Defining the Individual: Artificial Intelligence, Natural Persons, and Defining Who and What Can Create Patentable Inventions

I. OVERVIEW

Stephen Thaler is not an inventor, but he claims that the artificial intelligence (AI), which he developed, is indeed one.[1] Thaler developed an AI called "Device for the Autonomous Bootstrapping of Unified Science" (DABUS).[2] DABUS, as described by Thaler, is a "collection of source code or programming and a software program."[3] In July of 2019, Thaler filed two patent applications with the United States Patent and Trademark Office (PTO) seeking to patent two inventions where he listed DABUS as the sole inventor.[4] The two applications claimed "Neural Flame" and "teaching a 'Fractal Container'" and listed DABUS as the sole inventor.[5] Thaler justified listing DABUS as an inventor because he explained that DABUS was "a particular type of connectionist artificial intelligence" and dubbed it a "Creativity Machine."[6]

The PTO denied Thaler's applications listing DABUS as the inventor, supporting the denial on the basis that "a machine does not qualify as an inventor."[7] After fruitlessly seeking reconsideration from the PTO, Thaler appealed the decision to the United States District Court for the Eastern District of Virginia, pursuant to the Administrative Procedure Act (APA).[8] The district court subsequently granted the PTO's motion for

1. Thaler v. Vidal, 43 F.4th 1207, 1209 (Fed. Cir. 2022).
2. *Id*.
3. *Id*.
4. *Id*.
5. *Id*. On the application, Thaler listed the "the invention [was] generated by artificial intelligence," *id*.
6. *Id*. at 1209-10.
7. *Id*. at 1210.
8. *Id*.

summary judgement and denied the reinstatement of Thaler's applications.[9] Additionally, the district court held that according to the Patent Act, an "inventor" must be an "individual," and an "individual" must be a natural person according to its usage in the statute.[10] Thaler appealed the summary judgment ruling, and disputed the legal conclusions of the district court.[11] The United States Court of Appeals for the Federal Circuit *held* that under the Patent Act, an "individual" must be defined as a natural person and only a natural person may be an inventor, which means that artificial intelligence cannot be an inventor. *Thaler v. Vidal*, 43 F.4th 1207, 1209 (Fed. Cir. 2022).

II. BACKGROUND

Congress, through Section 8, clause 8 of the Constitution, has asserted its power to "[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."[12] Congress used this power to pass the Patent Act, which established the concepts of what a patent should be, what it consists of, and who can obtain one.[13] By establishing this, Congress effectively set the limits and boundaries for patents.[14]

Under the Patent Act, the inventor is the individual who discovered or invented the invention in question.[15] If someone or something can be defined as an individual, then under the Patent Act, they can qualify as an inventor.[16] An inventor under the Patent Act must also give an oath or declaration of inventorship, which claims that the individual in question has invented the invention in question.[17] The ability to make this oath likely factors into the question of whether something incapable of making this oath can be an inventor.

The capability of an artificial intelligence to make and comprehend an oath of inventorship is highly scrutinized. For example, there is a question of whether an AI can comprehend what an oath is, and if so, does AI necessarily understand the gravity of the oath? In a way, Section 115

9. *Id.*
10. *Id.*
11. *Id.*
12. U.S. CONST. art. I, § 8, cl. 8.
13. *Id.*
14. 35 U.S.C. § 100 (1952).
15. *Id.*
16. *Id.*
17. 35 U.S.C. § 115.

can be read as requiring explicit consent by the inventor to be listed on a patent application.[18] In the context of AI, this leads to the questions of (1) whether AI has the ability to provide consent, and (2) if the AI comprehends that it has invented anything at all. Ultimately, recognizing oneself as the inventor is a key element to the patent application process, and the ability of an AI to recognize itself as the inventor is a complicated and confusing question that will likely not be answered for some time.

Although the Patent Act does not define what the term "individual" means in regards to what an inventor may be, prior jurisprudence provides a basis to analyze what the term means and to whom, or possibly what, the term applies.[19] Dealing with a similar issue, the United States Supreme Court declined to strictly define an "individual" under the "Torture Victim Protection Act," and instead left the task of defining how broadly or narrowly the word "individual" applies to the prerogative of Congress.[20] In *Mohamad v. Palestinian Authority*, the Supreme Court looked to the dictionary definition of the term and further examined congressional intent.[21] The Court provided that Congress will indicate what they mean when they state that legislation applies to "individuals" and will distinguish whether they intend for legislation to apply to natural persons or to, alternatively, some kind of organized entity.[22] Lastly, the Court instructed that future courts should look at the context of the legislation to decide what Congress intended if there is indeed a question as to the broad or narrow scope of the term "individual."[23]

The language of the Patent Act states, "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."[24] Congress defined the term "whoever" in the Dictionary Act, which establishes that the term "whoever" could possibly relate to "corporations, companies, associations, firms, partnerships, societies, and joint stock companies, as well as individuals."[25] Congress's establishment that the term "whoever" encompasses that of the "individual" does not leave

18. *Id.*
19. *Id.*
20. Mohamad v. Palestinian Auth., 566 U.S. 449, 1706 (2012).
21. *Id.* at 1707; *see id.* ("[An] 'individual' ordinarily means 'a human being, a person.'").
22. *Id.*
23. *Id.*
24. 35 U.S.C. § 101.
25. 1 U.S.C. § 1.

much room for interpretation for other definitions which are not clearly enumerated in the United States Code.[26]

In 2015, the Supreme Court further established that the definition of ambiguous language in statutes should be decided by the context in which it is used.[27] While a dictionary definition can often times be useful to determine the meaning of what a word means, Congress can sometimes use a word that has different meanings, in which case it must be considered within the context of the statute it intends to pass.[28] In 2017, the Court cemented their position that ambiguous language in legislation must be defined by its context within that legislation.[29] Interpretations can be informed from legislative history, as well as how those terms have traditionally been applied.[30] The Court again stated that Congress has the ability to adjust the scope of some terms, and in this case Congress wanted to narrow the term "persons" to exclude "institutions" and "beliefs."[31] The Court often looks to evidence within the markup and amendment process to present evidence of Congress's intent to adopt a certain interpretation of a term, and how it should be defined and applied by the agency in question; in this case, the PTO.[32]

III. THE COURT'S DECISION

In the noted case, the United States Court of Appeals for the Federal Circuit followed the precedent set by the Supreme Court to determine how to interpret Congress's intent in writing the Patent Act as well as how Congress intended to define an "inventor" and whether an individual can be something other than a "natural person."[33] First, the Court is clear and unambiguous that the Patent Act defines "inventors" as natural persons or human beings.[34] Second, the Court determined that it is irrelevant as to how an invention is made if it is clearly not made by an inventor.[35] Third and finally, the Court concluded the definition of "inventor" should be interpreted as Congress intended, and should be taken together with the entirety of the statute.[36] The Court, in its decision, makes it clear that there

26. *Id.*
27. Yates v. United States, 574 U.S. 528, 1077 (2015).
28. *Id.*
29. *Id.* at 1086.
30. *Id.* at 1082.
31. Mohamad v. Palestinian Auth., 566 U.S. 449, 1707 (2012).
32. *Id.* at 1710.
33. Thaler v. Vidal, 43 F.4th 1207, 1211 (Fed. Cir. 2022).
34. *Id.* at 1211.
35. *Id.* at 1213.
36. *Id.*

is little room for interpretation, and the plain meaning of the text should be interpreted in a narrow sense.[37]

The Court concluded that only "natural persons" can be defined as "individuals," and therefore the right to inventorship belongs solely to those defined as "natural persons."[38] The Court cited a prior Supreme Court opinion which defined that an individual "ordinarily means a human being, a person."[39] Furthermore, the Court noted that the Supreme Court has held that the word "individual," as used in statutes, refers to natural persons, and not something else, like a corporation or other business entity.[40] The Court discerned the Dictionary Act definition of a person, which includes corporations, companies, other forms of businesses, as well as individuals, from the definition that Congress intended.[41]

The Court rejected Thaler's claim that artificial intelligence can be classified as an inventor, and further indicated that Thaler had misconstrued the meaning of the statute.[42] The Court indicated that the statute, which Thaler has used to prove that AI software can qualify as an inventor, was actually written with the intention of stating how an invention is made, and does not state who an inventor can be, and whether they can be AI.[43] Thus, Thaler was disqualified from applying this language to his theory of inventorship qualifications.

Finally, the Court rejected Thaler's interpretation of the term "inventor," which Thaler believed encompassed something more than a human being or a natural person.[44] Here, the Court relied on past precedent that emphasized natural persons should not be interpreted as corporations or some sort of business entity.[45] Additionally, the Court considered the context in which Congress wrote the Patent Act as a factor.[46] The Court determined that Congress's interpretation of the statute and the definition of "individuals" and "inventors" is meant to be defined as natural persons.[47] However, the Court saw no use in further deliberating the interpretation of these labels on who can be an inventor,

37. *Id.*
38. *Id.* at 1211.
39. *Id.* (citing Mohamad v. Palestinian Auth., 566 U.S. 449, 454 (2012)).
40. *Thaler*, 43 F.4th at 1211.
41. *Id.*
42. *Id.* at 1212.
43. *Id.*
44. *Id.*
45. *Id.*
46. *Id.* at 1213.
47. *Id.*

relying instead on the plain meaning of the text.[48] In doing so, the Court declined to delve further into the question of feasibility of AI inventorship, and left the door open for future courts to decide the issue.[49]

IV. ANALYSIS

In declining to interpret the word "individual" in a broader sense, the Federal Circuit determined that only a natural person may apply for a patent under the Patent Act.[50] The narrow holding in this case, therefore, leaves the question of AI inventorship unanswered.[51] This decision by the Court is neither an advancement of the law, nor a retraction. It is simply a plain, narrow view of the law as it has been prescribed by Congress.[52] Ultimately, the Court declined to reconcile the question of whether AI can invent something, and only holds that as of now, an AI cannot apply for a patent.[53] In doing so, the court avoids the existential question of whether AI can form thoughts, beliefs, and can actually invent something.[54] However, this holding does not shut the door on the issue of inventorship for AI can invent something, and the present holding could very well change in the near future.[55] For instance, Thaler was successful in listing DABUS as an inventor on a patent application in South Africa, and the patent was subsequently granted.[56] Yet, even if the courts agreed with Thaler, they likely would not have acted to pursue a modern broader view of inventorship under the Patent Act. This is because it would be difficult to "overcome the plain language of the patent laws as passed by the congress and as interpreted by the courts."[57]

Another reason why the Court may not have delved into the issue of whether or not AI can think, believe, and invent something, is likely

48. *Id.*
49. *Id.*
50. *Id.* at 1211.
51. *Id.*
52. *Id.* at 1213.
53. *Id.*
54. *Id.*
55. *Id.*
56. *Id.* While Thaler was successful in filing a patent application listing DABUS as the inventor in South Africa, the European Union has declared that under the European Patent Convention, the designated inventor on the application must be a human being. *See AI Cannot Be Named as Inventor on Patent Applications: Written Decision Now Available*, EUR. PATENT OFF. (July 6, 2022), https://www.epo.org/news-events/news/2022/20220706.html [https://perma.cc/H5V3-34M7].
57. *Thaler*, 43 F.4th at 1213 (citing Glaxo Operations UK Ltd. v. Quigg, 894 F.2d 392 (Fed. Cir. 1990))

because Thaler's main argument concentrated on the specific word "inventor," and not on the idea of DABUS itself.[58] While the Court is bound by the constitution and the context in which Congress wrote the Patent Act, Thaler's arguments may have been better supported by focusing on *how* DABUS invents something. Further, it is unknown if DABUS is capable of sentient thought, which the Court dabbled as possibly opening up a discussion into whether AI could invent something.[59]

In an ever evolving world where AI has a more expansive role in modern society, the Court's decision may have unintended consequences. Most importantly, it means that anything that is created by an AI is unpatentable.[60] As we enter the age of the metaverse, cryptocurrency, and non-fungible tokens (NFTs), the feasibility of AI inventorship may become increasingly possible. In October 2022, DALL-E 2, an open AI image generator became available for the public to use.[61] DALL-E 2 works like this: you input the words you want the AI to make a picture of (for instance, you could input "A dog on the moon,") and the AI will generate and create a picture based on that description.[62] The software potentially has countless different uses.[63] The Court's holding in the noted case comes into consideration when considering whether AI such as DALL-E 2 can patent it's creations.[64] For instance, if DALL-E 2 were used to create NFTs, would those NFTs be able to be patented? It would seem these decisions hinge on whether Congress intends for AI to be listed as inventors in these cases, and as the holding shows, Congress has not shown this intent through its legislating or through the Patent Act.[65]

Ultimately, the Court gave a simple reason for its holding: the Patent Act's language and Congress's intent is too plain and clear to overcome. Thus, the Patent Act clearly intends for inventors to be classified as "natural persons."[66] However, this does not mean that AI is prevented from ever having the ability to be listed on a patent application. As technology modernizes and AI becomes more advanced, the argument for

58. *Thaler*, 43 F.4th at 1213.
59. *Id.* at 1211.
60. *Id.* at 1213.
61. Kevin Roose, *A.I.-Generated Art Is Already Transforming Creative Work*, N.Y. TIMES: TECH. (Oct. 21, 2022), https://www.nytimes.com/2022/10/21/technology/ai-generated-art-jobs-dall-e-2.html [https://perma.cc/9DXX-MCVA].
62. *Id.*
63. *Id.*
64. *Id.*
65. *Thaler*, 43 F.3d at 1211.
66. *Id.* at 1213.

allowing AI to patent inventions will become stronger and harder to ignore. AI, in the grand scheme of things, is still in its infancy, and the slow march of progress will eventually give way to new arguments for AI patentability. When that time comes, it will likely be up to Congress to address amendments to the Patent Act, or to pass new legislation altogether. Congress must be the entity to act and show legislative intent when it comes to allowing AI to be listed as the inventor on a patent application. Based on the advancements AI has made in recent years, it may not be long until Congress will have to address these issues.

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