated [i]nventions” has the burden exactly backwards. [Dkt. No. 28] at 12.

The Supreme Court and Federal Circuit have explicitly held that policy considerations cannot overcome a statute’s plain language, and that “[m]atters of policy are for Congress, not the courts, to decide.” *Fisons PLC v. Quigg*, 876 F.2d 99, 101 (Fed. Cir. 1989)⁵; *Sandoz Inc. v. Amgen Inc.*, 137 S.

⁵ Specifically, the Supreme Court held:

Fisons makes what can only be characterized as a “policy argument” pointing to statements of lofty goals indicating that Congress broadly sought to encourage pharmaceutical innovation by enacting the 1984 Act.... It is irrelevant, however, that we might agree with Fisons that, as a matter of policy, Congress might better achieve its goals through a more liberal

Ct. 1664, 1678 (2017) (“Even if we were persuaded that Amgen had the better of the policy arguments, those arguments could not overcome the statute’s plain language, which is our ‘primary guide’ to Congress’ preferred policy.”); *see also Kimble v. Marvel Entm’t, LLC*, 576 U.S. 446, 463-64 (2015) (holding that, although one litigant “also [sought] support from the wellspring of all patent policy: the goal of promoting innovation[,] [c]laims that a statutory precedent has serious and harmful consequences for innovation are (to repeat this opinion’s refrain) more appropriately addressed to Congress”).

In response to plaintiff’s accusations that the USPTO has not considered the policy ramifications of its decision that an artificial intelligence machine cannot be an “inventor,” the USPTO represents that it “continues to study the impact of artificial intelligence on current patent regulations, and has engaged the public-at-large in a conversation on the subject.” [Dkt. Nos. 24, 25] at 21 n.10. Specifically, the USPTO points to a conference on artificial intelligence policy it held in January 2019, and to requests for public comment “on a whole host of issues related to the intersection of intellectual property policy and artificial intelligence” it issued in August and October 2019. In October 2020, the USPTO issued a comprehensive report on those

grant of patent term extension benefits. Matters of policy are for Congress, not the courts, to decide.

Fisons PLC v. Quigg, 876 F.2d 99, 101 (Fed. Cir. 1989)

comments. *Id.* (citing *Public Views on Artificial Intelligence and Patent Policy*, available at https://www.uspto.gov/sites/default/files/documents/USPTO_AI-Report_2020-10-07.pdf (visited August 31, 2021)). Many commentators disagreed with plaintiff's view that artificial intelligence machines should be recognized as inventors—for example, the report found general themes among the comments that:

The majority of public commenters, while not offering definitions of [artificial intelligence (“AI”)], agreed that the current state of the art is limited to “narrow” AI. Narrow AI systems are those that perform individual tasks in well-defined domains (e.g., image recognition, translation, etc.). The majority viewed the concept of artificial general intelligence (AGI)—intelligence akin to that possessed by humankind and beyond—as merely a theoretical possibility that could arise in a distant future.

Based on the majority view that AGI has not yet arrived, the majority of comments suggested that current AI could neither invent nor author without human intervention. The comments suggested that human beings remain integral to the operation of AI, and this is an important consideration in evaluating whether IP law needs modification in view of the current state of AI technology.

Id. at ii-iii; *see also id.* at 6.

Additionally, the USPTO points to the fact that, contrary to plaintiff's assertion that the "statutes relied upon by Defendants were passed long before AI-[g]enerated [i]nventions were a reality" and that if Congress had contemplated this artificial intelligence issue, it would have included artificial intelligence machines within the definition of "inventors"; Congress defined an "inventor" as an "individual" through the America Invents Act in 2011, when artificial intelligence was already in existence. *See* Pub. L. 112-29, § 3(a), 125 Stat. 285 (Sept. 16, 2011); *see also* H.R. Rep. No. 112-98 (June 1, 2011), *available at* 2011 U.S.C.C.A.N. 67, 67. Accordingly, plaintiff's policy arguments do not override the overwhelming evidence that Congress intended to limit the definition of "inventor" to natural persons. As technology evolves, there may come a time when artificial intelligence reaches a level of sophistication such that it might satisfy accepted meanings of inventorship. But that time has not yet arrived, and, if it does, it will be up to Congress to decide how, if at all, it wants to expand the scope of patent law.

III. CONCLUSION

For the reasons stated above, Defendants' Motion for Summary Judgment [Dkt. No. 23] will be granted, Plaintiff's Motion for Summary Judgment [Dkt. No. 18] will be denied, and Apper's Motion to Take Leave to Accept Attached Amicus Curiae Memorandum Opposing MSJ and Motion to Waive Fees [Dkt. No. 27] will be granted by an Order to be issued with this Memorandum Opinion.

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Entered this 2nd day of September, 2021

Alexandria, Virginia

/s/ Leonie M. Brinkema
Leonie M. Brinkema
United States District Judge

APPENDIX C

**UNITED STATES PATENT AND TRADEMARK
OFFICE**

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

In re Application of :
Stephen L. Thaler :
Application No. 16/524,350 :
Filed: 29 Jul 2019 : **DECISION ON**
For: DEVICES AND : **PETITION**
METHODS FOR :
ATTRACTING ENHANCED :
ATTENTION :

This is a decision on the petition under 37 CFR 1.181, filed August 29, 2019, requesting the Office vacate the Notice to File Missing Parts of Nonprovisional Application, mailed August 8, 2019.¹

The petition under 37 CFR 1.181 is **DISMISSED**.

¹ The instant petition under 37 CFR 1.181 was accompanied by a petition under 37 CFR 1.182 requesting expedited processing of the instant petition. The petition to expedite the processing is **dismissed** as moot in view of this decision.

RELEVANT BACKGROUND

The above-identified application was filed on July 29, 2019. The application papers filed on July 29, 2019 were accompanied by, *inter alia*, an application data sheet (“ADS”), a statement under 37 CFR 3.73(c) stating Stephen L. Thaler is the assignee of the entire right, title, and interest of the patent application, an assignment from the assignor, DABUS, signed by Stephen L. Thaler, to the assignee, Stephen L. Thaler, assigning and transferring the assignor’s entire right, title, and interest in the invention², and a substitute statement under 37 CFR 1.64 in lieu of declaration under 35 U.S.C. § 115(d) (“substitute statement”), listing DABUS, as the inventor for which the substitute statement applies, which was executed by Stephen L. Thaler, as legal representative of DABUS. The ADS, filed July 29, 2019, lists the sole inventor as having the given name “[DABUS]” and the family name “Invention generated by artificial intelligence.”

On August 8, 2019, the USPTO issued a Notice to File Missing Parts of Nonprovisional Application (“Notice”), which provided applicant two months from the mail date of the Notice, with extensions of time available pursuant to 37 CFR 1.136(a), to file an ADS or inventor’s oath/declaration that identifies each inventor by his or her legal name and to submit

² Based on an initial review, this assignment document does not appear to satisfy the requirements set forth in 37 CFR 3.73(c)(1).

the \$80 surcharge for the late submission of the inventor's oath or declaration.

Petitioner filed the present petition under 37 CFR 1.181 on August 29, 2019.

OPINION

Petitioner asserts the sole inventor of the subject matter of the instant application is an artificial intelligence machine named DABUS. Petitioner contends that inventorship should not be restricted to natural persons and therefore, DABUS is properly identified as the sole inventor in the ADS of July 29, 2019. Petitioner further contends the substitute statement filed July 29, 2019 and executed by Stephen L. Thaler, as legal representative of DABUS, listing DABUS as the inventor is acceptable. Petitioner requests that the Director vacate the Notice of August 8, 2019 for being unwarranted and/or void.

35 U.S.C. § 115 requires that an application filed under 35 U.S.C. § 111(a) shall include the name of the inventor or inventors. 35 U.S.C. § 100(f) defines the term "inventor" as the individual or, if a joint invention, the individuals collectively who invented or discovered the subject matter of the invention.³ As provided in 37 CFR 1.41(b), an applicant may name the inventorship of a non-provisional application under 35 U.S.C. § 111(a) in the ADS in accordance

³ 35 U.S.C. § 100(g) defines the terms "joint inventor" and "coinventor" as any one of the individuals who invented or discovered the subject matter of a joint invention.

with 37 CFR 1.76. or in the inventor's oath or declaration in accordance with 37 CFR 1.63. *See* MPEP 602.01.

Petitioner argues that inventorship should not be restricted to natural persons because United States law does not explicitly prohibit protection for autonomous machine-created inventions. Therefore, due to numerous policy considerations, a machine like DABUS, that meets the inventorship criteria if it were a natural person, should also qualify as an inventor. However, the United States patent laws do not support Petitioner's position that an inventor can be a machine.

The Patent statute is replete with language indicating that an inventor is a natural person. For example, as noted *supra*, 35 U.S.C. § 100(f) defines the term "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. § 101 also provides "[w]hoever invents or discovers ... may obtain a patent therefor, subject to the conditions and requirements of this title." (emphasis added). Additionally, 35 U.S.C. § 102(a) states, "A **person** shall be entitled to a patent unless ..." (emphasis added). 35 U.S.C. § 115(b)(2) further provides, in pertinent part, "[a]n oath or declaration under subsection (a) shall contain statements that ... such **individual believes himself or herself** to be the original inventor or an original joint inventor of a claimed invention in the application" (emphasis

added).⁴ Accordingly, the Patent statutes do not support the interpretation of “inventor” to include a machine.

Moreover, when considering whether corporations could be listed as an inventor, the United States Court of Appeals for the Federal Circuit (Federal Circuit) has explained that “only natural persons can be ‘inventors.’”⁵ We see no basis to distinguish a machine.

In this instance, the ADS of July 29, 2019 lists “[DABUS]” as the given name, and “Invention generated by artificial intelligence” as the family name, of the sole inventor. Similarly, the substitute

⁴ Other examples from Title 35 include: 35 U.S.C. § 116(a) that states, in pertinent part “[w]hen an invention is made by two or more persons jointly, they shall apply for patent jointly and each make the required oath, except as otherwise provided in this title”; 35 U.S.C. § 256 that provides for correction of the inventorship where a “person” is named that is not the inventor or where a “person” who is an inventor is not named as an inventor of the patent; 35 U.S.C. § 371(c)(4) that provides for an oath or declaration by the inventor “or other person” authorized under chapter 11; 35 U.S.C. § 382 that provides for filing of an international design application by a “person who is a national of the United States.”

⁵ *Beech Aircraft Cor. v. Edo Corp.*, 990 F.2d 1237, 1248 (Fed. Cir. 1993); *see also University of Utah v. Max-Planck-Gesellschaft Zur Forderung Der Wissenschaften E.V.*, 734 F.3d 1315, 1323 (Fed. Cir. 2013) (“Conception is the touchstone of inventorship, the completion of the mental part of invention. It is the formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice.”) (internal quotation marks and citations omitted).

statement under 37 CFR 1.64, filed July 29, 2019, lists DABUS as the inventor for which the substitute statement applies. Petitioner admits that DABUS is a machine. Because a machine does not qualify as an inventor (for the reasons set forth above), the USPTO properly issued the Notice of August 8, 2019 noting the inventor was not identified by his or her legal name.

We note, however, that the use of a machine as a tool by natural person(s) does not generally preclude natural person(s) from qualifying as an inventor or joint inventors if the natural person(s) contributed to the conception of the claimed invention. *See* MPEP § 2137.01. Further, the Office normally presumes that the named inventor or joint inventors in the application are the actual inventor or joint inventors to be named on the patent. *See* MPEP § 2137.01. Where an application names an incorrect inventor, the applicant could submit a request to correct inventorship under 37 CFR 1.48. *See* MPEP § 602.01(c) et seq.; *see also* MPEP § 706.03(a), subsection IV.

DECISION

For the reasons noted above, the petition under 37 CFR 1.181 to vacate the Notice of August 8, 2019 is dismissed.

The time period to reply to the Notice of August 8, 2019 is reset in this decision. Petitioner is given a time period of **two (2) months** from the mailing date of this decision within which to file all required items identified in the Notice of August 8, 2019 to

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avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under 37 CFR 1.136(a).

Telephone inquiries should be directed to the undersigned at (571) 272-3230.

/SHIRENE W BRANTLEY/
Attorney Advisor, OPET

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UNITED STATES PATENT AND TRADEMARK
OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

In re Application of :
Unnamed :
Application No. 16/524,532 :
Filed: 29 Jul 2019 : DECISION ON
For: FOOD CONTAINER : PETITION

This is a decision on the petition under 37 CFR 1.181, filed August 29, 2019, requesting the Office vacate the Notice to File Missing Parts of Nonprovisional Application, mailed August 1, 2019.¹

The petition under 37 CFR 1.181 is **DISMISSED**.

RELEVANT BACKGROUND

The above-identified application was filed on July 29, 2019. The application papers filed on July 29, 2019 were accompanied by, *inter alia*, an application data sheet (“ADS”), a statement under 37 CFR 3.73(c) stating Stephen L. Thaler is the assignee of the entire right, title, and interest of the patent

¹ The instant petition under 37 CFR 1.181 was accompanied by a petition under 37 CFR 1.182 requesting expedited processing of the instant petition. The petition to expedite the processing is **dismissed** as moot in view of this decision.

application, an assignment from the assignor, DABUS, signed by Stephen L. Thaler, to the assignee, Stephen L. Thaler, assigning and transferring the assignor's entire right, title, and interest in the invention², and a substitute statement under 37 CFR 1.64 in lieu of declaration under 35 U.S.C. § 115(d) ("substitute statement"), listing DABUS, as the inventor for which the substitute statement applies, which was executed by Stephen L. Thaler, as legal representative of DABUS. The ADS, filed July 29, 2019, lists the sole inventor as having the given name "[DABUS]" and the family name "Invention generated by artificial intelligence."

On August 1, 2019, the USPTO issued a Notice to File Missing Parts of Nonprovisional Application ("Notice"), which provided applicant two months from the mail date of the Notice, with extensions of time available pursuant to 37 CFR 1.136(a), to file an ADS or inventor's oath/declaration that identifies each inventor by his or her legal name and to submit the \$80 surcharge for the late submission of the inventor's oath or declaration.

Petitioner filed the present petition under 37 CFR 1.181 on August 29, 2019.

² Based on an initial review, this assignment document does not appear to satisfy the requirements set forth in 37 CFR 3.73(c)(1).

OPINION

Petitioner asserts the sole inventor of the subject matter of the instant application is an artificial intelligence machine named DABUS. Petitioner contends that inventorship should not be restricted to natural persons and therefore, DABUS is properly identified as the sole inventor in the ADS of July 29, 2019. Petitioner further contends the substitute statement filed July 29, 2019 and executed by Stephen L. Thaler, as legal representative of DABUS, listing DABUS as the inventor is acceptable. Petitioner requests that the Director vacate the Notice of August 1, 2019 for being unwarranted and/or void.

35 U.S.C. § 115 requires that an application filed under 35 U.S.C. § 111(a) shall include the name of the inventor or inventors. 35 U.S.C. § 100(f) defines the term “inventor” as the individual or, if a joint invention, the individuals collectively who invented or discovered the subject matter of the invention.³ As provided in 37 CFR 1.41(b), an applicant may name the inventorship of a non-provisional application under 35 U.S.C. § 111(a) in the ADS in accordance with 37 CFR 1.76. or in the inventor’s oath or declaration in accordance with 37 CFR 1.63. *See* MPEP 602.01.

Petitioner argues that inventorship should not be restricted to natural persons because United States

³ 35 U.S.C. § 100(g) defines the terms “joint inventor” and “coinventor” as any one of the individuals who invented or discovered the subject matter of a joint invention.

law does not explicitly prohibit protection for autonomous machine-created inventions. Therefore, due to numerous policy considerations, a machine like DABUS, that meets the inventorship criteria if it were a natural person, should also qualify as an inventor. However, the United States patent laws do not support Petitioner's position that an inventor can be a machine.

The Patent statute is replete with language indicating that an inventor is a natural person. For example, as noted *supra*, 35 U.S.C. § 100(f) defines the term “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. § 101 also provides “[w]hoever invents or discovers ... may obtain a patent therefor, subject to the conditions and requirements of this title.” (emphasis added). Additionally, 35 U.S.C. § 102(a) states, “A **person** shall be entitled to a patent unless ...” (emphasis added). 35 U.S.C. § 115(b)(2) further provides, in pertinent part, “[a]n oath or declaration under subsection (a) shall contain statements that ... such **individual believes himself or herself** to be the original inventor or an original joint inventor of a claimed invention in the application” (emphasis added).⁴ Accordingly, the Patent statutes do not

⁴ Other examples from Title 35 include: 35 U.S.C. § 116(a) that states, in pertinent part “[w]hen an invention is made by two or more persons jointly, they shall apply for patent jointly and each make the required oath, except as otherwise provided in this title”; 35 U.S.C. § 256 that provides for correction of the inventorship where a “person” is named that is not the inventor or where a “person” who is an inventor is not named as an inventor of the patent; 35 U.S.C. § 371(c)(4) that provides for an

support the interpretation of “inventor” to include a machine.

Moreover, when considering whether a corporation could be listed as an inventor, the United States Court of Appeals for the Federal Circuit (Federal Circuit) has explained that “only natural persons can be ‘inventors.’”⁵ We see no basis to distinguish a machine.

In this instance, the ADS of July 29, 2019 lists “[DABUS]” as the given name, and “Invention generated by artificial intelligence” as the family name, of the sole inventor. Similarly, the substitute statement under 37 CFR 1.64, filed July 29, 2019, lists DABUS as the inventor for which the substitute statement applies. Petitioner admits that DABUS is a machine. Because a machine does not qualify as an inventor (for the reasons set forth above), the USPTO properly issued the Notice of August 1, 2019

oath or declaration by the inventor “or other person” authorized under chapter 11; 35 U.S.C. § 382 that provides for filing of an international design application by a “person who is a national of the United States.”

⁵ *Beech Aircraft Cor. v. Edo Corp.*, 990 F.2d 1237, 1248 (Fed. Cir. 1993); *see also University of Utah v. Max-Planck-Gesellschaft Zur Forderung Der Wissenschaften E.V.*, 734 F.3d 1315, 1323 (Fed. Cir. 2013) (“Conception is the touchstone of inventorship, the completion of the mental part of invention. It is the formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice.”) (internal quotation marks and citations omitted).

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noting the inventor was not identified by his or her legal name.

We note, however, that the use of a machine as a tool by natural person(s) does not generally preclude natural person(s) from qualifying as an inventor or joint inventors if the natural person(s) contributed to the conception of the claimed invention. *See* MPEP § 2137.01. Further, the Office normally presumes that the named inventor or joint inventors in the application are the actual inventor or joint inventors to be named on the patent. *See* MPEP § 2137.01. Where an application names an incorrect inventor, the applicant could submit a request to correct inventorship under 37 CFR 1.48. *See* MPEP § 602.01(c) et seq.; *see also* MPEP § 706.03(a), subsection IV.

DECISION

For the reasons noted above, the petition under 37 CFR 1.181 to vacate the Notice of August 1, 2019 is dismissed.

The time period to reply to the Notice of August 1, 2019 is reset in this decision. Petitioner is given a time period of **two (2) months** from the mailing date of this decision within which to file all required items identified in the Notice of August 1, 2019 to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under 37 CFR 1.136(a).

Telephone inquiries should be directed to the undersigned at (571) 272-3230.

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/SHIRENE W BRANTLEY/
Attorney Advisor, OPET

APPENDIX D

NOTE: This order is nonprecedential.

**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.

**ON PETITION FOR PANEL REHEARING AND
REHEARING EN BANC**

53a

Before MOORE, *Chief Judge*, NEWMAN, LOURIE,
DYK, PROST, REYNA, TARANTO, CHEN, HUGHES, STOLL,
CUNNINGHAM, and STARK, *Circuit Judges*.

PER CURIAM.

ORDER

Stephen Thaler filed a combined petition for panel rehearing and rehearing en banc. The petition was referred to the panel that heard the appeal, and thereafter the petition for rehearing en banc was referred to the circuit judges who are in regular active service.

Upon consideration thereof,

IT IS ORDERED THAT:

The petition for panel rehearing is denied.

The petition for rehearing en banc is denied.

The mandate of the court will issue October 27, 2022.

FOR THE COURT

October 20, 2022
Date

/s/ Peter R. Marksteiner
Peter R. Marksteiner
Clerk of Court