

AI Developed Inventions



Patentable Subject Matter: Where are the Dividing Lines?

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This presentation may contain general comments on legal issues of concern to organizations and individuals. These comments are not intended to be, nor should they be construed as, legal advice. Please consult a legal professional on the particular issues that concern you.

Invention Types

1. **Inventions that are directed to the AI itself** (*e.g.*, inventions directed to the structure of an AI algorithm or to hardware for running AI applications, etc.)
2. **Inventions that utilize an AI system as part of a broader method or process** (*e.g.*, inventions pertaining to machine translation, image recognition, etc.)
3. **Inventions where AI has contributed to the development of the invention itself** (*e.g.*, where AI is the inventor, co-inventor, or was used as a tool during the invention process)
 - a. Human invention, assisted by AI
 - b. Joint human-AI invention
 - c. AI-invention, assisted by human
 - d. AI-only invention

Source: Categories (a) to (d) identified by WIPO.

“Inventor” in Canada

- S. 27(1): “shall grant a patent to an **inventor or the inventor’s legal representative**”
- Term “inventor” also used in ss. 7(2), 20(3), 21, 27(2) and (3), 31(1), 48(1)(a) and (b)
 - **7(2)** Subsection (1) does not apply to a **sale by an original inventor** or to an acquisition under the last will, or by the intestacy, of a deceased person.
 - **20 (2) Any person** other than a person described in subsection (1) **who invents an invention** described in that subsection may assign to the Minister of National Defence on behalf of Her Majesty all the benefits of the invention and of any patent obtained or to be obtained for the invention.
 - **20 (3) An inventor described in subsection (2)** is entitled to compensation for an assignment to the Minister of National Defence under this Act...
 - **21** Whereby any agreement between the Government of Canada and any other government it is provided that the Government of Canada will apply section 20 to inventions disclosed in any application for a patent assigned or **agreed to be assigned by the inventor to that other government...**

“Inventor” in Canada

- Cont’d
 - **27 (3)(a)** The specification of an invention must correctly and fully describe the invention and its operation or use as **contemplated by the inventor**
 - **31 (1)** Where an **invention is made by two or more inventors and one of them refuses to make application for a patent or his whereabouts cannot be ascertained after diligent inquiry**, the other inventors or their legal representatives may make application, and a patent may be granted in the name of the inventors who make the application, on satisfying the Commissioner that **the joint inventor has refused to make application or that his whereabouts cannot be ascertained** after diligent inquiry.
 - **48 (1)(a)** Whenever, by any mistake, accident or inadvertence, and without any wilful intent to defraud or mislead the public, a patentee has made a specification too broad, claiming more than that of which the patentee **or the person through whom the patentee claims was the inventor...**
- See also *Patent Rules* at ss. 27(2), 54(1) and (2), 56(1)(e), 85(1), 106, 109

“Inventor” in Canada

- “Inventor” not defined in the *Patent Act*, but some consideration in jurisprudence
 - [Apotex Inc. v. Wellcome Foundation Ltd., 2002 SCC 772](#) at para. 96: “Inventorship is not defined in the Act, and it must therefore be inferred from various sections. From the definition of “invention” in s. 2, for example, we infer that the inventor **is the person or persons** who conceived of the “new and useful” art, process, machine, manufacture or composition of matter, or any “new and useful” improvement thereto.”
 - [Sarnoff Corp. v. Canada \(Attorney General\), 2008 FC 712](#) (Hughes J) at para. 9: “In Canada, the language of the jurisprudence **assumes that an “inventor” is a natural person** as opposed to a juridical person such as a corporation.”
- No decision directly considering the question of AI as an inventor or co-inventor

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A food or beverage (10) container comprising:
a generally cylindrical wall (12) defining an internal chamber of the container, the wall having interior (16) and exterior (14) surfaces and being of uniform thickness; a top and a base either end of the generally cylindrical wall;
wherein the wall (12) has a fractal profile with corresponding convex and concave fractal elements (18-28) on corresponding ones of the interior and exterior surfaces (14,16); wherein the convex and concave fractal elements form pits (40) and bulges (42) in the profile of the wall (12); wherein the wall of the container is flexible, permitting flexing of the fractal profile thereof; the fractal profile of the wall permits coupling by inter-engagement of a plurality of said containers together; and the flexibility of the wall permits disengagement of said or any coupling of a plurality of said containers.

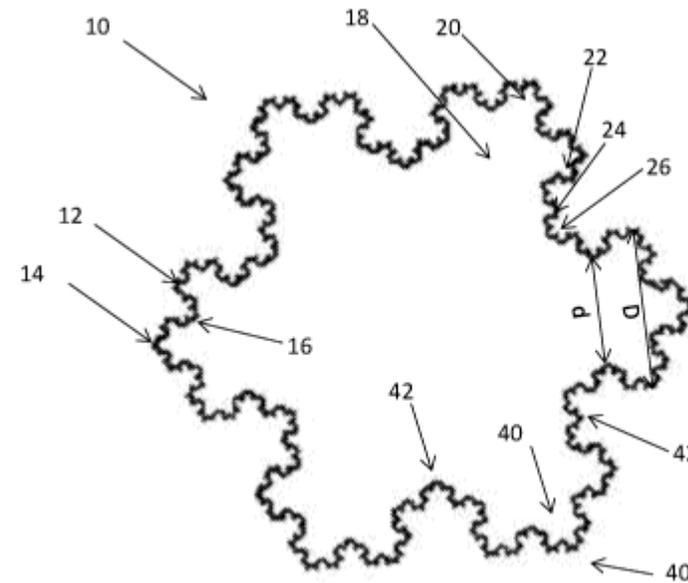


Fig. 1

Canadian Patent Office

The national entry request identified the inventor as a machine called "DABUS" and listed the last name as: "the invention was automatically generated by a machine".

Subsection 27(2) of the *Patent Act* and section 54 of the *Patent Rules* require a patent application to be filed by an inventor or the legal representative of an inventor, that the inventor be identified and that the applicant file a statement of entitlement. Because for this application the inventor is a machine and it does not appear possible for a machine to have rights under Canadian law or to transfer those rights to a human, it does not appear this application is compliant with the Patent Act and Rules.

Responsive to the compliance notice, the applicant may attempt to comply by submitting a statement on behalf of the Artificial Intelligence (AI) machine and identify, in said statement, himself as the legal representative of the machine.

DABUS Patent Applications Status

Region	Current Status	Decisions
Australia	Application denied	Full Court of the Federal Court ruled on April 13, 2022 . Special leave to appeal denied.
Canada	Application non-compliant	Non-compliance notice sent on November 8, 2021 . Application still listed as being in prosecution.
EPO	Applications denied	EPO Legal Board of Appeal issued decisions on December 12, 2021 . Thaler filed a divisional naming him as the inventor.
Germany	Applications refused	Federal Court ruled on November 11, 2021 that a natural person must be named as the inventor. The applicant can state that AI was involved.
Israel	Applications refused	Registrar of the Israel Patent Office gave notice of refusal to accept the applications on March 15, 2023 .
New Zealand	Application refused	New Zealand High Court ruled on March 17, 2023 .
South Africa	Patent issued	Patent issued in July 2021 .
UK	Application refused	UK Court of Appeal ruled on September 21, 2021 . Matter heard by UK Supreme Court in March 2023. Awaiting judgment .
USA	Application refused	U.S. Court of Appeals for the Federal Circuit ruled on August 5, 2022 . Petition to the US Supreme Court was denied on April 24, 2023.

If AI not named as an inventor...

- Would the “legal representative” approach suggested by CIPO pass muster?
 - Still vulnerable to attack for not having a human “inventor”?
- Would there be a patentable invention if, for example, there was a “human in the loop”?
 - Is there a threshold of contribution by the human to have a patentable invention at all?
- What disclosure would there need to be about AI involvement?
- Would a patent be vulnerable to attack (e.g., s. 53, insufficiency) for failure to properly disclose AI contributions to the invention even though AI could not be a named inventor (or co-inventor)?

If AI can be a named inventor...

- Who owns the patent (and the invention)?
- Impact on the composition of the POSITA and the CGK?
- Other impacts on obviousness?
 - How to define the 'state of the art'?
 - Invention story?
 - Obvious to try?
 - Mosaicking?
- Would non-AI derived inventions be impacted? *e.g.*, would humans be compared to AI in assessing obviousness?
- Would the use of proprietary AI (as opposed to publicly available) impact the analysis?
- What would the implications be in litigation? Impact on discovery?

Selected Resources

- [Artificial Intelligence and inventorship](#), Standing Committee on Patents, WIPO, SCP/35/7 (September 21, 2023)
- [Artificial intelligence](#), EPO, (May 2, 2022)
- [Inventing AI: Tracing the diffusion of artificial intelligence with U.S. Patents](#), Office of the chief Economist IP Data Highlights No. 5, USPTO (October 2020)
- [Public Views on Artificial Intelligence and Intellectual Property Policy](#), USPTO (October 2020)
- [Processing artificial intelligence : highlighting the Canadian patent landscape](#), CIPO (2019)
- [Intelligence Collides with Patent Law](#), World Economic Forum (April 2018)

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