JOHN GLADSTONE MILLS III
LEAD COUNSEL
PATENT COUNSEL GROUP LLP
2111 WILSON BOULEVARD, SUITE 700
ARLINGTON, VA 22201
JOHN.G.MILLS3@GMAIL..COM
703-338-7090

GORDON F. BELCHER
PATENT ATTORNEY
GORDONBELCHER1@GMAIL..COM

Director of the United States Patent and Trademark Office

P.O. Box 1450
Alexandria, Virginia 22313-1450
Attn: Director Katherine K. Vidal

Re: Response to Request for Comments Regarding Artificial Intelligence and Inventorship -- 88 Fed. Reg. 9492 (February 14, 2023), Comment period ending 5/15/2023

May 15, 2023

Dear USPTO Director, Katherine K. Vidal:

At the outset, we as private patent practitioners and attorneys in the patent bar, commend the USPTO and the Director for using the mechanism of notice-and-comment rulemaking to ensure compliance with the America Invents Act (AIA) and the Administrative Procedure Act (APA). The use of notice-and-comment rulemaking clearly enhances both the consistency of practice before the Office and the public's trust in the soundness of the patent system.

From the patent practitioner's viewpoint, the Office's rulemaking concerning AI should be conducted with the aim of enhancing the strength of the patent system overall, including the ability for patent owners to sufficiently protect and commercialize their inventions and the ability for other market participants to challenge and weed out invalid patents. These goals are consistent with the Constitutional intent -- "To 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." Our limited comments, presented below, are made in response to the questions posed by the Office with regard to the new technology of AI and the use of AI in the development and commercialization of inventions. Taking the questions in turn, we propose the following comments.

Question 1. How is AI, including machine learning, currently being used in the invention creation process? Please provide specific examples. Are any of these contributions significant enough to rise to the level of a joint inventor if they were contributed by a human?

AI, including machine learning, is currently being used as a tool comparable to other computational tools in the invention creation process. AI is generally composed of multiple neural networks that may be used to analyze complex problems that require sorting large amounts of data for a specific result or intermediate result. The current AI machine does not have the ability to "understand" a concept or conceive of an invention. AI also can not generalize data to determine a specific conception of an invention. Conception of an invention is not currently possible for AI.

Question 2. How does the use of an AI system in the invention creation process differ from the use of other technical tools?

AI at present is only a tool in the invention creation process, and does not differ from other technical tools used in invention creation. In the invention creation process, an inventor must build the invention by using an inventive concept, and then try variants of the invention to achieve the preferred embodiment. The inventor must exercise the following factors in developing the invention— "review, evaluate, filter, and select" the inventive components and integrate these components. AI lacks the ability to perform these functions and thus cannot be an inventor under the current statutory scheme. See also, *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022), infra.

Question 3. If an AI system contributes to an invention at the same level as a human who would be considered a joint inventor, is the invention patentable under current patent laws?

If AI did contribute to an invention at the same level as a human joint inventor, the invention would be patentable under current patent law if the contribution of the AI tool were disclosed in the specification, but the AI tool itself would not be considered a joint inventor under current patent law. 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. The Federal Circuit has reasoned that although the Patent Act does not define "individual," the Supreme Court has explained, when used "[a]s a noun, 'individual' ordinarily means a human being, a person." The Federal Circuit has held that in view of the plain language of the statute—"there is no ambiguity: the Patent Act requires that inventors must be natural persons; that is, human beings." 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." 35 U.S.C. § 100(g). See *Thaler v. Vidal*, 43 F.4th 1207, 1211 (Fed. Cir. 2022).

AI should be considered a tool utilized by inventors rather than an inventor. Just as an inventor might use a microscope or a computer simulation to aid in the development of an invention, AI systems provide valuable assistance but do not qualify for inventorship.

3a. Could 35 U.S.C. 101 and 115 be interpreted such that the Patent Act only requires the listing of the natural person(s) who invent(s), such that inventions with additional inventive contributions from an AI system can be patented as long as the AI system is not listed as an inventor?

While 35 U.S.C. 101 pertains to patent eligible subject matter and 35 U.S.C. 115 pertains to an inventor's oath that the applicants are the original inventors, the current statutes may be interpreted such that the Patent Act only requires the listing of natural persons who invent using contributions from an AI system. See *Life Techs., Inc. v. Clontech Lab., Inc.*, 224 F.3d 1320, 1325 (Fed. Cir. 2000) ('[T]he path that leads an inventor to the invention is expressly made irrelevant to patentability by statute.')"

See also, *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022), here the Federal Circuit affirmed that only natural persons (i.e., human beings) can be named inventors on U.S. patents, thereby excluding AI artificial intelligence from being listed as an inventor per se.

Significantly, the operative word in 35 U.S.C. 101 is "Whoever invents ...". The statute does not state, include or contemplate "Whatever invents ...".

3b. Does the current jurisprudence on inventorship and joint inventorship, including the requirement of conception, support the position that only the listing of the natural person(s) who invent(s) is required, such that inventions with additional inventive contributions from an AI system can be patented as long as the AI system is not listed as an inventor?

The definition of an inventor, as stated by the U.S. Patent and Trademark Office (USPTO), requires that the inventor be an individual (i.e., a natural person) who contributes to the conception of an invention. Conception, in this context, refers to the formation of a definite and permanent idea of an invention in its complete and operative form.

AI systems, although highly sophisticated and capable of generating creative solutions, do not meet the requirements of conception. AI algorithms rely on data inputs, pre-defined parameters, and computational power to produce outputs, but they lack the human cognitive abilities required for the creative spark that leads to an invention.

3c. Does the number of human inventors impact the answer to the questions above?

Yes, in that if there were no human inventors then the invention likely would not be patented.

4. Do inventions in which an AI system contributed at the same level as a joint inventor raise any significant ownership issues? For example:

4a. Do ownership rights vest solely in the natural person(s) who invented or do those who create, train, maintain, or own the AI system have ownership rights as well? What about those whose information was used to train the AI system?

Ownership rights vest solely in natural persons who invented or those who create, train, maintain, or own the AI system, that contributed to the conception of the invention.

Those who create, train, maintain or own the AI system should not have ownership rights in a subsequent invention that the AI is used to create. Implementation or application of an AI system in a subsequent patentably distinct invention should not automatically bestow ownership rights to those who created, trained, maintained, or own the AI system, unless they contribute to the conception of the subject matter of at least one claim that is filed with the patent application.

Assuming, arguendo, AI could have ownership rights, how could AI assign and/or license those rights? Furthermore, partial-AI ownership of a patent could compromise the ability to commence a litigation proceeding against infringers. These constraints would not adequately reward the Patentee(s) for their contributions, and thus fail to "promote science and useful arts".

4b. Are there situations in which AI-generated contributions are not owned by any entity and therefore part of the public domain?

Yes, there are situations in which AI-generated contributions are not owned by any entity, and therefore become part of the public domain. AI generated contributions which are merely compilations of preexisting public information are necessarily part of the public domain.

Since an AI system cannot be an inventor, the creations of the AI system do not have an owner. Therefore, there is no entity from whom the Intellectual Property rights of the AI creation can be acquired, and the AI generated contributions therefore become part of the public domain.

Question 5. Is there a need for the USPTO to expand its current guidance on inventorship to address situations in which AI significantly contributes to an invention? How should the significance of a contribution be assessed?

The definition of AI should be expanded in any proposed guidance. This would serve the purpose of defining the level of "sophistication" needed to incorporate the AI as a tool in the invention. (For example, you can put numbers into an excel spreadsheet and it will calculate and produce a result, but does this constitute AI?)

Any contribution from AI would not include "conception", as statutorily defined, which would impact the analysis of any contribution.

The patent examination process does not presently require an investigation or analysis of the (human) inventive entity. Likewise, there should be no requirement for the corps of Examiners to begin conducting an examination of inventive entity for inventions which include

AI contributions. An ancillary consequence, if AI contributions are deemed to qualify as "Inventor", is that the application of 35 U.S.C. 102 will become significantly more complicated. For example, discerning whether a prior art reference falls under the "by another" exception of 35 U.S.C. 102 (b)(1)(A)(B) will be difficult, if not impossible, to determine as an Examiner may not be able to ascertain the "author/publisher" of a prior, AI-generated, printed publication.

The discussion in the *Copyright Registration Guidance, Works Containing Material Generated by AI, 88 FR 16190, 37 CFR 202, March 2023,* regarding "traditional elements of authorship" may be instructive for determining inventorship for patents involving AI. The Copyright Office will not register a work whose "traditional elements of authorship were produced by a machine." Id., 88 FR at 16192. An analogous position by the USPTO would be that a patent will not be granted on AI creations in which the "traditional elements of *inventorship* were produced by" the AI system. "Traditional elements of authorship [include] selection, arrangement, etc.)" Id., 88 FR at 16192 (citation omitted). Another factor may be whether the AI device is "merely [an] assisting instrument" or providing " 'mechanical reproduction' " (AI not co-inventor).

The *Copyright Registration Guidance* provides an example of an AI system having the "traditional elements of authorship." This may be instructive if "authorship" is equated with "inventorship." In the example, "when an AI technology receives solely a prompt from a human and produces complex ... works in response, the 'traditional elements of authorship' are determined and executed by the technology-not the human user. ... [With currently available] AI technologies, ... users do not exercise ultimate creative control over how such systems interpret prompts and generate material. Instead, these prompts function more like instructions to a commissioned artist-they identify what the prompter wishes to have depicted, but the machine determines how those instructions are implemented in its output." Id., 88 FR at 16192 (citations omitted). Regarding the example, the "work's traditional elements of authorship were produced by a machine" and, consequently, it would not be registered. *Id.* If the AI technology in the example can produce inventions, this rationale could support not granting patent protection to AI creations.

Question 6. Should the USPTO require applicants to provide an explanation of contributions AI systems made to inventions claimed in patent applications? If so, how should that be implemented, and what level of contributions should be disclosed? Should contributions to inventions made by AI systems be treated differently from contributions made by other (i.e., non-AI) computer systems?

In order to distinguish between AI generated invention claims which may be inflated by automated systems and automated database searching, the USPTO should require applicants to provide an explanation of the contributions that AI systems have made to a subject invention. Without this requirement, AI systems could flood the USPTO with applications and disclosures directed to many variations of an invention in the form of continuing applications. In that AI systems may be automated to produce specifications and claim language for multiple variants of an invention, the contributions made by an AI system should be treated differently from contribution made by other (i.e., non-AI) computer systems.

Questions 7–11.

With regard to these questions, we have not taken a further position with regard to the issues raised by these questions.

Summary Statement and Conclusion

Under the current patent statute and administrative rules of the USPTO, Artificial Intelligence (AI) should be viewed as a tool comparable to other computational tools in the invention creation process. The United States patent system protects inventions of natural persons (human beings) as inventors, and the Federal Circuit has affirmed this natural person requirement. *Thaler v. Vidal*, 43 F.4th 1207 (Fed. Cir. 2022). Contributions to inventions by non-persons such as AI (even as a co-inventor) are not envisioned by the U.S. patent statute. In view of the many complex issues that would arise as detailed in the responses to the questions presented here, the undersigned patent practitioners and attorneys recommend that AI does *not* have the legal or factual capacity to be accorded the co-inventor applicant status at this time.

Respectfully submitted,

/JOHN GLADSTONE MILLS III/
LEAD COUNSEL
PATENT COUNSEL GROUP LLP

/GORDON F. BELCHER/
PATENT ATTORNEY