

How Agentic AI Is Testing The Limits Of Patent Law

By **Matthew Carey** (August 20, 2025)

On June 26, the Swiss Federal Administrative Court issued a ruling that captured a core tension now confronting patent systems worldwide. The case, B-2532/2024, involved DABUS, an artificial intelligence system credited with producing novel designs without direct human instruction.

The court's answer was clear: Under Swiss law, only a natural person can be named as an inventor. Yet it also allowed the human applicant to be listed instead, enabling examination to proceed.



Matthew Carey

This reaffirmation of human inventorship comes at the very moment when self-directed, agentic AI systems are beginning to take an active role in the inventive process.

According to a recent report by IFI Claims, AI-related U.S. patent filings surged more than 50% between February 2024 and April 2025, with agentic AI, generally considered as systems that are capable of setting goals, planning tasks, and adapting to new information without continuous human oversight, now accounting for roughly 7% of all AI-related applications.

The juxtaposition is stark: The law is holding fast to human-only inventorship rules, even as the technology producing patent-worthy ideas is becoming increasingly autonomous.

Why Agentic AI Is Different

Generative AI models respond to prompts; agentic AI decides what to do next. These systems can define problems, gather data, design experiments and iterate toward solutions with minimal human input. In fields like robotics, materials science and biotech, agentic AI is already reshaping research and development timelines and outcomes.

From a legal standpoint, the [U.S. Patent and Trademark Office's](#) Inventorship Guidance for AI-Assisted Inventions, released in February last year, offers a key takeaway: AI-assisted outputs are patentable only if at least one human makes a significant contribution to the conception of the claimed invention.

That contribution could involve designing the AI's architecture or engineering the AI's training process and data sources. Merely operating or owning the AI is unlikely to meet the threshold.

For innovators, this means process documentation is no longer a best practice; rather, it's imperative. Maintain clear records of where humans shaped the AI's objectives, design or evaluation. In claim drafting, explicitly situating the AI within a broader technical system can both satisfy inventorship requirements and strengthen patent eligibility.

For example, in a robotics setting, a human-trained AI module could receive real-time sensor data from a robotic arm, autonomously generate calibration parameters to improve the arm's accuracy, and transmit those parameters to adjust the arm's actuators, followed by a human verification step to confirm that the adjustments meet defined safety and performance standards. This approach clearly integrates human oversight with the AI's

autonomous decision-making.

Robotics and Software: A Convergence to Watch

One of the most patent-fertile areas for agentic AI is the integration of autonomy into physical systems, where the historical separation between mechanical and software innovation is eroding.

An autonomous field-repair drone might combine vision sensors, AI-driven diagnostics, and robotic manipulators to detect wear, select a repair protocol, and execute it, all with no human intervention required.

A surgical robot could adjust its instrument trajectory mid-procedure based on real-time patient data, using an adaptive AI control module. In both scenarios, the inventive step often lies in the system-level integration of perception, reasoning and actuation into a self-directed workflow.

From a prosecution standpoint, this convergence often calls for a diversified claim strategy. For instance, practitioners should consider method claims to protect the sequence of perception, decision-making and actuation, system claims to capture the interplay between hardware and AI control logic, and computer-readable medium claims to cover the underlying software.

It also creates openings for nonobviousness arguments. Even when hardware and AI algorithms are individually known, unexpected performance gains from their integration, such as reduced cycle time or improved accuracy, can form the basis for patentability.

The Autonomy Gap in U.S. Law

The patent system assumes that a human conceives the invention. But what happens when an AI defines the technical problem, designs and conducts the experiment, interprets the results, and outputs a novel, nonobvious solution?

In such cases, the human's contribution may be reduced to setting broad parameters or reviewing final outputs. Whether that qualifies as a significant contribution under current guidance is far from certain.

This also raises a parallel concern under Title 35 of the U.S. Code, Section 101. Claims that emphasize AI's internal reasoning risk being dismissed as abstract ideas unless they can be tied to concrete technological improvements, such as reduced energy consumption, faster computation or improved sensor accuracy. The more the inventive concept resides in the AI's decision logic, the more important it becomes to tether claims to measurable technical outcomes.

Beyond Inventorship: Ownership, Disclosure and Strategy

Because ownership flows from inventorship, the stakes are high. If no human meets the contribution threshold, the invention could be unpatentable and enter the public domain.

Section 112 disclosure requirements add another layer of complexity. To enable others to practice an AI-generated invention, applicants may need to reveal aspects of the AI's architecture, training corpus or prompting strategies, which are details that companies may prefer to keep as trade secrets.

Global filing strategies must also account for jurisdictional differences. South Africa, for instance, granted a DABUS-named patent on procedural grounds, while most major jurisdictions have rejected AI inventorship outright. Coordinating claims and inventorship narratives to meet divergent standards will be a growing challenge for multinational applicants.

Policy Paths Forward

The core policy question is whether the patent system should evolve to capture AI-generated innovations or allow them to pass into the public domain.

Some options include derived inventorship models, where rights vest in the AI's operator or trainer; expanded contribution tests that recognize the inventive nature of directing, training or constraining AI behavior; or disclosure safe harbors to balance enablement requirements with protection of proprietary AI details.

Any reform would require careful calibration to preserve the balance between incentivizing innovation and maintaining human accountability.

What Applicants Should Do Now

While the law debates its next move, innovators should act as though the human-centric rules will remain in place for the foreseeable future. That means documenting human involvement in every AI-assisted invention, drafting claims that integrate AI components into larger technical systems with concrete performance improvements, and tracking international developments, particularly test-case rulings and patent office guidance.

The DABUS decision and the surge in agentic AI filings are reminders that this is not an abstract policy discussion; rather, it is unfolding in real time, in courtrooms and patent offices around the world.

Whether through gradual doctrinal shifts or legislative change, the patent system will need to decide how much credit, and how much protection, to give to machines that invent.

The innovators who adapt early, structuring their processes, documentation and claims for this new reality, will be the ones best positioned to protect and monetize their AI-driven breakthroughs.

Matthew R. Carey is a partner and chair of electrical and computer technologies at Marshall Gerstein & Borun LLP.

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