

Patents: Unlocking Ideas Of Ignited Minds (With Special Reference To Inventions By Artificial Intelligence: An Inventor-Less Invention)

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ABSTRACT

The grant of a patent has long rested on a foundational assumption: that behind every invention stands a human inventor. The emergence of artificial-intelligence systems capable of autonomously generating patentable subject-matter unsettles that assumption and gives rise to what this paper terms the “inventor-less invention.” Taking the global DABUS litigation initiated by Dr. Stephen Thaler as its point of departure, the paper asks whether an AI system can be recognised as an “inventor” and, if not, who may legitimately claim that status. It surveys the divergent responses of the United States, the United Kingdom, the European Patent Office and Australia, each of which has ultimately confined inventorship to a natural person, before turning to the Indian statutory regime under the Patents Act, 1970. The paper concludes that the questions of inventorship, ownership and infringement liability provoked by autonomous invention are ill-suited to judicial resolution and demand considered legislative and policy reform.

Keywords: Artificial Intelligence; Inventorship; Inventor-less Inventions; DABUS; True and First Inventor; Patentability; Machine Learning; etc.

INTRODUCTION

The concept of a ‘patent’ inherently suggests transparency and accessibility. Its origin can be traced back to the Latin term ‘*litterae patentes*’ or ‘Letters Patent,’ denoting open letters. These documents were termed as such because they were unsealed, featuring the seal at the base, alongside a declaration from the sovereign. According to Oxford Dictionary patent is defined as “a document constituting letters patent especially a license from the government to an individual or organization conferring for a set of periods, the sole right to make, use, or sell some product or invention, a right conferred in this way.”

A patent serves as a safeguard for inventions, constituting a type of intellectual property. It encompasses a bundle of exclusive privileges bestowed by a governmental authority onto the inventor or proprietor of the invention. This grant prohibits unauthorized making, using, selling, or importing of the invention for a specified duration, typically 20 years starting from the patent

application’s submission date. To secure a patent, the invention must satisfy specific requirements including novelty, non-obviousness, and industrial application.

Patents are designed to encourage innovation by providing inventors with a financial incentive to invest time and money into their research and development. By granting the inventor exclusive rights to their invention, they can prevent competitors from copying their invention and profiting from their hard work. Patents are also important for companies seeking to protect their inventions and maintaining a competitive edge in the marketplace. Companies often file for patents on their products or processes to prevent competitors from duplicating their innovations, and to demonstrate their expertise and leadership in their industry.

As civilization progressed, intellectual labor became increasingly valued compared to physical labor, and it became essential to reward individuals for their contributions through inventions and encourage others to innovate for the betterment of society. This

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is where the concept of Intellectual Property Rights (IPR) comes in. IPR is a legal right that pertains to products of the mind, such as inventions, ideas, and creative works. Since these are intangible assets, they are considered private property in today's society. These rights are exclusive, meaning that they can be enforced against anyone, and they confer a right in rem, or a right that is enforceable against the world.

I. STATUTORY REGIME GOVERNING PATENT LAWS IN INDIA

A patent is an exclusionary grant of intellectual property rights typically awarded by the government through a patent office and effective for a limited time period. Section 2(1)(m) of the Patents Act, 1970 defines 'Patent' as 'patent for any invention granted under the Act.'

Section 2(1)(j) defines 'invention' as a "new product or process involving inventive step and capable of industrial application." Thus, the dissection of this definition brought to light three essentials:

1. NOVELTY

In the Patent Act, 1970, the word 'new' or 'novelty' is not defined. Hence, it's viable to refer to the traditional interpretation of "New" under common law. In this context, a claim is considered new if all its components cannot be located within a single instance of prior art. Prior art encompasses all information accessible to the public through written or oral description, use, or any other means before the invention's priority date.

But, the expression, 'new invention' is defined in section 2(l), as "invention or technology which has not been anticipated by publication in any document or used in the country or elsewhere in the world before the date of filing of patent application with complete specification, i.e., the subject matter has not fallen in public domain or that it does not form part of the state of the art."

Determining novelty necessitates examination against a singular prior art source. This implies that every unique aspect of the claimed invention must be contained within a single document, ensuring that each novel element is revealed within the prior art record. Although, the patent act does not define the

phrase 'state of art' but it can be deciphered from judicial interpretation.

In *Lallubhai Chakubhai Jariwala v. Chimanlal Chunilal*, the court observed:

"Anticipation in patent law hinges on whether an invention has been publicly used or disclosed before the patent application's priority date. Public use doesn't imply widespread adoption but rather a public manner of use. If the invention is practiced or commercialized before filing, novelty is compromised, rendering it unpatentable."

2. INVENTIVE STEP

The act further defines inventive step in **Section 2(ja)** as a "feature of an invention that involves technical advance as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art."

In simple words, the product must stem from an invention possessing a characteristic that:

- a. Represents a technological leap forward from current understanding or holds economic importance, or both.
- b. Renders the invention not readily apparent to someone skilled in the relevant field.

3. INDUSTRIAL APPLICATION

It basically deals with commercialization of patented products and serve public purpose. It implies that the product is fit for replication and reaches the society to serve its needs.

II. CATECHISING THE UNCERTAINTIES IN PATENTING ARTIFICIAL INTELLIGENCE

Human intelligence refers to the capacity of the human brain to comprehend and process information, and use this knowledge to expand one's understanding. In an attempt to replicate the human brain, scientists developed "Artificial Intelligence" for electronic devices. AI is utilized to automate tasks typically requiring human involvement. The field of AI encompasses applications such as visual

perception, language translation, speech recognition, decision-making based on available data, and more.

When it comes to intelligence, we have certain laws that protect an individual's tangible ideas as Intellectual Property. With the progress of technology, AI has the ability to generate new ideas that are tangible and deserving of being patented. Nevertheless, it remains to be seen whether the present laws consider AI as an inventor and what advantages and disadvantages come with recognizing AI as an inventor.

➤ INVENTIONS BY THE ARTIFICIAL INTELLIGENCE - "INVENTORLESS" INVENTIONS?

The debate or rather the legal conundrum regarding the patentability of inventions by AI started when the two patent applications EP 1875163 and EP 18275174, also known as Device for Autonomous Bootstrapping of Unified Sentience (hereinafter referred as 'DABUS') patents, were filed in European Patent Office (hereinafter referred as 'EPO') depicting AI as an inventor.

DABUS is an AI system that emulates the creative process of the human brain using an artificial neural network. The system is designed to transform its acquired knowledge into ideas, which are then assessed based on its accumulated experience to determine their value. DABUS is notable for inventing an optimized beverage container and a flashing light for use in emergency situations. In simple words, it has invented interlocking system of food containers that are easier for robots to grab and stack. It was in an attempt to protect this creation that Dr. Stephen Thaler filed patent applications worldwide, including in Australia, Canada, China, Europe, Germany, India, Israel, Japan, South Africa, the United Kingdom, and the United States. Before coming to Indian Legal Regime, it is elemental to preview the position across jurisdictions:

a) UNITED STATES

The United States Patent and Trademark Office (USPTO) rejected granting patent to DABUS, reason being that the statutory provisions of United States Code (U.S.C.) disclose the inventors only as natural persons. For this reliance can be placed by USPTO on

35 U.S.C. Section 100(f)-(g) and Section 101. Just to illustrate, Section 100(f) says:

"The term "inventor" means the individual or, if a joint invention, the individuals collectively who invented or discovered the subject matter of the invention."

Similarly, Section 101 says:

"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."

Further, as per the regulations outlined in the 35 U.S.C. Section 115(b), a person who asserts "himself or herself" to be the inventor of the claimed invention is required to sworn on oath or declaration. Thus, cumulative use of the terms such as "individual", "whoever" or "himself or herself" in the context of inventorship, manifest that the inventors have to be natural persons.

Just to support this, celebrated case of in *University of Utah v. Max Planck Gesellschaft zur Forderung der Wissenschaften* can be cited, where the Federal Circuit declined to recognise a corporation or state as an inventor. Relying upon this, the USPTO concluded that an AI system cannot be designated as an inventor.

b) EUROPE AND UNITED KINGDOM

Likewise, the EPO and the United Kingdom Intellectual Property Office (UKIPO) have declined to confer inventorship status upon an AI entity. The EPO noted that within the European Patent Convention (EPC), the designation "inventor" exclusively pertains to a human individual. In particular, Article 81 EPC on the designation of the inventor succinctly says that: "The European patent application shall designate the inventor. If the applicant is not the inventor or is not the sole inventor, the designation shall contain a statement indicating the origin of the right to the European patent."

Rule 19(1) of the Implementing Regulations to the Convention opines that: "... The designation shall state the family name, given names and full address of the inventor, contain the statement referred to in

Article 81 and bear the signature of the applicant or his representative.”

Following this, the EPO stated that giving a machine a name does not grant it legal personhood, as certain legal rights associated with being an “inventor” necessitate a legal personality to exercise. The decision of the UKIPO was influenced by the same rationales articulated by the EPO.

c) AUSTRALIA

Australia became the first jurisdiction with a comprehensive patent examination process in which a court officially recognized AI as an inventor. In the case, a judge from the Federal Court of Australia concluded that DABUS could be recognized as an inventor under the Australian Patent Act by interpreting the term “inventor” in its usual sense, without being limited to human beings.

It was observed in *Thaler v. Commissioner of Patents*:

“Having regard to the evolving nature of patentable inventions and their creators that, rather than resort to old millennium usages of that word, he needed to grapple with the underlying idea, recognizing the evolving nature of patentable inventions and their creators. We are both created and create. Why cannot our own creations also create?”

However, in the recent development of the DABUS case, a superior court aligned Australia’s stance with that of other countries globally.

➤ WHO CAN BE CONSIDERED AS AN INVENTOR IN AUSTRALIAN REGIME?

Patent Act, 1990 does not define the term “inventor”. But, Reg 3.2C(2)(aa) of Patent Regulations, 1991, requires the “name of the inventor of the invention to which the application relates to be provided.”

Similarly, Section 15 of Patent Act, 1990 provides with who may be granted be a patent?

“(1) Subject to this Act, a patent for an invention may only be granted to a person who:

- a) is the inventor; or

- b) would, on the grant of a patent for the invention, be entitled to have the patent assigned to the person; or

- c) derives title to the invention from the inventor or a person mentioned in paragraph (b); or

- d) is the legal representative of a deceased person mentioned in paragraph (a), (b) or (c).

(2) A patent may be granted to a person whether or not he or she is an Australian citizen.”

Section 15 of Patent Act, 1990 was relied on by the court in *Commissioner of Patents v. Thaler*. Dr. Thaler contended that, as the owner and originator of DABUS, he acquired rights to the invention from the inventor under section 15(1)(c) of the Act. Drawing an analogy, Dr. Thaler likened this situation to a fruit tree owner’s entitlement to the fruit it bears or the ownership of offspring from animals, a comparison with which the Primary Judge concurred. However, the 5-judge panel of the Federal Court overturned this decision. Dr. Thaler maintained that each provision of ss. 15(1)(a), (b), (c), and (d) presents alternative pathways, suggesting that entitlement to a patent can derive from an inventor other than the one specified in Section 15(1)(a).

However, the Full Court of Australia did not support this interpretation and noted that Section 15(1)(a) of the Australian Patent Act specifies that a patent for an invention can only be granted to “a person which is an inventor”. In this context, the reference to ‘a person’ clearly pertains to a natural person. Moreover, based on a direct interpretation of Section 15(1) of the Act, each provision within Sections 15(1)(b), (c), and (d) outlines conditions under which an individual becomes eligible for a patent by acquiring entitlement from the inventor identified in Section 15(1)(a). A legal relationship between the true inventor and the initially entitled individual must be established for this purpose. Entities lacking legal personality cannot fulfill an assignment under Sections 15(1)(b)-(d), and the term “inventor” in Section 15(1)(c) is most naturally interpreted as referring to the same inventor identified in Section 15(1)(a), who is a natural person. Otherwise, the term “inventor” in Section 15(1)(c) would carry a distinct meaning from that in Section 15(1)(a).

The judges said: “it is not to the point that Dr. Thaler may have rights to the output of DABUS. Only a natural person can be an inventor for the purposes of the Patents Act and Patent Regulations. Such an inventor must be identified for any person to be entitled to a grant of a patent under the legislation.”

The Court went on to say that the idea that “no invention devised by an artificial intelligence system is capable of being granted a patent” does not automatically result from the determination that DABUS lacks inventorship. The judges also concurred that the case had presented numerous concepts for deliberation regarding artificial intelligence and inventions, indicating the need for policymakers and legislators in Australia to tackle these matters rather than relying on the courts.

Those propositions include “whether, as a matter of policy, a person who is an inventor should be redefined to include an artificial intelligence. If so, to whom should a patent be granted in respect of its output? The options include one or more of the owner of the machine upon which the artificial intelligence software runs, the developer of the artificial intelligence software, the owner of the copyright in its source code, the person who inputs the data used by the artificial intelligence to develop its output, and no doubt others.”

➤ *If DABUS is Not the Inventor, Then Who Is?*

The ruling implies that AI systems cannot be designated as inventors on patent applications in Australia. Nevertheless, the Court clarified that its decision does not preclude the potential for inventions created by AI systems to be eligible for patent grants.

Whilst the courts across jurisdiction have held that the AI system (DABUS) could not be considered an “inventor” then question arises is ‘who is the inventor?’

Several scenarios could arise regarding the human inventor of the output generated by an AI system like DABUS. These may include the individual holding the copyright to the source code, the individual responsible for programming and training the AI, the individual managing the maintenance and operational expenses of the AI, or the individual who provided

capital for producing the output, all potentially having legitimate claims to entitlement.

In this particular instance, Dr. Thaler holds the copyright to DABUS’s source code. It may be argued that Dr. Thaler is not the inventor as indicated in the application, where “DABUS, The invention was autonomously generated by an artificial intelligence” is identified as the inventor. Notably, DABUS is neither a natural nor a legal entity but rather an artificial intelligence system incorporating artificial neural networks. However, Dr. Thaler, as the owner and operator of the computer on which DABUS functions, could potentially be deemed the inventor for these purposes.

d) INDIA

The Indian Patents Act, 1970, governs the guidelines and requirements for granting intellectual property rights to inventors who come up with new and inventive inventions. At present, the Indian Patents Act does not provide a clear definition of the term “inventor”. Therefore, it is crucial to comprehend the legislation in its entirety, understand the objective of the lawmakers, and interpret the term “inventor” within its appropriate context.

In an application identified as 202017019068, the Controller has objected to acknowledging AI as an inventor in India, citing the provisions of Section 2 and Section 6 of The Indian Patents Act, 1970. These sections set forth the criteria for determining an inventor and the permissible applicant for a patent under Indian legislation. Specifically, Section 6 delineates the eligible parties for patent filing, while Section 2(1)(s) defines the term ‘Person,’ and Section 2(1)(y) clarifies who does not qualify as a true and first inventor. The definitions of these relevant sections as specified in the Act are as follows:

Section 6(1)(a) says:

“An application for a patent for an invention can be made by any Person claiming to be the first and true inventor of the invention.”

Section 2(1)(y) further defines “true and first inventor” that it “does not include either the first importer of an invention into India, or a person to

whom an invention is first communicated from outside India.”

Section 2(1)(s): ‘In this Act, unless the context otherwise requires, — “person” includes the Government’.

Section 2(1)(s) of The Indian Patents Act, 1970 outlines a “person” as either a natural individual or the government. Nonetheless, it’s essential to recognize that the term “person” isn’t confined solely to natural individuals or governmental bodies. It also encompasses other entities that may rightfully claim to be the genuine and original inventor of an invention. Therefore, any entity fulfilling the criteria of being the true and first inventor of an invention could potentially assert themselves as the inventor seeking a patent.

Despite Section 2(1)(y) detailing who cannot be considered as an inventor, ambiguity arises when an AI is the true and first inventor, as it is unclear who can be considered as the true and first inventor. As a result, it is necessary to examine certain Indian case law judgments in combination with the Act in order to determine who qualifies as an inventor in India.

One of the Indian case laws was V.B. Mohammed Ibrahim v. Alfred Schafranek, sets precedence with regard to inventorship. The ruling established that a financier cannot be recognized as an inventor, nor can a corporation solely claim itself as the inventor when applying for a patent. This judgment highlights that typically, a natural person who actually contributes their skills or technical knowledge towards creating the invention is eligible to claim inventorship, rather than a financing partner or a corporation. In the words of the court:

“A firm cannot be said to have the capacity to invent. It cannot be called an inventor although there may be no objection to its being registered as a patentee either or assignment by a patentee or jointly with the true and first inventor. A corporation cannot be the sole applicant claiming to be the inventor.”

Nevertheless, there could be an argument suggesting that an AI may also provide its expertise or technical knowledge, thereby potentially meeting the criteria to be considered an inventor. To delve into this matter further, another Indian legal case, Som Prakash Rekhi

v. Union of India & Anr, involved a judgment by the Honourable Supreme Court of India regarding the definition of a legal ‘person’ according to Indian jurisprudence. The decision stated that a jurisdictional person is someone who is recognized as having legal status under the law. A legal entity that is able to initiate a lawsuit or be sued by others is referred to as having a juristic personality. However, an AI does not possess the capacity to exercise the various rights or fulfill the obligations of a legal entity on its own.

To determine who can be considered an inventor under Indian patent law, it is important to refer to the Ayyangar Committee Report of 1959 and its underlying legislative intent. According to the report, recognizing inventors is a matter of right and enables them to increase their economic worth, regardless of whether they have transferred their proprietary rights through agreements. The report emphasizes that any person who contributes to the invention has a moral right to be named as an inventor, even if they do not have full legal rights over the invention. However, as AI cannot benefit from the intended objectives of the law or have moral rights under the current Indian legal framework, it cannot be regarded as an inventor.

Thus, an extensive examination of the Act alongside the aforementioned legal precedents and the report on legislative intent unequivocally establishes that AI cannot presently be acknowledged as an inventor in India. However, AI-related inventions are acknowledged in India, primarily because AI serves as a tool to aid the inventor.

This case underscores the necessity for international discourse on the appropriate approach to the patentability of AI inventions, considering the growing significance of AI across various industries. Even by widest stretch of imagination, if it is argued that artificial intelligence can be a patentee, there are a number of challenges standing in the way that cannot go unnoticed.

➤ **ARTIFICIAL INTELLIGENCE COLLIDES WITH PATENT LAWS**

● **INVENTORSHIP ISSUES**

One of the major concerns surrounding AI pertains to the issue of ownership. With the ability of AI to create inventions without significant human intervention,

questions arise as to who can be considered the inventor. For instance, if Company P develops an AI program or machine and sells it to Company Q, which operates the AI using resources owned by Company R and training data from Company S, and the AI produces an invention, who should be listed as the inventor? Currently, the law requires that the conception of an idea for an invention takes place in the mind of a person. However, if all the ideation occurs within the AI, then it becomes necessary to identify a person to be listed as the inventor if AI inventions are deemed eligible for patent protection.

If computational inventions are to be regarded as patentable, and AI is to be recognized as an inventor, it would necessitate treating AI as a legal entity with its own set of rights and responsibilities. In this case, AI would be accountable for any legal obligations that arise from its status. Another alternative is to grant patents to AI without naming any inventor, but this would require significant adaptations to the current patent legal framework. In such a scenario, it is imperative to provide adequate incentives to those individuals who are engaged in developing and maintaining AI so that they can continue to produce groundbreaking ideas.

• **ACCOUNTABILITY**

The issue of patent infringement liability arises when unauthorized use or sale of an invention takes place. As patents provide exclusive rights to use and sell an invention, infringers must compensate the patent holder for any damages incurred. However, when it comes to AI, it becomes unclear who should be held responsible for patent infringement. The European Parliament passed a resolution in February 2017, stating that AI cannot be held accountable for harm caused to third parties. Instead, the human agent responsible for AI's actions, such as the operator, manufacturer, or user, must be identified, provided that they could have predicted the AI's harmful behavior. Failing to hold someone liable for AI's patent infringement could encourage its use for illegal purposes.

Addressing patent infringement liability for autonomous AI presents two potential approaches. One possibility involves establishing an insurance system where a fund is set up to cover infringement

damages. Another option entails holding the AI directly accountable, necessitating the granting of legal personhood to AI entities.

• **ASSESSMENT OF INFRINGEMENT LIABILITY**

Another crucial issue requiring resolution is the determination of liability attributable to AI. The European Parliament Resolution emphasized that forthcoming legislative measures should not aim to restrict damages solely because infringement was instigated by a non-human entity. Should a human agent be deemed accountable for the infringement, the liability should correspond to the degree of authority delegated to the AI. Conversely, if AI attains legal personhood and is held responsible for infringement, liability must be evaluated akin to that of a corporate entity.

Alternatively, implementing a contractual agreement presents a viable option as it offers a foreseeable resolution in the event of infringement. Such agreements would ensure indemnification for the aggrieved party as stipulated within the contract, thereby entitling them to damages in accordance with relevant clauses.

CONCLUSION

In conclusion, patents are a crucial component of modern intellectual property law. They provide inventors and companies with legal protection for their inventions, which encourages innovation by providing a financial incentive to invest in research and development. Patents also promote competition in the marketplace by preventing competitors from copying and profiting from others' hard work.

While patents have their benefits, they also have their limitations. For example, patents can be expensive and time-consuming to obtain, which can be a barrier to small inventors and companies with limited resources. Additionally, some critics argue that patents can stifle innovation by creating a monopoly on a particular invention and limiting others' ability to improve upon it.

Despite these limitations, patents remain an important tool for inventors and companies seeking to protect their innovations and maintaining a competitive edge

in the marketplace. It is important for inventors and companies to understand the patent system and its requirements in order to maximize the benefits of this valuable form of intellectual property protection. Patents have a significant impact on the economy and can help drive growth by encouraging innovation and fostering the development of new products, technologies, and industries. They can also provide a means for inventors and companies to generate revenue from their inventions by licensing or selling their patent rights to others.

However, it is important to note that the patent system is not without its challenges. In recent years, there have been concerns about the quality and validity of patents, as well as the potential for patent trolls to abuse the system by filing frivolous lawsuits against legitimate businesses. Apart from this, with the ever-growing use of AI, there arose another issue of its inventions being patented. There is a need of an open floor discussion on the way forward. Replacing inventions made by humans with autonomous algorithms could result in a decline of human intelligence, potentially leading to the erosion of research and development jobs and industries. It is crucial to establish appropriate mechanisms to prevent patent applicants from providing false information about the involvement of AI in the inventive process.

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