IAM

Seven steps to secure and safeguard US patents for AI-assisted inventions

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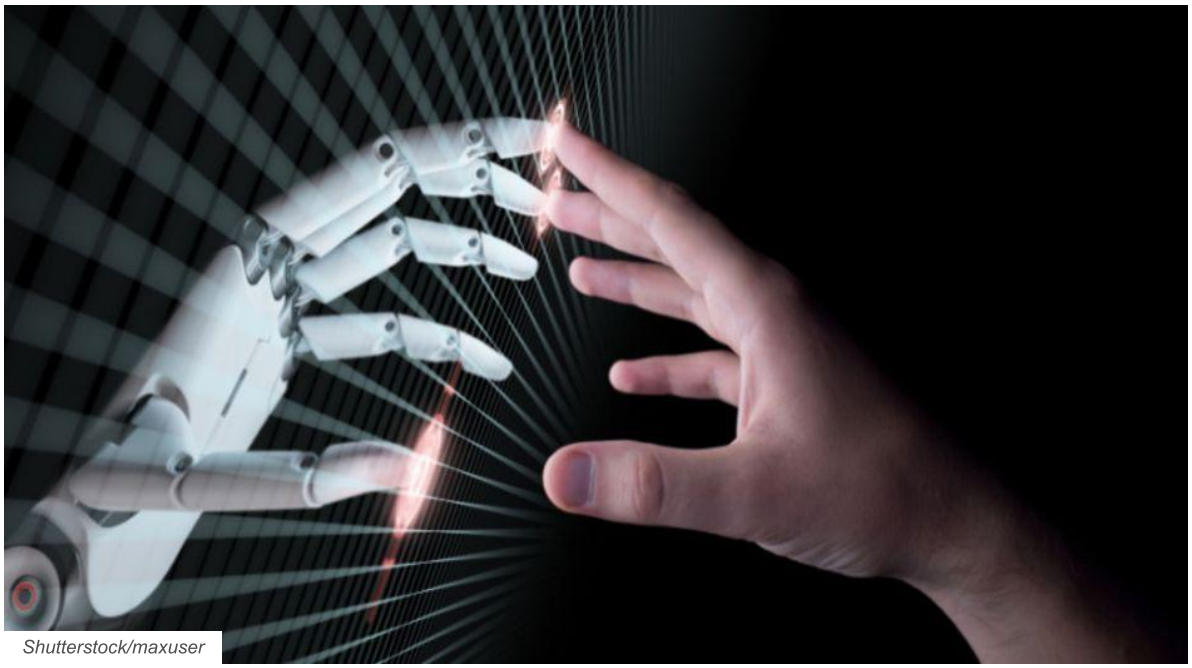

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In its decision on 5 August in *Thaler v Vidal*, the US Court of Appeals for the Federal Circuit ruled that an artificial intelligence (AI) system may not be named as an inventor in an application for a United States patent. Relying solely on the express wording of the US Patent Act, the court held that only a natural person may be an inventor.

The *Thaler* decision is narrow, but it may create opportunities for accused infringers to challenge the validity of patents that claim inventions obtained, even in part, through AI systems. Inventors using such systems, as well as in-house counsel who bear the responsibility of protecting the company's IP interests, must anticipate these challenges and take prudent countermeasures.

The *Thaler* Decision

Stephen Thaler filed two patent applications, one for "a neural flame", and a second for "a fractal container". Thaler did not name himself as an inventor. Instead, he listed the sole inventor as being "a collection of source code or programming and a software program", an invention-generating AI system that he calls "DABUS". Thaler indicated that he had not contributed to the conception of the claimed inventions and that, in fact, any person of ordinary skill in the art could have used the output from DABUS to reduce those inventions to practice.

Rather than file an inventor's oath or declaration, Thaler submitted a statement on behalf of DABUS. He included an explanation that DABUS was "a particular type of connectionist artificial intelligence" which he called a "Creativity Machine". Thaler also filed a document assigning all of DABUS's inventorship rights to himself.

The US Patent and Trademark Office concluded that the application did not have an inventor and issued a Notice of Missing Parts, requiring identification of an inventor. Thaler petitioned that the notice be vacated, but the USPTO denied the petition, explaining that "a machine does not qualify as an inventor".

Thaler appealed the denial to the US district court, which agreed with the patent office, finding that an "inventor" must be an "individual", a term used in the Patent Act to mean a natural person. Thaler appealed the adverse decision to the Federal Circuit, presenting a series of statutory, constitutional and public policy arguments.

The Federal Circuit found that the Patent Act unambiguously requires inventors to be natural persons, meaning human beings. The appellate court cited various provisions in the Patent Act (35 USC §§ 100(f) and (g), 115) that refer to inventors as "individuals".

Supreme Court precedent, dictionaries and "everyday parlance" — the appellate court pointed out — all use the term "individuals" to mean human beings. The Dictionary Act (1 USC § 1), which is relied upon to define statutory terms in the absence of specific definitions, distinguishes between "individuals" and various nonhuman entities. Other provisions of the Patent Act (eg, 35 USC § 115(b)(2)) use the personal pronouns "himself" and "herself", rather than "itself", in connection with inventors, reinforcing the Federal Circuit's determination that inventors must be human.

Finally, the Federal Circuit acknowledged Thaler's argument that South Africa had issued patents identifying DABUS as an inventor, but it tersely replied that: "This foreign patent office was not interpreting our Patent Act. Its determination does not alter our conclusions."

In late July, the **European Patent Office concluded in another of Thaler's DABUS cases** that an AI system cannot be a named inventor on a patent, but that the human owner or user of the AI tool can be the inventor. In Europe, it's wise for people who use third-party AI systems in the innovative process to enter contractual relationships to ensure they are the owner of the invention.

What does *Thaler* mean for practitioners and in-house patent counsel?

The *Thaler* holding is narrow: AI systems cannot be inventors and only humans can name themselves as inventors in US patent applications. Inevitably, though, accused infringers will strive to expand the meaning of *Thaler*, perhaps to suggest that the real inventive work was done by AI, so that the patent is invalid under 35 USC §§ 100(f) and (g) and 115 because the applicant did not correctly identify inventorship.

From the outset, innovators need to structure research projects so that human beings determine the goals and design of the work to be done. To the extent that innovators use AI systems, that use must be under the close guidance of human beings.

Importantly, inventors should record in detail this human direction of the research. Inventors should record the details of their conceptions and reductions to practice in laboratory notebooks, to establish a record showing that the inventorship was by human effort using AI as a tool, and not by the AI itself. In-house patent counsel be warned — without easily accessible records, discovery costs during litigation could rack up quickly here, and may result in some embarrassing or harmful admissions.

Once the inventors complete invention disclosures, patent practitioners need to draft specifications and claims in a manner emphasising that they attribute the point of novelty of the disclosed inventions to humans.

Finally, future courts might analogise the AI and inventorship issue to patent eligibility analysis under *Alice* and § 101 and therefore apply similar tests. Accordingly, lawyers should write patent specifications and claims to include detailed explanations of components or steps and conditions, so that there is "something more" than what they consider to be conventional in the art.

There will of course be areas of research in which AI systems perform the act of invention, perhaps even by AI systems alone. In those areas, practitioners must consider alternatives to patent protection, most likely as trade secrets.

Takeaways

Before your innovators use AI tools in their creations, run through this checklist:

1. Companies need to structure research projects with human beings in control;
2. AI systems are to be under the close guidance of human beings;
3. Inventors should record the details of their conceptions and reductions to practice to establish a record showing that the inventorship was by human effort using AI as a tool;
4. In-house patent counsel need to educate corporate innovators on this topic to avoid the storage of potentially damaging admissions against interest;
5. Patent practitioners need to draft specifications and claims in a manner emphasising that the point of novelty is by humans;
6. Patent specifications and claims should include detailed explanations of components, steps and conditions, so that there is "something more" than what is considered conventional in the art;
7. As a last resort, innovators may protect research results as trade secrets.

One item of good news is that patent applicants may benefit from the Section 103 statutory mandate that: "Patentability shall not be negated by the manner in which the invention was made." The *Thaler* court cited this provision as meaning that: "Inventions may still be nonobvious even if they are discovered during 'routine' testing and experimentation." At least with respect to obviousness, reliance on AI systems will not taint inventors' efforts.

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