

## **PRE-GRANT REPRESENTATION**

This Pre-grant Representation is being filed by:

I, **Dr. Kalyan C. Kankanala** (“Opponent”) having communication address at BananaIP Counsels, #40, 1<sup>st</sup> and 2<sup>nd</sup> Floor, 3<sup>rd</sup> Main Road, JC Industrial Estate, Near Metro Cash and Carry, Kanakapura Main Road, Bangalore – 560062;

Against the patent application bearing number **202017019068**, titled FOOD CONTAINER AND DEVICES AND METHODS FOR ATTRACTING ENHANCED ATTENTION (“Impugned Application”) dated 01/03/2012, filed by

**Stephen L. Thaler** (hereinafter referred to as “Applicant”) published on 19/03/2021, mentioning “Device for Autonomous Bootstrapping of Unified Sentience (“DABUS”) as inventor.

Under section 25(1) of the Patents Act, 1970 as last amended in 2005 (“Act”) and rule 55 of the Patent Rules, 2003 as last amended in 2017 (“Rules”) and other relevant provisions of the Act and Rules

## **STATEMENT OF OPPOSITION**

### **A. Background**

1. The Opponent humbly submits that the Applicant has filed the Impugned Application naming DABUS, a non-human person, as an inventor. In the examination report issued on 26/10/2021, the Honourable Controller objected to the grant of patent on two

grounds relating to inventorship. Firstly, the Honourable Controller stated that DABUS, which is Artificial Intelligence, cannot be true and first inventor under Sections 2 and 6 of the Patents Act. Secondly, the Honourable Controller stated that a patent cannot be granted over the Impugned Application as a valid proof of right has not been submitted by the Applicant. On 25/07/2022, the Applicant filed a response to the examination report admitting that Sections 2 and 6 of the Patents Act refer to only natural persons, and that DABUS does not qualify as one (See Paras 31 to 37 of Applicant's Response to Office Action, attached as Annexure 1). Though DABUS is not a natural person by virtue of it being a machine and/or artificial intelligence, the Applicant attempted to justify the grant of a patent over the Impugned Application by arguing that:

- a. Stephen L. Thaler, the Applicant, is the owner of the machine/AI, DABUS;
- b. A patent has been granted in South Africa, where substantive examination is not performed;
- c. Appeals and petitions to rejections of patent applications are pending in several jurisdictions such as the US, Europe, etc.;
- d. The report of the standing committee proposes an alternative system for protection of Artificial Intelligence inventions; and
- e. Grant of a patent will promote research and development in the field of AI.

The Opponent humbly submits that none of the aforementioned arguments and justifications of the Applicant hold water under the existing provisions of the Patents Act and Rules framed thereunder, and the Honourable Controller may not give any importance or validity to the same. The Opponent further submits that the Impugned Application may not be allowed to proceed for grant based on grounds presented hereunder.

## **B. Grounds**

2. The Opponent humbly submits that the Impugned Application is not eligible for a patent grant, and may be refused by the Honourable Controller based on the following grounds:
  - i. The Impugned Application is not patentable under Section 25(1)(f) of the Patents Act; and
  - ii. The Impugned Application is not patentable under Section 25(1)(h) as the Applicant has withheld material information, and has disclosed false/untrue information.

## **C. Relevant Provisions**

3. Relevant provisions of the Patents Act and Rules read as follows:

"25. OPPOSITION TO THE PATENT.

(1) Where an application for a patent has been published but a patent has not been granted, any person may, in writing, represent by way of opposition to the Controller against the grant of patent on the ground-

...

(f) that the subject of any claim of the complete specification is not an invention within the meaning of this Act, or is not patentable under this Act;

...

(h) that the applicant has failed to disclose to the Controller the information required by section 8 or has furnished the information which in any material particular was false to his knowledge;"

## "2. DEFINITIONS AND INTERPRETATION.

(1) In this Act, unless the context otherwise requires -

...

(ab) "assignee" includes an assignee of the assignee and the legal representative of a deceased assignee and references to the assignee of any person include references to the assignee of the legal representative or assignee of that person;

...

(j) "invention" means a new product or process involving an inventive step and capable of industrial application;

(ja) "inventive step" means 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;

(k) "legal representative" means a person who in law represents the estate of a deceased person;

...

(m) "patent" means a patent for any invention granted under this Act;

(n) "patent agent" means a person for the time being registered under this Act as a patent agent;

...

(p) "patentee" means the person for the time being entered on the register as the grantee or proprietor of the patent;

...

(s) "person" includes the Government;

(t) "person interested" includes a person engaged in, or in promoting, research in the same field as that to which the invention relates;

...

(y) "true and first inventor" 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."

### "3. WHAT ARE NOT INVENTIONS.

The following are not inventions within the meaning of this Act —

...

- (b) an invention the primary or intended use or commercial exploitation of which could be contrary public order or morality or which causes serious prejudice to human, animal or plant life or health or to the environment;
- (c) the mere discovery of a scientific principle or the formulation of an abstract theory or discovery of any living thing or non-living substance occurring in nature;"

### "6. PERSONS ENTITLED TO APPLY FOR PATENTS.

(1) Subject to the provisions contained in section 134, an application for a patent for an invention may be made by any of the following persons, that is to say,

- (a) by any person claiming to be the true and first inventor of the invention;
- (b) by any person being the assignee of the person claiming to be the true and first inventor in respect of the right to make such an application;
- (c) by the legal representative of any deceased person who immediately before his death was entitled to make such an application.

(2) An application under sub-section (1) may be made by any of the persons referred to therein either alone or jointly with any other person."

### "7. FORM OF APPLICATION.

...

(2) Where the application is made by virtue of an assignment of the right to apply for a patent for the invention, there shall be furnished with the application, or within such period as may be prescribed after the filing of the application, proof of the right to make the application.

(3) Every application under this section shall state that the applicant is in possession of the invention and shall name the person claiming to be the true and first inventor; and where the person so claiming is not the applicant or one of the applicants, the application shall contain a declaration that the applicant believes the person so named to be the true and first inventor."

### "83. GENERAL PRINCIPLES APPLICABLE TO WORKING OF PATENTED INVENTIONS.

Without prejudice to the other provisions contained in this Act, in exercising the powers conferred by this Chapter, regard shall be had to the following general considerations, namely;—

(a) that patents are granted to encourage inventions and to secure that the inventions are worked in India on a commercial scale and to the fullest extent that is reasonably practicable without undue delay;

(b) that they are not granted merely to enable patentees to enjoy a monopoly for the importation of the patented article;

(c) that the protection and enforcement of patent rights contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the

mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to a balance of rights and obligations;

(d) that patents granted do not impede protection of public health and nutrition and should act as instrument to promote public interest specially in sectors of vital importance for socio-economic and technological development of India;

(e) that patents granted do not in any way prohibit Central Government in taking measures to protect public health;

(f) that the patent right is not abused by the patentee or person deriving title or interest on patent from the patentee, and the patentee or a person deriving title or interest on patent from the patentee does not resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology; and

(g) that patents are granted to make the benefit of the patented invention available at reasonably affordable prices to the public."

#### **D. Submissions**

4. It is humbly submitted that the primary objective of patent law is to promote the progress of science and technology by encouraging human invention and rewarding human ingenuity. This objective is reflected directly and indirectly in different provisions of the Patents Act such as Section 83, which specifically states the objectives for granting and working patents in India. The fact that the patent law in India is aimed at encouraging human ingenuity and inventive activity has been continuously upheld and reiterated by the Honourable Supreme Court and other Courts in India. In this

context, it is humbly submitted that the Patents Act has been framed with human ingenuity in mind, and does not envisage or permit grant of patents over inventions generated or made by non-human inventors such as machines or artificial intelligence applications/programs. It is therefore submitted that the Impugned Application for grant of patent may be rejected as DABUS is a non-human thing, and because an invention by DABUS does not fit into the scheme or objectives of patent law in India.

5. It is submitted that the Patents Act makes clear demarcations between what is an "Invention", Who is a "Patentee", and who is an "Inventor". Each of these have been independently defined and addressed under the Indian Patents Act. Section 2(1)(j) defines "Invention", Section 2(1)(p) defines "Patentee", and Section 2(1)(y) defines "True and First Inventor". These definitions are independent of each other, and have to be cumulatively satisfied to merit a patent grant. Satisfying one or two of them is not sufficient, and all requirements under the Patents Act with respect to the aforementioned have to be independently met. Also, one cannot be substituted for the other. It is therefore submitted that the Applicant's argument of inventorship based on existence of an invention or its filing by a person is not valid. It is submitted that though the Applicant may qualify as a Patentee independently, and the invention in question may satisfy Section 2(1)(j), the invention claimed in the Impugned Application is still not patentable because it was not created by a human inventor, which is required to satisfy the requirement of true and first inventorship.

6. It is submitted that Section 6 of the Patents Act specifically requires a patent applicant to be a "true and first inventor" or the "assignee" or "legal representative" of a true and first inventor. In particular, the Section in relevant part reads as follows:

"(a) by any person claiming to be the true and first inventor of the invention;  
(b) by any person being the assignee of the person claiming to be the true and first inventor in respect of the right to make such an application;  
(c) by the legal representative of any deceased person who immediately before his death was entitled to make such an application."

By its very language, Section 6 does not permit any application that does not originate from an invention created by a true and first inventor. In the present case, Mr. Thaler will be able to file a patent application only if the true and first inventor assigns the invention to him. This assignment or transfer requires documented and signed/executed transfer of rights, which is clearly provided in Section 7 of the Patents Act. Section 7 sub-clauses (3) and (4) require proof of right to file a patent application, and a declaration from the inventor. Such proof of right and declaration require signatures of the inventor, which cannot be provided by a machine or artificial intelligence such as DABUS. Furthermore, the Applicant also cannot self-authorise himself to legally represent DABUS, which is a machine/AI. As DABUS is a machine/AI it does not hold any legal rights that can be transferred to Mr. Thaler. It is therefore submitted that the Applicant, Mr. Stephen Thaler, does not have a valid right to file a patent application as the invention was generated by a machine/AI, DABUS,

which does not have the legal capacity to provide him the right to file or give a declaration by affixing signatures.

7. It is further submitted that the phrase "true and first inventor" used in Section 7 relates to a human inventor and not to a machine or non-human form. The definition of "True and First Inventor" in Section 2(1)(y) uses the words 'importer' and 'person to whom invention is communicated'. These words on their face do not give clarity about human inventorship, but when this definition is viewed in the context of other provisions, clarity about requirement of human inventorship emerges. For example, Section 6 while referring to legal representative states that this person is the representative of a deceased true and first inventor or deceased assignee of the true and first inventor. As machines do not die and only humans qualify as deceased persons, it may be concluded that "True and First Inventor" in the Patents Act only includes human inventors and not machines or AI forms. It is further submitted that several provisions include the phrase "deceased person", which fortifies this submission. For example, Section 2(1) ab) and (k), and Section 6 specifically refer to deceased persons, and only humans qualify as such.
8. It is submitted that important provisions of the Patents Act refer to persons in different contexts, and all those definitions refer to natural persons. Under circumstances where non-natural persons are covered, the Patents Act specifically mentions the same as an exception. For example, Section 2(1)(s) specifically provides that Government may also

be considered as a person. The said provision does not however expressly cover machines, artificial intelligence, or other non-human forms. It is therefore submitted that without explicit recognition of machines or artificial intelligence as an inventor or person, DABUS, is not recognized as a person under the Patents Act, and personhood cannot be extended to it. The Opponent therefore submits that the Impugned Application has not been validly made, and may therefore be rejected.

9. The Opponent further submits that terms such as "inventive step" refer specifically to individuals, who are human beings. The definition of 'Inventive Step' includes reference to a person having ordinary skill in the art, and Courts have consistently held that such a person is a person with common general knowledge, certain qualifications based on the invention, and experience related to the field of the invention. As these attributes are possible only in human beings, the reference is unambiguously to a human being, and inventive step of an invention created by another human inventor is assessed through the eyes of a skilled human person. This makes it amply clear that what the patent law in India seeks to protect are inventions made by human beings assessed by the standards of other human beings. In the present case, DABUS is not a human being, and its invention is not protectable.
10. It is submitted that the objective of patent law is to encourage human inventive activity, and promote progress of science and technology through such

encouragement. The end goal is to promote creation of inventions that will benefit the public at large. Public benefit, public interest, and public good are at the core of patent law and policy, and the patent law seeks to achieve the same through human creativity and endeavour. Permitting protection over inventions created by machines or artificial intelligence not only runs contrary to the incentive system inherent in the patent regime, but also defeats the very objectives and goals of the patent system. If machines and artificial intelligence were to create inventions, no incentive is required to create such inventions, and no exclusivity need be granted to enable financial/commercial returns from the same. The limited term protection is meant to incentivize human inventive activity through exclusivity for a limited period of time following which the inventions are expected to benefit the public at large. In case of machine and/or AI generated inventions, the exclusivity is not justified, and the benefit of inventions created by them may be provided to the public immediately, without an interim exclusivity period. It is therefore submitted that granting a patent over the Impugned Application would run contrary to public policy, public interest, and public order, and such inventions may therefore be rejected by a broad interpretation of Section 3(b), which relates to inventions that are against public order. The Honourable Controller may consider the protection of any invention created by machine/AI against public policy simply because such inventions do not serve the public policy and public interest ends of patent law.

**11.** It is further submitted that claiming rights over machine or AI generated inventions runs contrary to ethical and moral values in the society. By doing so the Applicant is not only seeking to harvest the crops he has not sown, but is also seeking to keep inventions that belong to the general public away from them. The Applicant is in effect attempting to claim commercial benefits by withholding inventions he has not created from the public. Such an approach is immoral under the current patent law, and the Impugned Application may therefore be rejected as it is against morality under Section 3(b).

**12.** It is further submitted that the invention claimed in the Impugned Application by the Applicant falls within the realm of discovery, which does not deserve patent protection. By reviewing the output generated by a machine/artificial intelligence, the Applicant has merely discovered a thing that came into existence. He has neither exercised inventive faculties, nor enabled the machine/AI to exercise inventive faculties. The machine/AI carried out the operation on its own, and gave a result, which the Applicant reviewed and decided to file for a patent. On a simple analysis, it becomes clear that the machine was already existing, and by observing what it does, the Applicant merely identified that it has created something that can be protected as a patent. This directly fits into the meaning of discovery, which is not patentable under Section 3(c) of the Patents Act.

13. It is humbly submitted that the Applicant is attempting to mislead the patent office by withholding material information, and by making limited, inaccurate submissions. The Applicant has emphasized in his response to the FER that a patent has been granted over the invention in South Africa without mentioning that no substantive examination with respect to inventorship was undertaken in the country. By doing so, the Applicant is attempting to withhold material information by the Honourable Controller by making vague statement regarding the decision of the South African Patent Office. The Honourable Controller may reject the Impugned Application on this ground alone under Section 25(1)(h).
14. The Opponent humbly submits that patent offices and Courts in some countries have rejected the Applicant's patent applications on the ground of non-human inventorship, and though the Applicant claims to have appealed the said decisions, the rejections remain valid as of date. The table below summarizes decisions given by the patent offices/Courts in select countries.

SNo.	Country	Court/Patent Office	Decision (Grant/Rejection)	Date of Decision
1.	USA	United States Court of Appeals for the Federal Circuit	Rejected	5 <sup>th</sup> Aug, 2022
2.	UK	High Court of Justice	Rejected	21 <sup>st</sup> Sep, 2020
3.	Australia	Federal Court of Australia	Rejected	13 <sup>th</sup> Apr, 2022

<b>SNo.</b>	<b>Country</b>	<b>Court/Patent Office</b>	<b>Decision (Grant/Rejection)</b>	<b>Date of Decision</b>
4.	Europe	Boards of Appeal of The European Patent Office	Rejected	21 <sup>st</sup> Dec, 2021
5.	Europe	Boards of Appeal of The European Patent Office	Rejected	21 <sup>st</sup> Dec, 2021
6.	Republic of Korea	Korean Patent Office	Rejected	28 <sup>th</sup> Sep, 2022

Based on the aforementioned decisions as well, the Honourable Controller may refuse the Impugned Application. Some of the decisions rejecting the patent application are provided in Annexure 2.

15. It is humbly submitted that personhood has been extended to non-human entities only through statutes or precedents. For example, companies and LLPs are given status of legal persons for certain purposes. They have independent legal existence, can hold property, can sue or be sued and there is a registration process to acquire legal personality. However, they do not get many legal rights, which are exclusive to natural persons. Similarly, personhood has been extended to deities, environment, etc., for specific and limited purposes. So far, there is no statute in India that has granted legal person status to machines or artificial intelligence, and no Court has felt it necessary to do so. In the context of patent law, machines and artificial intelligence do not merit any sort of legal personhood as extending the same conflicts with the objectives of

patent law, and the incentive system created by it for human inventors. It is therefore submitted that the Honourable Controller may not extend any sort of personhood to DABUS, and may reject the Impugned Application.

**E. Prayer**

**16.** Based on the submissions in this representation, the Opponent humbly prays as follows:

1. This representation be allowed under Section 25(1);
2. The Impugned Application be refused as it does not comply with requirements of the Patents Act, as non-human inventions do not merit patent grants; as it falls within the scope of Sections 3(b) and (c); and as granting a patent would be contrary to public interest and well-established principles of patent law in India; and
3. The costs of these proceedings be awarded to the Opponent.

The Opponent further prays for leave to modify, amend and/ or add to or alter any of the foregoing grounds and reasons if required.

The Opponent also prays for an opportunity of hearing before an adverse decision is made in this pre-grant representation.

Dated this 27<sup>th</sup> of October, 2022

Signature: 

Name of the signatory: Dr. Kalyan C. Kankanala

**REPLY TO FIRST EXAMINATION REPORT**

25<sup>th</sup> July 2022

To,  
The Controller of Patents,  
The Patent Office,  
I.P.O. Building,  
Plot No. 32,  
Sector- 14, Dwarka  
New Delhi, Pin. 110078

**Kind Attn: Mr. Neeraj Kumar Meena,  
Controller of Patents**

**Re: First Examination Report (FER) Response**

Indian Patent Application No.: **202017019068; dated 05/05/2020**

Applicant (s): THALER, Stephen L.

Title: **"FOOD CONTAINER AND DEVICES AND METHODS FOR ATTRACTING  
ENHANCED ATTENTION"**

Date of Issue of First Examination Report (FER): **26/10/2021**

**EXTENDED DUE DATE FOR FILING RESPONSE TO FER: 26/07/2022**

Dear Sir,

I write with regard to the FER issued on 26/10/2021 against the captioned patent application no. 202017019068 filed on 05/05/2020. Please find enclosed our response to each of the objections raised by the Learned Controller.

The Applicant respectfully submits that the pending application has been suitably amended to conform to the Patents Act, 1970 and satisfy the requirements of the Learned Controller. A waiver of the objections is therefore requested.

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### Summary of claim amendments

1. The Applicant submits that pending claims 1-20 suitably amended for the clarity purposes.
2. The Applicant deleted the claims 10-20 to overcome the objection related to the unity of invention.
3. The Applicant submits that the subject matter of the presently amended claims 1-9 are fully supported by the as-filed specification, that no new matter has been introduced, and are in compliance with Section 59 (1) of the Act.
4. To assist the Learned Controller in locating the amendments, a marked-up copy of the claims is also enclosed. A waiver of the objections is therefore requested.

### Response to FER

#### **PART II (1) and (2): NOVELTY and INVENTIVE STEP**

5. The Learned Controller has cited 3 prior arts D1-D3 for lack of an inventive step and novel feature:

**D1: DE 10004386;**

**D2: JP 2017505736;**

**D3: US 5803301.**

6. The Applicant firstly wishes to recite excerpts from paragraph **09.03.03.02** of the **Manual of Patent Office Practice and Procedure**, stating *“with regard to test for obviousness of an invention in view of prior art(s), it is essential to test whether the prior art(s) when placed in the hands of a skilled worker, the said skilled worker would necessarily arrive at the invention of pending claims of the present application”*.
7. The Applicant submits that the amended claims are novel and inventive in view of the prior arts D1-D3 because the reasons given in following paragraphs.

#### **Elucidation of the present invention:**

8. The present invention relates to a food container suitable for both liquid and solid food products.

9. The Applicant respectfully submits that the present invention provides a food container that has a wall with an external surface and an internal wall of substantially uniform thickness. The wall has a fractal profile which provides a series of fractal elements on the interior and exterior surfaces, forming pits and bulges in the profile of the wall and in which a pit as seen from one of the exterior or interior surfaces forms a bulge on the other of the exterior or interior surfaces. The profile enables multiple containers to be coupled together by inter-engagement of pits and bulges on corresponding ones of the containers.

10. Claim 1 has following differentiating feature:

“ 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.”

11. The Applicant humbly requests the Learned Controller to consider the arguments advanced herewith in light of the amended and renumbered claims 1-9.

**Demarcation of the present invention from the cited prior art:**

**D1 (DE 10004386)**

12. Claim 1 was rejected for lacking inventive step and novelty over D1. D1 (DE 10004386) describes a cylindrical container which has flanges formed from the body and protruding from it. These have concave surfaces with the same radius of curvature as the convex surfaces of the main body of the can.

13. Applicant respectfully submitting that D1 does not disclose a container wall having a fractal profile but a wall that has a very specific form with part-cylindrical abutment surfaces. Furthermore, the wall does not have a uniform thickness like the present invention, as it has a double thickness in some parts of the container. Moreover, there is no disclosure of the container being flexible to provide for coupling and uncoupling in the manner provided by claim 1 of the present invention.

14. Therefore, D1 does not disclose all the features of claim 1 of the present invention. Given that the problem-solution offered by the D1 is entirely unrelated to the present invention, as it is not providing any disclosure about the amended method/system of the present invention.

**D2 (JP 2017505736)**

15. Cited Art D2 discloses the beverage container comprising an open top and a closed bottom, an interior, a circular perimeter, and a first height adjacent to the perimeter A set of mountains, and a beverage container comprising: The periphery includes a depending portion that extends below the first set of threads. The container also includes a removable cover having a bottom, a generally cylindrical sidewall, an annular flange extending outwardly from the substantially cylindrical sidewall, and an annular collar. The collar, the annular flange, and the sidewall form a first groove that receives the periphery, and the bottom and the generally cylindrical side wall cooperate to form a cover cavity. The sidewall includes a second set of threads on the outer surface of the sidewall, and the second set of threads is threadedly engaged with the first set of threads.
16. With reference to prior art D2, the applicant respectfully submits that the disclosure in D2 is a beverage container that has a frustoconical or tapered form with a narrow base and wider top. Further, having regard to claim 1 filed herewith, the container disclosed in the D2 does not have a generally cylindrical form with a top or a base, either end of the generally cylindrical wall nor is their disclosure that the wall is flexible to permit coupling and uncoupling of a variety of containers together, like the present invention. Therefore, there is no reason to suggest that the person skilled in the art would have contemplated modifying the cited container in a manner as to approach a food container having a structure in claim 1.

**D3 (US 5803301)**

17. D3 provides a shock resistant seamless can comprising a side wall having an inside surface and an outside surface formed from a laminate of a metal substrate and a thermoplastic resin layer provided on the inside surface of the can side wall, wherein the inner surface of the side wall resin layer opposite the metal substrate comprises a plurality of dotted projections.
18. Applicant respectfully submits that document D3 discloses the formation of projections on the inner surface of a resin layer that coats the inside surface of the metal wall of the

container. This is described, in column 4 lines 52-60, and throughout the remainder of the description. In column 5, lines 16 and 17, it is acknowledged that the inner resin layer varies in thickness, while in column 6, lines 22 and 23 that the projections must have a bot shape, with examples being given in column 8, lines 11-15, all of which are regular shapes and cannot be described as being fractal. This cited art therefore not relevant to the claims of the present invention as it does not disclose a wall having a fractal profile with corresponding convex and concave fractal elements on the corresponding ones of the interior and exterior surfaces and which form pits and bulges in the profile of the wall, or of any of the other features of claim 1. Hence, we respectfully submit that this document is not relevant to the present invention.

19. Therefore, the Applicant submits that none of the documents D1-D3 either alone or in combination disclose the features as recited in independent claim 1 of the present application. In view of the above facts, it would not be obvious for a person skilled in the art to obtain the technical solution of independent claim 1 by referring to the cited documents D1-D3 either alone or in combination. Hence, it is submitted that amended independent claim 1 is novel and inventive over cited documents D1- D3.

20. Therefore, in view of the above submissions, the Applicant kindly requesting the Learned Controller to withdraw the objection.

### **Dependent Claims**

21. Because existing amended and renumbered dependent claims depend directly or indirectly on their independent claims respectively, each dependent claim is patentable for at least this reason, as well as for the features they each recite. Based on the reasoning provided, Applicant respectfully suggests that the claims are patentable and hence are allowable. Further, it is well-settled law that if an independent claim is novel and non-obvious under section 2(1)(j) and 2(1)(ja), then any claim depending therefrom is not obvious.

### **PART II (2): UNITY OF INVENTION**

22. The examiner finds that Claim(s) 1-9,10-20 lack(s) unity of invention as the claims do not relate to a single invention or to a group of inventions linked to form a single inventive concept.

23. The applicant is deleting objected claims 10-20 to overcome the objection related to the unity of invention.

24. Moreover, the amended claimed subject matter 1-9 involves a single inventive concept, as per the requirements. Hence, the applicant respectfully requests the Learned controller to kindly take the amended claims 1-9 on record for further proceeding.

25. Therefore, in view of the above submissions, the Applicant kindly requesting the Learned Controller to withdraw the objection.

**PART-II (6): DEFINITIVENESS:**

26. The Applicant is respectfully submitting that claims 1-9 are inventive over the cited arts and the same is already discussed in the above-mentioned section of Novelty and inventive step. Moreover, the applicant has also highlighted the distinguishing feature of the present invention in the "Elucidation of present invention section".

27. With regard to the objection of Scope, we are respectfully submitting the present invention providing a food container in which the wall has a fractal profile with corresponding convex and concave fractal elements. Further, the fractal profile of the wall permits coupling and de-coupling by inter-engagement or disengagement of a plurality of said containers together, as mentioned in claim 1. Hence the scope of the protection is clearly mentioned in the claims.

28. The present application is a national phase application. Hence, we have filed as such the application at the time of entry in the Indian National phase. Further, Applicant has deleted claims 10-20 to overcome the objection of Unity of Invention. Hence, we are requesting the Learned controller to kindly proceed further with the present invention. We will amend the specification at later stages if claims fulfill all the criteria of patentability.

29. With regard to the question of novelty, the applicant very well discussed the distinguishing novel and inventive features of the present invention over the cited arts in the above- mention section of "novelty and inventive step".

30. Therefore, in view of the aforementioned submissions, the Applicant humbly requests the Learned Controller to waive the objection.

**PART-II (7): OTHER REQUIREMENTS**

31. Applicant respectfully agrees with the Learned Controller that the first inventor of the invention is artificial intelligence (Device for the Autonomous Bootstrapping of Unified

Sentience (DABUS)), which is not a person as per section 2 and section 6 of The Patent Act, 1970. With regard to the above objection, the applicant respectfully submits that the DABUS is the true deviser of the invention and that no person or persons, can claim to have devised the invention. Further, the invention was truly and solely conceived by the DABUS. As per the Indian Patent Act, the applicant should name the actual inventor/deviser of the invention at the time of filing any application. Hence, the Applicant has done the same so clearly and explicitly by way of disclosing the DABUS as the inventor of the present invention, as per the Patent act practice.

32. Inventorship is directed to natural persons under several Jurisdiction practices, intended to prevent company inventorship. It was not the result of seriously considering autonomous machine invention and should not, therefore, prohibit subsistence of intellectual property rights where there is no natural person who qualifies as an inventor.
33. A number of parties have claimed for decades to be in possession of AI-generated inventions [1]. In 2019, Siemens reported that the company had multiple AI-generated inventions for which they had intended to file for patents but did not do so due to legislative uncertainty [2].
34. In the present application, we submit that DABUS should be acknowledged as the inventor of any resultant patents, with Stephen Thaler, the machine's owner, as the assignee of any such patents.
35. In this view, Applicant wants to take the attention of the Learned Controller to the published **Report No. 161 regarding the Review of the Intellectual Property Rights Regime in India (presented to the Rajya Sabha on 23rd July 2021)**[3], which recognized the importance of AI-based invention and submitted that:

*“As regards the economic impact of AI, the Committee was informed that an Accenture research report had estimated that the benefits from AI related innovations, if drawn in an optimal manner, would add USD 957 billion by 2035 to the Indian economy. However, in order to extract benefits from AI, revisiting of IPR legislations and implementing a strong IPR framework is desirable.”*

[1] Ryan Abbott, I Think, Therefore I Invent: Creative Computers and the Future of Patent Law, 57 B.C. L. Rev. 1079 (2016), <https://lawdigitalcommons.bc.edu/bclr/vol57/iss4/2>

[2] [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3611370](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3611370)

[3] [https://iprlawindia.org/wp-content/uploads/2021/07/GOI\\_IP-Review.pdf](https://iprlawindia.org/wp-content/uploads/2021/07/GOI_IP-Review.pdf)

36. Furthermore, this report has the following point, which recommends a separate category for the protection of AI-based inventions as IPRs (please refer to report 161 pages 30-31) (provided below for ease).

*“The Committee notes that the relevance and utility of cutting edge technologies such as Artificial Intelligence (AI) and machine learning would increase manifold in the present world especially in the times of Covid-19 pandemic wherein the digital applications are playing a crucial role in responding to the crisis. Moreover, the huge benefits of AI and its applications in India’s revenue generation and economy as well as its impact on technological innovation necessitate its expansion in a secured manner. In view of this, the Committee recommends that a separate category of rights for AI and AI related inventions and solutions should be created for their protection as IPRs. It further recommends that the Department should make efforts in reviewing the existing legislations of The Patents Act, 1970 and Copyright Act, 1957 to incorporate the emerging technologies of AI and AI related inventions in their ambit.”*

37. **Additional Information:** Applicant has already received a grant for corresponding **South Africa Application**, which has listed DABUS as the inventor for the invention. We are also providing herewith the copy of the same for your reference.

Further, The Federal Court found in Thaler v Commissioner of Patents [2021] FCA 879 that, for the purposes of the Patents Act 1990 (Cth), an artificial intelligence (AI) system could be named as an inventor on a patent application. This decision overturned an earlier decision of IP Australia that only a human can be named as an inventor for an Australian patent.

Furthermore, Applicant also filed petitions/Appeals in other Jurisdictions i.e. United States, Europe, and the United Kingdom to accept DABUS as an inventor for respectively filed application inventions. Moreover, almost all the corresponding foreign applications are either pending for decision or examination for their patentability (please refer to the most recent filed Form 3 dated 26/05/2022).

Therefore, applicant is respectfully requesting the Learned controller to kindly proceed this application.

38. The applicant respectfully submits that the updated Form 3 as per Section 8 read with Rule 12 of the Patents Act has already been timely submitted through online portal with the most recent dated 26/05/2022.

Further, the applicant is also submitting herewith the documents under section 8(2) i.e. WIPO publication with ISR, Published South Africa granted patent. Furthermore, the Applicant humbly requests the Learned Controller to take all the documents on record and waive the objection.

39. Applicant respectfully submits that the **Hon'ble Intellectual Property Appellate Board (IPAB) in a recent order [OA/63/2020/PT/DE DOW AGROSCIENCES LLC v. THE CONTROLLER OF PATENTS]** has delved on the aspect of Proof of Right requirements in Indian National Phase Applications and held that the inventor declaration filed under Rule 4.17 (ii) of the PCT Regulations during the international phase is sufficient to establish Proof of right in Indian National Phase applications. We are submitting herewith the copy of the inventor declaration filed under Rule 4.17 (ii) of the PCT Regulations for your reference. Further, WIPO-PCT named DABUS as the inventor. Hence, the applicant kindly requests the Learned controller to take the attached declaration filed under Rule 4.17 (ii) on record as proof of right for this National Phase application. Therefore, in view of the aforementioned submissions, the Applicant humbly requests the Learned Controller to waive the objection.

### **PART III: FORMAL REQUIREMENTS**

40. Applicable fee paid as per type of Applicant: It is respectfully submitting that all fees have already been appropriately paid except for one access priority claim. Hence, the applicant has paid the balance fee (i.e. INR 1600/-) and submitting herewith the CBR of PAID fees for claiming the additional priority.
41. Statement and Undertaking (Form 3 Details): The applicant respectfully submits that the updated Form 3 as per Section 8 read with Rule 12 of the Patents Act has already been timely submitted through online portal with the most recent dated 26/05/2022.
42. Power of Attorney: It is respectfully submitting that; the applicant has already submitted the appropriately stamped and signed POA dated 22nd June 2020. The original copy of the same has already been submitted to Indian Patent Office under this patent application dated 02/07/2020. Hence, executed POA (original and scanned) has been submitted within the time limit. Further, the submitted POA is a general POA, and it is used in the present application as its original submission. Therefore, withdrawal of the present objection is kindly requested.

### **PRAYER**

The learned controller is requested to take the submitted claims and specification on records and allow application to proceed. We trust that this Application will now be found in the order for grant.

We request you to offer us an opportunity of being heard under Section 14 of the Indian Patents Act, 2005 (Amended), before taking a decision adverse to the Applicant's interest.

Date: -- 25<sup>th</sup> day of July, 2022



Registered Agent Name

Satish Kumar Rana

(of Prism IPR)

IN/PA 1989

### **Enclosures:**

1. Marked up copy of amended claims;
2. Clean copy of amended claims;
3. CBR of paid Balance fee for claiming the extra priority;
4. Declaration filed under Rule 4.17 (ii) in PCT application;
5. Documents under section 8(2).

**CBR of paid Balance fee for claiming the extra priority:**

Controller General of Patents, Designs & Trade  
Marks  
Plot No. 32, Sector 14, Dwarka, New Delhi-110075  
Tel No. (091)(011) 28034304-06 Fax No. 011  
28034301.02  
E-mail: delhi-patent@nic.in  
Web Site: www.ipindia.gov.in



सत्यमेव जयते

**G.A.R.6**  
[See Rule 22(1)]  
**RECEIPT**



Docket No 76863

Date/Time 2022/07/25 16:32:40

SHRI SATISH KUMAR RANA A1/306,  
Orris Carnation Residency, Sector 85 Email:  
filing@prismipr.com

Sr. No.	Ref. No./Application No.	App. Number	Amount Paid	C.B.R. No.	Form Name	Fee Payment	Remarks
1	E-160/48/2022/DEL	202017019068	1600	28054	FORM 30/S142(3)	Full	

TransactionID	Payment Mode	Challan Identification Number	Amount Paid	Head of A/C No
N-0000998058	Online Bank Transfer	2507220018896	1600.00	1475001020000001

Total Amount : ₹ 1600.00

Amount in Words: Rupees One Thousand Six Hundred Only

Received from SHRI SATISH KUMAR RANA the sum of ₹ 1600.00 on account of Payment of fee for above mentioned Application/Forms.

\* This is a computer generated receipt, hence no signature required.

I CLAIM,

1. 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;
  - 5 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)
  - 10 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
  - 15 the flexibility of the wall permits disengagement of said or any coupling of a plurality of said containers.
2. A food or beverage container ~~according to as claimed in~~ claim 1, wherein at least some of said pits (40) and bulges (42) each have heads and bases, wherein the  
20 heads are of a greater width than bases thereof.
- 3 A food or beverage container ~~according to any preceding~~as claimed in claims 1 and 2, wherein at least some of the pits (40) and bulges (42) have inter-engaging or corresponding shapes and sizes such that a bulge (42) of one container can fit within a  
25 pit (40) of an identical container, thereby to couple two containers together.
4. A food or beverage container ~~according to as claimed in~~ claim 3, wherein the pits (40) and bulges (42) of said two containers fit precisely within one another.

5. A food or beverage container ~~according to as~~ claimed in claim 1 or 2, wherein the pits (40) and bulges (42) of said two containers fit partially within one another.

5 6. A food or beverage container ~~according to any preceding~~ as claimed in claims 1-5, wherein two or more said containers can be coupled together by an adhesive disposed between facing pits (40) and bulges (42) of adjacent containers.

10 7. A food or beverage container ~~according to any preceding~~ as claimed in claims 1-6, wherein the corresponding convex and concave fractal elements (18-28) provide for increased surface area of both the interior and exterior surfaces of the container (10) relative to a volume of the chamber.

15 8. A food or beverage container ~~according to any preceding claims~~ as claimed in claim 1 to 7, wherein the wall is formed of metal, plastics, or elastomeric material.

9. A food or beverage container ~~according to any one of as~~ claimed in claims 1 to 7, wherein the wall is formed from flexible food product.

20 ~~10. — A device (2) for attracting enhanced attention, the device comprising:~~  
~~—— (a) — an input signal of a lacunar pulse train having characteristics of a pulse frequency of approximately four Hertz and a pulse train fractal dimension of approximately one half generated from a random walk over successive 300 millisecond intervals, each step being of equal magnitude and representative of a pulse train satisfying~~  
25 ~~a fractal dimension equation of  $\ln(\text{number of intercepts of a neuron's net input with a firing threshold}) / \ln(\text{the total number of 300 ms intervals sampled})$ ; and~~  
~~—— (b) — at least one controllable light source (6) configured to be pulsatingly operated by said input signal;~~

~~wherein a neural flame is emitted from said at least one controllable light source as a result of said lacunar pulse train.~~

~~11. The device of claim 10, the device (2) further comprising:~~

5 ~~(c) a processor for supplying said input signal of said lacunar pulse train having said characteristics; and~~

~~(d) a digital to analog (D/A) converter (12) for transmitting said input signal to said at least one controllable light source (6).~~

10 ~~12. The device of claim 11, wherein said D/A converter (12) is an onboard module of said processor, and wherein said module is embodied in at least one form selected from the group consisting of: hardware, software, and firmware.~~

15 ~~13. The device of claim 12, wherein said processor includes a thresholding unit for monitoring a random walk trace for trace axis crossings of a firing threshold of said thresholding unit, and wherein said trace axis crossings result in activation transitions to generate pulse activation sequences of said lacunar pulse train.~~

20 ~~14. The device of claim 13, wherein candidates of said pulse activation sequences are filtered based on a zero set dimension, and wherein said candidates are filled into a buffer of selected sequences having a fractal dimension of approximately one half.~~

25 ~~15. The device of claim 14, wherein filtered patterns are randomly withdrawn from said selected sequences in said buffer, and wherein said filtered patterns are configured to serve as said input signal to said D/A converter for transmitting to said at least one controllable light source.~~

~~16. The device of claim 15, wherein said filtered patterns are generated onboard said processor.~~

~~17. A method for attracting enhanced attention, the method comprising the steps of:~~

5 ~~(a) generating a lacunar pulse train having characteristics of a pulse frequency of approximately four Hertz and a pulse train fractal dimension of approximately one-half generated from a random walk over successive 300 millisecond intervals, each step being of equal magnitude and representative of a pulse train satisfying a fractal dimension equation of  $\ln(\text{number of intercepts of a neuron's net input with a firing threshold})/\ln(\text{the total number of 300 ms intervals sampled})$ ;~~

10 ~~(b) transmitting said input signal to at least one controllable light source (6); and~~

~~(c) pulsatingly operating said at least one controllable light source (6) to produce a neural flame emitted from said at least one controllable light source (6) as a result of said lacunar pulse train.~~

15 ~~18. The method of claim 17, the method further comprising the step of:~~

~~(d) monitoring a random walk trace for trace axis crossings of a firing threshold, and wherein said trace axis crossings result in activation transitions to generate pulse activation sequences of said lacunar pulse train.~~

20 ~~19. The method of claim 18, the method further comprising the steps of:~~

~~(e) filtering candidates of said pulse activation sequences based on a zero set dimension; and~~

25 ~~(f) filling said candidates into a buffer of selected sequences having a fractal dimension of approximately one-half.~~

~~20. The method of claim 19, the method further comprising the steps of:~~

~~(g) randomly withdrawing filtered patterns from said selected sequences in said buffer; and~~

~~(h) using said filtered patterns as said input signal.~~

Dated this 05<sup>th</sup> day of May 2020



SATISH KUMAR RANA

IN/PA-1989

OF PRISM IPR

ATTORNEY OF THE APPPLICANT

PCT

(Original in Electronic Form)

VIII-1-1	<b>Declaration: Identity of the Inventor</b> Declaration as to the identity of the inventor (Rules 4.17(i) and 51bis.1(a)(i))	In relation to this international application
	Name (LAST, First)  Address	DABUS, The invention was autonomously generated by an artificial intelligence of 1767 Waterfall Dr St Charles, Missouri 63303 United States of America is the inventor of the subject matter for which protection is sought by way of this international application

# United States Court of Appeals for the Federal Circuit

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**STEPHEN THALER,**  
*Plaintiff-Appellant*

v.

**KATHERINE K. VIDAL, UNDER SECRETARY OF  
COMMERCE FOR INTELLECTUAL PROPERTY  
AND DIRECTOR OF THE UNITED STATES  
PATENT AND TRADEMARK OFFICE, UNITED  
STATES PATENT AND TRADEMARK OFFICE,**  
*Defendants-Appellees*

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2021-2347

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Appeal from the United States District Court for the  
Eastern District of Virginia in No. 1:20-cv-00903-LMB-  
TCB, Judge Leonie M. Brinkema.

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Decided: August 5, 2022

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RYAN BENJAMIN ABBOTT, Brown, Neri, Smith & Khan,  
LLP, Los Angeles, CA, argued for plaintiff-appellant.

DENNIS BARGHAAN, JR., Office of the United States At-  
torney for the Eastern District of Virginia, United States  
Department of Justice, Alexandria, VA, argued for defend-  
ants-appellees. Also represented by JESSICA D. ABER;  
FARHEENA YASMEEN RASHEED, PETER JOHN SAWERT,

MEREDITH HOPE SCHOENFELD, Office of the Solicitor,  
United States Patent and Trademark Office, Alexandria,  
VA.

MITCHELL APPER, Jerusalem, Israel, amicus curiae, pro  
se.

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Before MOORE, *Chief Judge*, TARANTO and STARK, *Circuit  
Judges*.

STARK, *Circuit Judge*.

This case presents the question of who, or what, can be an inventor. Specifically, we are asked to decide if an artificial intelligence (AI) software system can be listed as the inventor on a patent application. At first, it might seem that resolving this issue would involve an abstract inquiry into the nature of invention or the rights, if any, of AI systems. In fact, however, we do not need to ponder these metaphysical matters. Instead, our task begins – and ends – with consideration of the applicable definition in the relevant statute.

The United States Patent and Trademark Office (PTO) undertook the same analysis and concluded that the Patent Act defines “inventor” as limited to natural persons; that is, human beings. Accordingly, the PTO denied Stephen Thaler’s patent applications, which failed to list any human as an inventor. Thaler challenged that conclusion in the U.S. District Court for the Eastern District of Virginia, which agreed with the PTO and granted it summary judgment. We, too, conclude that the Patent Act requires an “inventor” to be a natural person and, therefore, affirm.

## I

Thaler represents that he develops and runs AI systems that generate patentable inventions. One such system is his “Device for the Autonomous Bootstrapping of

Unified Science,” which Thaler calls “DABUS.” Thaler has described DABUS as “a collection of source code or programming and a software program.” Supp. App. at 781.

In July 2019, Thaler sought patent protection for two of DABUS’ putative inventions by filing two patent applications with the PTO: U.S. Application Nos. 16/524,350 (teaching a “Neural Flame”) and 16/524,532 (teaching a “Fractal Container”).<sup>1</sup> He listed DABUS as the sole inventor on both applications. Thaler maintains that he did not contribute to the conception of these inventions and that any person having skill in the art could have taken DABUS’ output and reduced the ideas in the applications to practice.<sup>2</sup>

In lieu of an inventor’s last name, Thaler wrote on the applications that “the invention [was] generated by artificial intelligence.” App. at 28, 69. He also attached several documents relevant to inventorship. First, to satisfy 35 U.S.C. § 115’s requirement that inventors submit a sworn oath or declaration when applying for a patent, Thaler

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<sup>1</sup> The administrative records for both applications are materially identical.

<sup>2</sup> While inventorship involves underlying questions of fact, *see Dana-Farber Cancer Inst., Inc. v. Ono Pharm. Co.*, 964 F.3d 1365, 1370 (Fed. Cir. 2020), *cert. denied*, 141 S. Ct. 2691 (2021), for purposes of this litigation the PTO has not challenged Thaler’s representations, *see* D. Ct. Dkt. No. 25, at 11. Accordingly, our analysis must be consistent with the undisputed facts in the administrative record, drawing inferences in favor of the non-moving party. *See Safeguard Base Operations, LLC v. United States*, 989 F.3d 1326, 1349 (Fed. Cir. 2021) (discussing when it is appropriate to supplement administrative record and noting “[t]he focal point for judicial review should be the administrative record already in existence”) (quoting *Camp v. Pitts*, 411 U.S. 138, 142 (1973)).

submitted a statement on DABUS' behalf. Second, Thaler provided a supplemental "Statement on Inventorship" explaining that DABUS was "a particular type of connectionist artificial intelligence" called a "Creativity Machine." App. at 198-203, 483-88. Third, Thaler filed a document purporting to assign himself all of DABUS' rights as an inventor.

The PTO concluded both applications lacked a valid inventor and were, hence, incomplete. Accordingly, it sent Thaler a "Notice to File Missing Parts of Nonprovisional Application" for each application and requested that Thaler identify valid inventors. In response, Thaler petitioned the PTO director to vacate the Notices based on his Statements of Inventorship. The PTO denied Thaler's petitions on the ground that "a machine does not qualify as an inventor." App. at 269-71, 548-50. Thaler sought reconsideration, which the PTO denied, explaining again that inventors on a patent application must be natural persons.

Thaler then pursued judicial review of the PTO's final decisions on his petitions, under the Administrative Procedure Act (APA). *See* 5 U.S.C. §§ 702-704, 706.<sup>3</sup> The parties agreed to have the District Court adjudicate the challenge based on the administrative record made before the PTO and filed cross-motions for summary judgment. After briefing and oral argument, the Court granted the PTO's motion for summary judgment and denied Thaler's request to reinstate his applications. The District Court concluded that an "inventor" under the Patent Act must be an "individual"

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<sup>3</sup> The District Court had jurisdiction under 28 U.S.C. § 1331. *See also* 5 U.S.C. § 702 ("A person suffering legal wrong because of agency action, or adversely affected or aggrieved by agency action within the meaning of a relevant statute, is entitled to judicial review thereof.").

and the plain meaning of “individual” as used in the statute is a natural person.

Thaler appealed. We have jurisdiction under 28 U.S.C. § 1295. *See Odyssey Logistics & Tech. Corp. v. Iancu*, 959 F.3d 1104, 1108 (Fed. Cir. 2020) (explaining that Federal Circuit has jurisdiction over appeals from district court decisions raising APA claims against PTO regarding patents).

## II

We review grants of summary judgment according to the law of the regional circuit, in this case the Fourth Circuit. *See Supernus Pharms., Inc. v. Iancu*, 913 F.3d 1351, 1356 (Fed. Cir. 2019). In the Fourth Circuit, a district court’s grant of summary judgment is reviewed *de novo*. *See id.* (citing *Gallagher v. Reliance Standard Life Ins. Co.*, 305 F.3d 264, 268 (4th Cir. 2002)). Challenges to PTO petition decisions are governed by the APA and pertinent administrative law standards. Thus, we may set aside the judgment resulting from an administrative adjudication only if the agency’s decision is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law” or if the agency’s actions are “in excess of statutory jurisdiction, authority, or limitations.” 5 U.S.C. § 706. “Statutory interpretation is an issue of law that we review *de novo*.” *Facebook, Inc. v. Windy City Innovations, LLC*, 973 F.3d 1321, 1330 (Fed. Cir. 2020).

## A

The sole issue on appeal is whether an AI software system can be an “inventor” under the Patent Act. In resolving disputes of statutory interpretation, we “begin[] with the statutory text, and end[] there as well if the text is unambiguous.” *BedRoc Ltd. v. United States*, 541 U.S. 176, 183 (2004). Here, there is no ambiguity: the Patent Act requires that inventors must be natural persons; that is, human beings.

The Patent Act expressly provides that inventors are “individuals.” Since 2011, with the passage of the Leahy-Smith America Invents Act, the Patent Act has defined an “inventor” as “the *individual* or, if a joint invention, the *individuals* collectively who invented or discovered the subject matter of the invention.” 35 U.S.C. § 100(f) (emphasis added). 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.” § 100(g) (emphasis added). In describing the statements required of an inventor when applying for a patent, the statute consistently refers to inventors and co-inventors as “individuals.” *See* § 115.

The Patent Act does not define “individual.” However, as the Supreme Court has explained, when used “[a]s a noun, ‘individual’ ordinarily means a human being, a person.” *Mohamad v. Palestinian Auth.*, 566 U.S. 449, 454 (2012) (internal alteration and quotation marks omitted). This is in accord with “how we use the word in everyday parlance”: “We say ‘the individual went to the store,’ ‘the individual left the room,’ and ‘the individual took the car,’ each time referring unmistakably to a natural person.” *Id.* Dictionaries confirm that this is the common understanding of the word. *See, e.g., Individual, Oxford English Dictionary* (2022) (giving first definition of “individual” as “[a] single human being”); *Individual, Dictionary.com* (last visited July 11, 2022), <https://www.dictionary.com/browse/individual> (giving “a single human being, as distinguished from a group” as first definition for “individual”). So, too, does the Dictionary Act, which provides that legislative use of the words “person” and “whoever” broadly include (“unless the context indicates otherwise”) “corporations, companies, associations, firms, partnerships, societies, and joint stock companies, *as well as individuals*.” 1 U.S.C. § 1 (emphasis added). “With the phrase ‘as well as,’ the definition marks ‘individual’ as distinct from the list of artificial entities that precedes it,” showing that Congress understands

“individual” to indicate natural persons unless otherwise noted. *Mohamad*, 566 U.S. at 454.

Consequently, the Supreme Court has held that, when used in statutes, the word “individual” refers to human beings unless there is “some indication Congress intended” a different reading. *Id.* at 455 (emphasis omitted).<sup>4</sup> Nothing in the Patent Act indicates Congress intended to deviate from the default meaning. To the contrary, the rest of the Patent Act supports the conclusion that “individual” in the Act refers to human beings.

For instance, the Act uses personal pronouns – “himself” and “herself” – to refer to an “individual.” § 115(b)(2). It does not also use “itself,” which it would have done if Congress intended to permit non-human inventors. The Patent Act also requires inventors (unless deceased, incapacitated, or unavailable) to submit an oath or declaration. *See, e.g., id.* (requiring oath or declaration from inventor that “such individual believes himself or herself to be the original inventor or an original joint inventor of a claimed invention in the application”). While we do not decide whether an AI system can form beliefs, nothing in our record shows that one can, as reflected in the fact that Thaler submitted the requisite statements himself, purportedly on DABUS’ behalf.

Thaler directs us to several provisions of the Patent Act as supposed support for his position that “inventor” should be broadly read to include AI software, but each fails to persuade. First, Thaler points to the use of “whoever” in

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<sup>4</sup> While *Mohamad* interpreted a statute other than the Patent Act, the Court’s reasoning is directly applicable here. *See generally Legal Def. Fund v. Dep’t of Agric.*, 933 F.3d 1088, 1093-94 (9th Cir. 2019) (concluding that “individual” refers to human beings and not animals, based in part on *Mohamad*).

35 U.S.C. §§ 101 and 271. Section 101 provides that “[w]hoever 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.” As this very section makes clear, however, patents must satisfy the “conditions and requirements of” Title 35 of the U.S. Code, including its definition of “inventor.” Section 271, in setting out what constitutes infringement, repeatedly uses “whoever” to include corporations and other non-human entities. That non-humans may infringe patents does not tell us anything about whether non-humans may also be inventors of patents. The question before us inevitably leads back to the Patent Act’s definition of “inventor,” which uses the word “individual” – and does not use “whoever.”<sup>5</sup> Furthermore, as we noted already, the Dictionary Act establishes that Congress uses “whoever” as a much broader term than “individual.” See 1 U.S.C. § 1.

Second, Thaler contends that AI software programs must qualify as inventors because otherwise patentability would depend on “the manner in which the invention was made,” in contravention of 35 U.S.C. § 103. Section 103 is not about inventorship. Instead, it provides, in relevant part, that inventions may still be nonobvious even if they are discovered during “routine” testing or experimentation. See *Honeywell Int’l Inc. v. Mexichem Amanco Holding S.A. de C.V.*, 865 F.3d 1348, 1356 (Fed. Cir. 2017); see also *Graham v. John Deere Co.*, 383 U.S. 1, 15 (1966) (explaining that second sentence of § 103 was intended to clarify that “flash of creative genius” is unnecessary for patentability). This statutory provision relates to *how* an invention is

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<sup>5</sup> While the PTO also initially relied on the use of “whoever” in § 101 of the Patent Act, the PTO has also consistently explained that “individual” is limited to natural persons, a position we now uphold.

made and does not trump a provision that specifically addresses *who* may be an inventor.

Third, Thaler emphasizes that the term “inventor” must be interpreted with attention to the “context in which that language is used[] and the broader context of the statute as a whole.” *Yates v. United States*, 574 U.S. 528, 537 (2015) (internal quotation marks omitted). We have undertaken precisely this task. For the reasons explained above, the Patent Act, when considered in its entirety, confirms that “inventors” must be human beings.

## B

Our holding today that an “inventor” must be a human being is supported by our own precedent. See *Univ. of Utah v. Max-Planck-Gesellschaft zur Forderung der Wissenschaften E.V.*, 734 F.3d 1315, 1323 (Fed. Cir. 2013) (“[I]nventors must be *natural persons* and cannot be corporations or sovereigns.”) (emphasis added); *Beech Aircraft Corp. v. EDO Corp.*, 990 F.2d 1237, 1248 (Fed. Cir. 1993) (“[O]nly natural persons can be ‘inventors.’”). While these opinions addressed different questions – concluding that neither corporations nor sovereigns can be inventors – our reasoning did not depend on the fact that institutions are collective entities. The two cases confirm that the plain meaning of “inventor” in the Patent Act is limited to natural persons.

## C

Statutes are often open to multiple reasonable readings. Not so here. This is a case in which the question of statutory interpretation begins and ends with the plain meaning of the text. See *Bostock v. Clayton Cnty.*, 140 S. Ct. 1731, 1749 (2020) (“This Court has explained many times over many years, when the meaning of the statute’s terms is plain, our job is at an end.”). In the Patent Act, “individuals” – and, thus, “inventors” – are unambiguously natural persons. Accordingly, we have no need to consider

additional tools of statutory construction. *See Matal v. Tam*, 137 S. Ct. 1744, 1756 (2017) (“[I]nquiry into the meaning of the statute’s text ceases when the statutory language is unambiguous and the statutory scheme is coherent and consistent.”) (internal quotation marks omitted).

### III

We briefly address Thaler’s additional arguments.

Thaler argues that inventions generated by AI should be patentable in order to encourage innovation and public disclosure. Thaler’s policy arguments are speculative and lack a basis in the text of the Patent Act and in the record. In any event, the text before us is unambiguous, and we may not “elevate vague invocations of statutory purpose over the words Congress chose.” *Sw. Airlines Co. v. Saxon*, 142 S. Ct. 1783, 1792-93 (2022). Moreover, we are not confronted today with the question of whether inventions made by human beings with the *assistance* of AI are eligible for patent protection.

Thaler invokes the canon of constitutional avoidance. In Thaler’s view, permitting AI programs to be inventors would support the constitutional purpose of patents “[t]o promote the progress of science and the useful arts.” U.S. Const. art. I, § 8, cl. 8. It follows, Thaler continues, that not recognizing AI as an inventor undermines such progress, raising potential constitutional concerns we should be careful to avoid. Thaler is incorrect. The constitutional provision he cites is a grant of legislative power to Congress; Congress has chosen to act pursuant to that power by passing the Patent Act. Thaler does not (and cannot) argue that limiting inventorship to human beings is unconstitutional. Therefore, the canon of constitutional avoidance is simply inapplicable. *See Veterans4You LLC v. United States*, 985 F.3d 850, 860-61 (Fed. Cir. 2021) (explaining that this canon may be helpful when there is serious question regarding statute’s constitutionality); *see also*

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*Warger v. Shauers*, 574 U.S. 40, 50 (2014) (noting that canon of constitutional avoidance “has no application in the absence of . . . ambiguity”) (internal quotation marks omitted).

Thaler also notes that South Africa has granted patents with DABUS as an inventor. This foreign patent office was not interpreting our Patent Act. Its determination does not alter our conclusion.

We have considered Thaler’s additional arguments and find they do not merit discussion.

#### IV

When a statute unambiguously and directly answers the question before us, our analysis does not stray beyond the plain text. Here, Congress has determined that only a natural person can be an inventor, so AI cannot be. Accordingly, the decision of the district court is affirmed.

#### **AFFIRMED**

#### COSTS

Costs shall be assessed against Appellant.



Neutral Citation [2020] EWHC 2412 (Pat)

**IN THE HIGH COURT OF JUSTICE  
BUSINESS AND PROPERTY COURTS OF ENGLAND AND WALES  
PATENTS COURT (ChD)**

**On appeal from the decision of Huw Jones (Deputy Director, acting for the Comptroller of the United Kingdom Intellectual Property Office) dated 4 December 2019**

Sitting remotely at:  
The Royal Courts of Justice  
Rolls Building  
Fetter Lane  
London EC4A 1NL

Date: 21 September 2020

UKIPO Decision: BL O/741/19  
Appeal No: CH-2019-000339

**Before:**

**THE HONOURABLE MR JUSTICE MARCUS SMITH**

BETWEEN:

**STEPHEN L THALER**

Appellant  
(Applicant in the proceedings below)

-and-

**THE COMPTROLLER-GENERAL OF PATENTS, DESIGNS AND TRADE MARKS**

Respondent  
(Respondent in the proceedings below)

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**Mr Robert Jehan** (of **Williams Powell Patent Attorneys**) and **Professor Ryan Abbott**  
(instructed by **Williams Powell Patent Attorneys**) for the Appellant

**Dr Stuart Baran** (instructed by the **Treasury Solicitor**) for the Respondent

Hearing date: 15 July 2020

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**Approved Judgment**

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

**Mr Justice Marcus Smith:**

**A. INTRODUCTION**

**(1) The patent applications**

1. On 17 October 2018 and 7 November 2018 respectively, the Appellant filed two patent applications – GB1816909.4 and GB1818161.0 – in his own name, Stephen Thaler (the **Applications**). Although the Applications are separate and distinct patent applications, the process of their application has been handled concurrently and there is no purpose, in the context of this appeal, in differentiating between them. The documents in the Applications referred to in this judgment are, in all material respects, the same in each.
2. The Request for Grant forms (Patent Form 1) accompanying the Applications stated that Dr Thaler was not an inventor of the inventions specified in the Applications. That, in itself, is not surprising. Although an inventor may, of course, make an application for a patent, patents, patent applications and the right to apply for a patent are all transferable (amongst other provisions) under section 30 of the Patents Act 1977.
3. In this case, Dr Thaler was notified by two letters (respectively dated 19 November 2018 and 27 November 2018) from the Intellectual Property Office (**IPO**) that he would need to file a statement of inventorship and of right of grant to a patent (Patent Form 7) within 16 months of the filing date. These are requirements pursuant to section 13 of the Patents Act 1977, a provision that I shall be returning to.
4. Dr Thaler filed statements of inventorship on separate Patent Form 7s for both Applications on 23 July 2019. The Patent Form 7s and a letter that accompanied it stated that the inventor was an artificial intelligence machine called **DABUS** and that Dr Thaler had acquired the right to grant of the patents in question by “ownership of the creativity machine DABUS”.

**(2) The basis for the Applications by Dr Thaler**

5. It is important that I set out precisely what the Form 7s said in relation to DABUS:<sup>1</sup>

“A machine called “DABUS” conceived of the present invention

The invention disclosed and claimed in this British patent application was generated by a specific machine called “DABUS”, which is a type of “Creativity Machine”. A Creativity Machine is a particular type of connectionist artificial intelligence. Such systems contain a first artificial neural network, made up of a series of smaller neural networks, that has been trained with general information from various knowledge domains. This first network generates novel ideas in response to self-perturbations of connection weights between neurons and component neural nets therein. A second “critic” artificial neural network monitors the first neural network for new ideas and identifies those ideas that are sufficiently novel compared to the machine’s pre-existing knowledge base. The critic net also generates an effective response that in turn injects/retracts perturbations to selectively form and ripen ideas having the most novelty, utility, or value.

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<sup>1</sup> Emphases as in original. Footnotes omitted.

In the case of the present invention, the machine only received training in general knowledge in the field and proceeded to independently conceive of the invention and to identify it as novel and salient. If the teaching had been given to a person, that person would meet inventorship criteria as inventor.

In some instances of machine invention, a natural person might qualify as an inventor by virtue of having exhibited inventive skill in developing a program to solve a particular problem, or by skillfully selecting data to provide to a machine, or by identifying the output of a machine as inventive. However, in the present case, DABUS was not created to solve any particular problem, was not trained on any special data relevant to the present invention, and the machine rather than a person identified the novelty and salience of the present invention.

A detailed description of how DABUS and a Creativity Machine functions is available in, among others, the following US patent publications: 5,659,666; 7,454,388 B2; and 2015/0379394 A1.

**Inventorship should not be restricted to natural persons. A machine which would meet inventorship criteria if a natural person should also qualify as an inventor.**

Neither the Patents Act 1977 nor the European Patent Convention explicitly prohibits protection for autonomous machine inventions.

Inventorship is directed to natural persons under British and EPO practice, intended to prevent company inventorship. It was not the result of seriously considering autonomous machine invention and should not therefore prohibit subsistence of intellectual property rights where there is no natural person who qualifies as an inventor.

The output of autonomously inventive machines should be patentable if it meets the requirements of patentability set out in law. The primary purpose of patent law is to incentivize innovation, together with incentivizing the disclosure of information, and the commercialization and development of inventions. Allowing patents for machine outputs incentivizes the development of inventive machines, which ultimately promotes innovation. To the extent that patents are incentivizing commercialization and disclosure of information, there is no change in this function as between a human and a machine generated invention. Failure to permit patent protection for the output of autonomously inventive machines threatens to undermine the patent system by failing to encourage the production of socially valuable inventions. This will be particularly important as artificial intelligence becomes more sophisticated and likely a standard part of industrial research and development. Clarifying now that patents are available for the output of autonomously inventive machines would provide certainty to industry and innovators.

Patent law also protects the moral rights of human inventors and acknowledging machines as inventors would facilitate this function. At present, individuals are claiming inventorship of autonomous machine inventions under circumstances in which those persons have not functioned as inventors. This is fundamentally wrong and it weakens moral justifications for patents by allowing individuals to take credit for the work of machines. It is not unfair to machines who have no interest in being acknowledged, but it is unfair to other human inventors because it devalues their accomplishments by altering and diminishing the meaning of inventorship. This could equate the hard work of creative geniuses with those simply asking a machine to solve a problem or submitting a machine's output. By contrast, acknowledging machines as inventors would also acknowledge the work of a machine's creators.

**An "autonomous machine invention" should be assigned to the owner of the machine.**

Machines should not own patents. They do not have legal personality or independent rights, and cannot own property.

The machine's owner should be the default owner of any intellectual property it produces and any benefits that would otherwise subsist in a natural person owner. This is most consistent with current ownership norms surrounding personal property (including both machines and patents).

In the present application, we submit that DABUS should be acknowledged as the inventor of any resultant patents, with Stephen Thaler, the machine's owner, as the assignee of any such patents.

**If a machine cannot be an inventor, the first person to recognize the inventive nature of autonomous machine input may qualify as an inventor.**

It has been argued that a natural person may claim inventorship of an autonomous machine invention even where that person was not involved in the development or operation of a machine by virtue of recognizing the relevance of a machine's output. This approach is questionable in cases where the natural person has not made an inventive contribution to the disclosed invention in the accepted meaning of the term.

In some cases, recognition of the inventive nature of a computer's output may require significant skill, but in others, the nature of inventive output may be obvious. In the present case, DABUS identified the novelty of its own idea before a natural person did."

6. Clearly, this is a far from usual Patent Form 7. It is important that some preliminary points be made:
  - (1) First, the Patent Form 7 contains a number of factual assertions regarding DABUS, its capabilities and its role in the inventions specified in the Applications. None of these factual assertions has been tested in these proceedings. I proceed on the assumption – as has everyone in these proceedings – that these factual assertions are true. However, I should stress that I am making an assumption in Dr Thaler's favour, not a finding.
  - (2) Secondly – and this is in no sense a criticism – the Patent Form 7 contains far more argument than would normally be expected. That is because of the novel nature of these Applications. The argument set out in the Patent Form 7 was that which was pursued before me on appeal. Essentially:
    - (a) Inventorship was not confined to natural persons. A non-natural person or something not a person at all, whether natural or legal, i.e. a thing, could be the "inventor" of an invention.
    - (b) It is important to understand that it was not being contended by Dr Thaler that DABUS had legal personality. Indeed, the Patent Form 7 asserted an absence of legal personality on the part of DABUS and the Applications were not in the name of DABUS but in the name of Dr Thaler.
    - (c) Thus, what was being contended for was an extremely wide definition of an "inventor", but without seeking to stretch or rearticulate the conventional limits of the law of persons.

- (d) Assuming this wide definition of “inventor” to be correct, an immediate paradox opened itself: it becomes possible for an “inventor”, if not also a person, to be incapable of owning or applying for a patent and equally incapable of transferring such rights to another. The question therefore arose as to how rights that might otherwise vest in the “inventor” could vest in someone other than the “inventor”. The Patent Form 7 contended that the answer to this paradox was that the rights to an invention of an inventor who was not a person vested in the owner of that inventor.

It is thus apparent that the Applications raised fundamental points regarding artificial intelligence and the Patents Act 1977.

### (3) The IPO’s response and the Decision

7. The IPO responded to these contentions on the part of Dr Thaler to say that the naming of a machine as inventor did not meet the requirements of the Patents Act 1977 and that a person – meaning a natural person and not merely a legal person – must be identified as the inventor. Furthermore, the IPO was not satisfied as to the manner in which Dr Thaler acquired rights that would otherwise vest in the inventor and required Dr Thaler to state how he derived the right to the grant of the patent from the inventor. The IPO thus recognised, correctly, that Dr Thaler was not asserting that he was the inventor.
8. Dr Thaler was not satisfied with this response and requested a hearing on the matter. A hearing took place before Mr Huw Jones, acting for the Comptroller. Mr Jones identified three issues that arose for decision out of the Applications:<sup>2</sup>
- (1) Can a non-human inventor be regarded as an inventor under the Patents Act 1977?
  - (2) In what way has the right to the grant of a patent, which rests primarily with the inventor or actual deviser of the invention, been transferred to Dr Thaler? Or, if it has not been transferred, is Dr Thaler entitled to apply for a patent in preference to DABUS simply because Dr Thaler is the owner of DABUS?
  - (3) If the answer to these questions is “No”, then at what point can the applications be treated as withdrawn?
9. In his decision (the **Decision**), Mr Jones determined that:
- (1) Because DABUS was a machine, and not a natural person, it could not be regarded as an inventor for the purposes of the Patents Act 1977.<sup>3</sup>
  - (2) There could be no transfer of DABUS’ rights to Dr Thaler. On one level, that is an inevitable consequence of Mr Jones’ first determination that DABUS was not a person and, so, not an inventor: DABUS could own nothing capable of being

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<sup>2</sup> Decision at [8].

<sup>3</sup> Decision at [20].

transferred. However, Mr Jones went on to determine that DABUS had no power to assign any rights it might have:<sup>4</sup>

“...DABUS, as a machine, cannot own intellectual property, which in this case would be the two patent applications in question. This appears problematic for [Dr Thaler] because DABUS has no rights to its inventions and cannot enter into any contract to assign its right to apply for a patent to [Dr Thaler]...”

It was thus impossible see how any rights in the Applications could have been derived by or transferred to Dr Thaler.<sup>5</sup> As I have noted, Dr Thaler was not contending for any capacity in DABUS to effect a transfer of property, first because DABUS lacked the capacity to own and secondly because DABUS also lacked the capacity to transfer. Dr Thaler was effectively contending that the rights of an inventor lacking personality vested in the owner of that inventor. Thus, to this extent, the Decision was in line with the submissions being advanced by Dr Thaler.

- (3) Dr Thaler was not entitled to the grant of a patent as the owner of DABUS. As I have noted, Dr Thaler contended that whilst DABUS was the inventor for the purpose of the Applications, Dr Thaler derived the right to apply for the grant of a patent in the case of each application by virtue of his ownership of DABUS:<sup>6</sup>

“[Dr Thaler] indicates that he acquired the rights to the patent by virtue of ownership of the inventor and is therefore the successor in title to the inventor...There appears to be no law that allows for the transfer of ownership of the invention from the inventor to the owner in this case, as the inventor itself cannot hold property.”

- (4) In light of these determinations, the Applications should be taken to be withdrawn at the expiry of the 16 month period specified by Rules 10(3) of the Patents Rules 2007.<sup>7</sup>

#### **(4) This appeal and the structure of this judgment**

10. Dr Thaler seeks to appeal the Decision on various grounds. The grounds of appeal are diffuse and unnumbered. I propose to consider them under the following heads and in the following order:

- (1) Dr Thaler contended that Mr Jones had prejudged the outcome of the Decision and that, in effect, Dr Thaler did not receive an impartial hearing. I consider this ground of appeal in Section B below.
- (2) Dr Thaler contended that Mr Jones had misdirected himself in his approach to construing the relevant legislation. This ground of appeal is considered in Section C below.

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<sup>4</sup> Decision at [21].

<sup>5</sup> Decision at [21].

<sup>6</sup> Decision at [23].

<sup>7</sup> Decision at [27].

- (3) Dr Thaler articulated various grounds of appeal relating to section 13 of the Patents Act 1977, in effect contending that this section had been used as an illegitimate means of denying Dr Thaler a right, under the 1977 Act, that he would otherwise have. These grounds are closely related, and for that reason are considered together in Section D below.
11. There was no appeal in relation to Mr Jones' holding as to when the Applications should be deemed withdrawn under the Patents Act 1977. Of course, Dr Thaler contended that Mr Jones had erred in reaching this conclusion but, if Mr Jones was correct in his other holdings, Dr Thaler took no issue in relation to this part of the Decision and for that reason I consider it no further myself.

## **B. PREJUDGMENT OF DR THALER'S CASE**

12. Dr Thaler contended that Mr Jones had prejudged the outcome of the Decision. The basis for this contention is a statement made in paragraph 3.05 of the IPO's Formalities Manual, which provides as follows:

"Where the stated inventor is an 'AI Inventor', the Formalities Examiner [should] request a replacement [Patents Form 7]. An 'AI Inventor' is not acceptable as this does not identify 'a person' which is required by law. The consequence of failing to supply this is that the application is taken to be withdrawn under section 13(2) [of the Patents Act 1977]."

13. We will come to section 13 of the Patents Act 1977 in due course. The point made by Dr Thaler was that the IPO had pre-determined the outcome of the hearing before Mr Jones and that the Decision had not properly been reached.<sup>8</sup>
14. Paragraph 3.05 of the IPO's Formalities Manual was drawn to Mr Jones' attention. Mr Jones commented on the paragraph at [7] of the Decision:

"Mr Jehan [patent attorney for Dr Thaler] objected to this passage as it suggests, in his words, that "the [IPO] had prejudged [Dr Thaler's] case before having given [Dr Thaler] an opportunity to present [his] case". I assured Mr Jehan that this was not the case. In fact, I was not aware of this update until I saw it mentioned in his skeleton arguments. I explained that inclusion of this passage merely reflects the process that had been followed during the processing of these two applications and that it was likely added to ensure a consistent procedure would be followed in similar situations in the future. While the timing of the update was unfortunate, I explained that it was necessary for the [IPO] to ensure consistency of practice in the absence of any existing guidance. I assured Mr Jehan that I would decide the matter based on the requirements of the Act and the Rules and upon whatever case law exists. If the practice as currently stated in the Formalities Manual is inconsistent with my finding in this decision, then that practice will need to change."

15. Dr Thaler was quite right to draw the Formalities Manual to Mr Jones' attention. However, as a ground of appeal against the Decision the point is unarguable and should never have been taken. To be fair to him, Mr Jehan did not press the point very hard in the oral submissions before me.
16. As a ground of appeal, the point is misconceived because there is no basis for suggesting that Mr Jones was seeking to do anything other than apply the law in

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<sup>8</sup> See paragraph 3 of Dr Thaler's grounds of appeal.

accordance with his duty. His view of paragraph 3.05 of the Formalities Manual was that it in no way fettered or affected the decision he had to make. Depending on Mr Jones' decision, paragraph 3.05 might state a process consistent with the law or it might state an incorrect process. To suggest that paragraph 3.05 informed the Decision is simply wrong: rather, the Decision would determine whether paragraph 3.05 could continue to stand as a correct articulation of the IPO's processes.

17. In short, this ground of appeal puts things the wrong way round. It assumes – without any basis for that assumption – that the Decision was influenced by the Formalities Manual. In fact, in the considering the appeal, and in reaching the Decision, Mr Jones was indirectly determining whether the IPO's processes were correctly stated or not in the Formalities Manual. For these reasons, the first ground of appeal is dismissed.

### C. INCORRECT PURPOSIVE CONSTRUCTION

18. Both Dr Thaler (in his grounds of appeal) and the IPO (in its written submissions) made general points regarding the manner in which Mr Jones had, and I should, approach the process of statutory construction that essentially determines the questions that arise in this appeal.
19. Thus, Dr Thaler suggested that Mr Jones had “incorrectly focussed” on the inventor's motivation to innovate and disclose.<sup>9</sup> The grounds of appeal in particular refer to [28] and [29] of the Decision, in which Mr Jones made some “final observations”:

“28 The fundamental function of the patent system is to encourage innovation by granting time-limited monopolies in exchange for public disclosure. As [Dr Thaler] acknowledges..., an AI machine is unlikely to be motivated to innovate by the prospect of obtaining patent protection. Instead the motivation to innovate will have been implemented as part of the development of the machine; in essence, it will have been instructed to innovate. Given that at present an AI machine cannot hold property rights, the question then becomes in what way can they be encouraged to disseminate information about invention? [Dr Thaler] argues that enabling the owner of the machine to acquire the right to the patent is the only way to achieve this. However, I have to disagree with this assessment as dissemination of innovation from an AI machine could occur freely in a number of ways, such as via the internet. At any rate, it is not clear to me how recognising a machine as an inventor will affect the likelihood of dissemination of innovation to the public, as this decision will be down to the owner or developers of the AI machine.

- 29 As [Dr Thaler] says, inventions created by AI machines are likely to become more prevalent in future and there is a legitimate question as to how or whether the patent system should handle such inventions. I have found that the present system does not cater for such inventions and it was never anticipated that it would, but times have changed and technology has moved on. It is right that this is debated more widely and that any changes to the law be considered in the context of such a debate, and not shoehorned arbitrarily into existing legislation.”
20. I do not consider that the Decision can sensibly be criticised on the basis of these paragraphs, and this ground of appeal must be dismissed. I accept that it is appropriate to consider the practical implications of a particular statutory construction and – where

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<sup>9</sup> See paragraphs 14 and 15 of the grounds of appeal.

appropriate – to allow a purposive approach to affect the construction of a statute.<sup>10</sup> In these paragraphs, Mr Jones was doing no more than test the conclusions he had reached regarding the true construction of the Patent Act 1977 against their likely consequences in this and other cases. He found nothing to suggest that these consequences should undermine the conclusions he had reached.

21. There is nothing wrong in such an approach, and I do not consider that Mr Jones’ focus in these paragraphs was incorrect. More importantly, I do not consider that what he said unduly influenced his approach to construction of the relevant provisions of the Patents Act 1977. Indeed, these paragraphs appear to be little more than a “cross-check” on the soundness of conclusions that Mr Jones had already reached.
22. In [28] and [29] of the Decision, Mr Jones rightly stressed that it was his function – as it is mine – to construe and not to re-write the Patents Act 1977. This was a concern that the IPO itself articulated before me. In its written submissions, the IPO suggested that the recognition of artificial intelligence in all areas of law – including but not limited to intellectual property – involved only questions of how the law should be, rather than applying the law as it is, and so constituted a question much more for the legislature than for the courts. Thus, the IPO stated in its written submissions:
  - “4. ...Dr Thaler’s true complaint is that the law should not be so: that it *should* recognise some form of personality (or, at least, recognise inventorship) for artificially intelligent machines.
  5. The Comptroller takes no position, for this appeal, on that debate about what the law *should* say about artificially intelligent systems. Certainly, the Comptroller has no desire to be dismissive of Dr Thaler’s viewpoint on that issue. This is an important debate, and as artificial intelligence develops it can only become more so.
  6. But that is a complex policy issue whose resolution must engage issue of law and policy way beyond the remit of intellectual property. Several relevant public bodies (including the World Intellectual Property Organisation (WIPO) and the UK Information Commissioner’s Office (ICO)) have launched consultations on accounting in our laws for developments in artificial intelligence. The European Commission has also recently published a white paper about artificial intelligence in the EU.
  7. But that wider debate about how artificial intelligence fits into the concept of legal personality in the UK law, including how and whether it should be protected and/or credited by the law of intellectual property, is not properly germane to determining this appeal.”
23. Clearly, it is right that this court can only construe legislation and cannot itself legislate, no matter how great the policy need. Nevertheless, a note of caution regarding these submissions on the part of the IPO must be sounded:
  - (1) First, I am unsure whether the IPO’s description of Dr Thaler’s contentions can be said to be a correct characterisation of those contentions. Dr Thaler expressly disavowed a contention that DABUS was a natural (or legal) person, and focussed instead on the contention that the “inventor” of statute is a legal

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<sup>10</sup> See Bailey and Norbury, *Bennion on Statutory Construction*, 7<sup>th</sup> ed (2017) at ch 11.

construct detached from the question of personality. In other words, it was perfectly possible to be an inventor without being a person. That is a point that I shall obviously come to, and I say nothing about its correctness here. But I am unconvinced that Dr Thaler was in fact seeking to re-write the law of persons as he thought it should be.

- (2) Secondly, whilst I am very conscious that it is not for the courts to legislate or to make policy, these are not questions that can be assessed at the outset of a case like this. It may very well be that the common law or a scheme laid down in statute does – when appropriately construed or understood – cater for future developments, including developments that were – until they surfaced in litigation – unforeseen. To take a somewhat extreme example, were an alien from outside the galaxy to present itself before the courts of England and Wales, I would like to think that it would not be denied legal personality simply on the grounds of unforeseen extraterritoriality. The courts are well able to differentiate between an alien artefact (say a meteorite, a thing) and an alien (which if capable of interacting as a natural person, is or ought to be a person). The courts of England and Wales have long taken their own view as to the status of a person appearing before them. Thus, the fact that a foreign law regards a person as a slave cuts little ice for “by the laws of England one man cannot have an absolute property in the person of another man”.<sup>11</sup>

#### **D. SECTION 13 OF THE PATENTS ACT 1977**

##### **(1) The relevant legislation**

24. Various of the grounds of appeal advanced by Dr Thaler turn, to a greater or lesser extent, on section 13 of the Patents Act 1977. Before considering Dr Thaler’s contentions on appeal, it is necessary to set out the relevant legislation.
25. Section 1 of the Patents Act 1977 defines an invention, and sections 2 to 6 of the Act qualify and further define/refine the nature of a patentable invention. For the purposes of this appeal, I proceed on the basis that the Applications disclose patentable inventions.
26. Section 7 of the Patents Act 1977 concerns the right to apply for and obtain a patent and provides as follows:
- “(1) Any person may make an application for a patent either alone or jointly with another.
- (2) A patent for an invention may be granted –
- (a) primarily to the inventor or joint inventors;
- (b) in preference to the foregoing, to any person or persons who, by virtue of any enactment or rule of law, or any foreign law or treaty or international convention, or by virtue of an enforceable term of any agreement entered into with the inventor before the making of the invention, was or were at the time of

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<sup>11</sup> *Chamberline v. Harvey*, (1700) 5 Mod 182, 87 ER 598.

the making of the invention entitled to the whole of the property in it (other than equitable interests) in the United Kingdom;

- (c) in any event, to the successor or successors in title of any person or persons mentioned in paragraph (a) or (b) above or any person so mentioned and the successor or successors in title of another person so mentioned;

and to no other person.

- (3) In this Act ‘inventor’ in relation to an invention means the actual deviser of the invention and ‘joint inventor’ shall be construed accordingly.
- (4) Except so far as the contrary is established, a person who makes an application for a patent shall be taken to be the person who is entitled under subsection (2) above to be granted a patent and two or more persons who make such an application jointly shall be taken to be the persons so entitled.”

27. Section 13 of the Patents Act 1977 concerns the mention of the inventor in any patent granted for the invention and provides as follows:

- “(1) The inventor or joint inventors of an invention shall have a right to be mentioned as such in any patent granted for the invention and shall also have a right to be so mentioned if possible in any published application for a patent for the invention and, if not so mentioned, a right to be so mentioned in accordance with rules in a prescribed document.
- (2) Unless he has already given the Patent Office the information hereinafter mentioned, an applicant for a patent shall within the prescribed period file with the Patent Office a statement –
  - (a) identifying the person or persons whom he believes to be the inventor or inventors; and
  - (b) where the applicant is not the sole inventor or the applicants are not the joint inventors, indicating the derivation of his or their right to be granted the patent; and, if he fails to do so, the application shall be taken to be withdrawn.
- (3) Where a person has been mentioned as sole or joint inventor in pursuance of this section, any other person who alleges that the former ought not to have been so mentioned may at any time apply to the comptroller for a certificate to that effect, and the comptroller may issue such a certificate; and if he does so, he shall accordingly rectify any undistributed copies of the patent and of any documents prescribed for the purposes of subsection (1) above.”

**(2) Dr Thaler’s contentions as to the primacy of section 13**

28. I found Dr Thaler’s reliance on section 13 of the Patents Act 1977 confusing and difficult to follow. Dr Thaler’s appeal, so far as it concerned the construction of the 1977 Act, began not with section 7, but with section 13. Thus, it was suggested that section 13 had been deployed so as to apply an unjustified sanction against Dr Thaler.<sup>12</sup> Quoting from paragraph 5 of the grounds of appeal:

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<sup>12</sup> See paragraphs 4 to 6 of the grounds of appeal.

“Section 13 permits the Comptroller to deem an application to be withdrawn for failure to file a statement setting out the position on inventorship and entitlement. Section 13 does not permit the Comptroller to use section 13 as a mechanism to refuse an application, in this case by refusing to accept a statement from [Dr Thaler] (in this case made by way of Forms 7) that honestly and correctly identifies the actual deviser of the invention and indicates [Dr Thaler’s] derivation of the right to the patent. Doing so is to use section 13 to apply a sanction against [Dr Thaler] that amounts to refusing the application. Section 13 does not empower the Comptroller in this manner. Furthermore, there is nothing to suggest that [Dr Thaler] has decided to withdraw his applications.”

29. I reject this contention:

- (1) The suggestion that nothing more than a subjective belief on the part of an applicant that that applicant is entitled to apply for a patent, supported by a statement from that applicant setting out and asserting that subjective belief, is sufficient to entitle that applicant to the grant of a patent is, quite simply, nonsense.
- (2) I am quite prepared to accept that Dr Thaler subjectively, and honestly, believed that he was entitled to make the Applications on the basis articulated by him. But to suggest that, simply on the basis of such a subjective, albeit honestly held, belief, an otherwise ill-founded application for a patent should succeed is to render otiose the provisions of section 7 of the Patents Act 1977, which set out in mandatory terms the circumstances in which a person may apply for, and be granted, a patent.
- (3) In *Yeda Research and Development Company Ltd v. Rhone-Poulenc Rorer International Holdings (Yeda)*,<sup>13</sup> the House of Lords expressed the view that section 7 contained an exhaustive code for determining who was entitled to the grant of a patent:

“Section 7(2), and the definition in section 7(3), are in my opinion an exhaustive code for determining who is entitled to the grant of a patent. That is made clear by the words “and to no other person.” In saying that the patent may be granted “primarily” to the inventor, section 7(2) emphasises that a patent may be granted only to the inventor or someone claiming through him. The claim through an inventor may be made under one of the rules mentioned in paragraph (b), by which someone may be entitled to patent an invention which has been made by someone else (the right of an employer under section 39 is the most obvious example) or the claim may be made under paragraph (c) as successor in title to an inventor or to someone entitled under paragraph (b).”
- (4) The effect of Dr Thaler’s contentions is to add an entirely subjective additional ground for the grant of a patent that is inconsistent with the statutory scheme. In my judgment, section 13 of the Patents Act 1977 cannot (as Dr Thaler seeks to do) be read alone, and must be read in context. Critical to that context is section 7 of the Patents Act 1977. It seems to me that unless an applicant for a patent can bring him- or herself within the parameters of section 7, the IPO is entirely justified – indeed, obliged – in finding that the application is insufficient and liable to be withdrawn or deemed to be withdrawn.

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<sup>13</sup> [2007] UKHL 43 at [18].

- (5) I accept, of course, that section 13(2) contains terms referencing the subjective state of mind of the applicant. Thus, section 13(2)(a) requires the applicant to identify “the person or persons whom he believes to be the inventor or inventors”;<sup>14</sup> similarly, section 13(2)(b) requires the applicant – if not the or an inventor – to “indicat[e] the derivation of his or their right to be granted the patent”.<sup>15</sup> An applicant may believe A to be the inventor (and so identify A in the application) and/or believe that A has assigned his or her rights to the applicant (and so indicate as much in the application) and be wrong on both counts. Such an error – which will not necessarily be apparent on the face of the application – will generally speaking enable the application to proceed, because the IPO cannot possibly audit every such statement in every application for the grant of a patent.
- (6) However, where an error has been made, such that the application is misconceived because the requirements of section 7 are not met, any patent granted is liable to be revoked. Section 72(1)(b) of the Patents Act 1977 provides:
- “Subject to the following provisions of this Act, the court or the comptroller may by order revoke a patent for an invention on the application of any person (including the proprietor of the patent) on (but only on) any of the following grounds, that is to say –
- ...
- (b) that the patent was granted to a person who was not entitled to be granted that patent...”
- (7) Thus, the statutory process for the application for and grant of a patent proceeds on the basis that certain statements (specifically as regards the identity of the inventor and any chain of title from the inventor to the actual applicant) are not necessarily examined or adjudicated upon during the course of the application process.<sup>16</sup> The basis for this approach derives from section 7(4) of the Patents Act 1977,<sup>17</sup> which provides for a presumption that an applicant (or applicants) for a patent shall be taken to be entitled under section 7(2).
- (8) The presumption is neither irrebuttable nor preclusive of investigation or inquiry. That would be to sanction, without possibility of correction, unjustified (albeit honestly intended and *bona fide*) applications; and there would, on this basis, be no place for or point in section 72(1)(b) of the Patents Act 1977. If, therefore, an application is on its face bad or, to put the same point another way, incapable of justification within the terms of section 7, the IPO will be justified in refusing to proceed with the application. Thus, for example:
- (a) Even if an applicant honestly believed his or her cat to be the inventor, and identified the cat as such in his or her Patent Form 7, unless the IPO was satisfied that a cat was capable of being an inventor within the meaning of

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<sup>14</sup> Emphasis added.

<sup>15</sup> Emphasis added.

<sup>16</sup> See, for example, the decision of Whitford J in *Nippon Piston Ring Co Ltd's Applications*, [1987] RPC 6, where this point was clearly made.

<sup>17</sup> Set out in paragraph 26 above.

section 7, the applicant's statement as to the identity of the inventor under section 13 would be deficient (no matter what the applicant's state of mind).

- (b) Equally, were the applicant to assert that the inventor had transferred the right the grant of a patent to him- or herself by reference to some form of transmission of ownership unknown in law (e.g. the applicant's own assertion of right, without act, knowledge or acquiescence of the inventor), the IPO would be justified in treating the applicant's statement under section 13 as deficient.

30. In short, Dr Thaler's contention that section 13 of the Patents Act 1977 was dispositive of his right to be granted a patent without reference to the provisions of section 7 is fundamentally misconceived and wrong. The suggestion that section 13 was being used by the IPO to abrogate an entitlement or right that Dr Thaler would otherwise have was made in two other ways in the grounds of appeal. Thus:

- (1) The grounds of appeal assert that section 13 was being used to set a new requirement as to patentability.<sup>18</sup> Paragraph 7 asserts that "[i]n refusing to accept the naming of an AI system as an inventor on Form 7, the Comptroller is setting a further test for patentability that is not provided for in law and contradicts the generally held principle that inventorship should not be a substantial condition for the grant of patents".
- (2) The grounds of appeal also assert that the IPO "exceeded the powers conferred by section 13(2)(b)" because Dr Thayer "did satisfy the requirements of section 13(2)(b)".<sup>19</sup>

31. These points add nothing to the point articulated in paragraphs 4 to 6 of the grounds of appeal (summarised in paragraph 28 above), and the answer to them is as set out in paragraph 29 above.

32. In short, I reject Dr Thaler's contention that the effective starting point in analysing the law in this area is section 13 of the Patents Act 1977; and I do not accept without more that in rejecting the applications because the requirements of section 13 were not satisfied the IPO acted wrongly. It seems to me that Dr Thaler's contentions begin at the wrong place, and that the correct starting point is section 7 of the Patents Act 1977.

33. That, of course, does not mean to say that Dr Thaler's contentions as to his entitlement to be granted a patent are in substance wrong. To reach such a conclusion at this stage would be to prejudge the meaning and effect of section 7 of the Patents Act 1977. Accordingly, I now turn to consider the substance of this provision, and I consider Dr Thaler's submissions in the light of this provision.

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<sup>18</sup> Paragraphs 7 and 8 of the grounds of appeal

<sup>19</sup> Paragraphs 9 to 13 of the grounds of appeal. The quotations derive from paragraphs 10 and 11 respectively.

**(3) Section 7 of the Patents Act 1977**

**(a) *The applicant for a patent must be a person***

34. It is common ground that DABUS is not a person, whether natural or legal. DABUS is not a legal person because (unlike corporations) it has not had conferred upon it legal personality by operation of law. It is not a natural person because it lacks those attributes that an entity must have in order to be recognised as a person in the absence of specific (statutory) legal intervention.
35. It is, therefore, clear, that DABUS cannot make an application for a patent, whether by itself or jointly with another. Section 7(1) of the Patents Act 1977 provides that “[a]ny person may make an application for a patent either alone or jointly with another”.<sup>20</sup>
36. As I have noted, in this case DABUS is not the applicant: Dr Thaler is. The requirements of section 7(1) are, therefore, met.

**(b) *Classes to whom a patent may be granted***

37. The provisions of section 7(2) of the Patents Act 1977 are set out in full in paragraph 26 above. The nature of the provisions in section 7(2) is helpfully described in *Bentley on Intellectual Property Law*:<sup>21</sup>

“The starting point for determining issues of entitlement and ownership is section 7(2)(a). This provides that the right to be granted a patent is *primarily* given to the inventor or joint inventors. This focus upon the inventor follows the common practice whereby the creator is accorded the privileged status of first owner of intellectual property rights. Although the process of invention is frequently presented as being less creative than the production of literary or artistic works, patent law bears many of the marks of the romantic author. It is, at the very least, based on a model of an individual inventor – a matter emphasised in the 1977 Act by the requirement that the inventor is the ‘actual deviser’ of the invention.

The assumption that the inventor is the person who is properly entitled to grant of the patent can be overridden in two situations. The first of these is set out in section 7(2)(b). The states that the presumption in favour of the inventor as owner does not apply where it can be established that at the time the invention was made, another person was entitled to the invention by virtue of (i) any enactment or rule of law, (ii) any foreign law, treaty or international convention, or (iii) an enforceable term of any agreement entered into with the inventor before the making of the invention. Although the precise meaning of the section is unclear, it is widely accepted that it deals with employee inventions caught by section 39.

The second situation where the presumption that the inventor is the owner is overridden is set out in section 7(2)(c). This states that a patent may be granted ‘to the successor or successors in title of any person or persons mentioned in section 7(2)(a) or (b)’. This provision allows for the rights in the invention to be transferred to third parties...”

38. I shall, for the sake of convenience, refer to the classes defined in section 7(2) as **Class (a)**, **Class (b)** and **Class (c)** respectively. Before turning to Dr Thaler’s contentions, a number of points need to be made clear:

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<sup>20</sup> Emphasis added.

<sup>21</sup> Bentley, Sherman, Gangee and Johnson, *Intellectual Property Law*, 5<sup>th</sup> ed (2018) at 623-624.

- (1) First, the concluding words of section 7(2) (“...and to no other person...”) establish that there are only three classes to whom a patent for an invention may be granted – the three classes described in section 7(2).<sup>22</sup>
- (2) Secondly, Class (b) and Class (c) are defined by reference to the transfer to them of a property right. That right cannot be the patent itself, for section 7(2) is concerned with the classes to whom a patent may be granted. The right that is being transferred is the invention and/or the right to apply for a patent for the invention. Property rights in the context of patents are defined in section 30(1) of the Patents Act 1977:

“Any patent or application for a patent is personal property (without being a thing in action), and any patent or any such application and rights in or under it may be transferred, created or granted in accordance with subsections (2) to (7) below.”

- (3) Thirdly, the law differentiates between the first creation of a right and the subsequent transfer of that right. In this case, the invention is first created by the inventor (or inventors). That act of creation gives the inventor(s) the primary right to apply for and be granted a patent for the invention. They comprise Class (a). Classes (b) and (c) are derivative: their right to be granted a patent arises because of a transfer to them from the inventor(s) in Class (a). This point was made with great clarity in *Yeda* at [19]:

“In my opinion, therefore, the first step in any dispute over entitlement must be to decide who was the inventor or inventors of the claimed invention. Only when that question has been decided can one consider whether someone else may be entitled under paragraphs (b) or (c). In many cases, including the present, there will be no issue about paragraphs (b) or (c). If the invention was made by the Weizmann scientists, there is no dispute that Yeda is entitled under paragraphs (b) or (c). Likewise if the invention was made by Dr Schlessinger and his team.”

**(c) *The members of Classes (a), (b) and (c) are persons***

39. The question arises as to whether the members of Classes (a), (b) and/or (c) must be persons. Since the Applications were not made by DABUS, but by Dr Thaler, it was not necessary for Dr Thaler to contend that Classes (a), (b) and/or (c) were so wide as to embrace things as well as persons. Nevertheless, it is necessary to be clear as to the ambit of these classes, because Dr Thaler undoubtedly was contending that an “inventor” within the meaning of section 7 was not necessarily a person. It is important, before turning to the meaning of the term “inventor”, to be clear about the scope of Classes (a), (b) and (c).
40. It is quite clear from the statutory scheme contained in the Patents Act 1977 that – whatever the meaning of the term “inventor” – a patent can only be granted to a person. I reach this conclusion explicitly without considering the meaning of the term inventor. In my judgment, a patent can only be granted to a person falling within Classes (a), (b) or (c) for the following reasons:

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<sup>22</sup> See also, *Yeda* at [18], quoted in paragraph 29(3) above.

- (1) First, and most fundamentally, only a person can hold property and an invention, an application for the grant of a patent and the patent itself are all property rights. Were the 1977 Act to contemplate a thing owning another thing, then I would expect extremely clear language to be used in the Act to compel such a conclusion.
- (2) In fact, the language of the Patents Act 1977 makes clear that the holder of a patent must be a person:
  - (a) Since a patent is only granted on application, it follows from section 7(1) (“[a]ny person may make an application for a patent”) that the grant of a patent can only be to a person, because only a person may make an application for a patent.<sup>23</sup>
  - (b) Classes (b) and (c) explicitly refer to and define themselves by reference to the “person” that is the transferee of the inventor’s rights.<sup>24</sup>
  - (c) Class (a) does not – section 7(2)(a) refers only to “the inventor or joint inventors”. However, it seems to me that either an inventor must be a person or at section 7(2)(a) must be read as stating “primarily to the person(s) who are the inventor or joint inventors”, given the points made in paragraphs 40(1) and 40(2)(a) above.
41. I turn to the question of whether Dr Thaler falls within any of these three classes, he being the person making the Applications. I propose to consider each class in turn in the following paragraphs.
- (d) *Class (a)*
42. Although, as I understood Dr Thaler’s case, he abjured all reliance on Class (a), it is nevertheless necessary to understand exactly why the Applications by Dr Thaler do not fall within Class (a).
43. For his own part, Dr Thaler positively asserted that DABUS was the inventor and denied that status for himself. Thus, it appeared to be Dr Thaler’s position that neither he nor DABUS could fall within Class (a) because:
  - (1) Dr Thaler was a person but not the inventor; and
  - (2) DABUS was the inventor but not a person.
44. Although the consequence of this is that Class (a) is not engaged, it is nevertheless necessary to determine the meaning of the term “inventor”, for the scope of this term (and, specifically, that DABUS fell within it) was central to Dr Thaler’s submission that he was entitled to the grant of a patent.
45. It is, as I have found, possible to construe section 7(2)(a) in such a way that only persons fall within the scope of Class (a), but that the term “inventor” extends to both

<sup>23</sup> Emphasis supplied in the quotation. See further paragraphs 34 to 36 above.

<sup>24</sup> See the express words of sections 7(2)(b) and 7(2)(c).

persons and to things.<sup>25</sup> Whilst it is, in theory, possible for the definition of “inventor” to be stretched in this way, that seems to me an unlikely construction of the 1977 Act, which I reject. That is for a number of reasons:

- (1) Absent a case falling within Class (b) or Class (c), the default person entitled to the grant of a patent for an invention is the “inventor”. It seems to me that the 1977 Act proceeds on the basis that there is a correlation between the inventor and the invention in that every invention has an inventor such that every inventor can fall within Class (a). It may be that the advent of artificial intelligence causes this scheme to fracture, but it seems to me that it would be wrong as a matter of construction to invite such a fracture, rather than to avoid it if that can be done:
  - (a) It seems to me that it would be altogether a curious, and probably indefensible, reading of the 1977 Act were it possible for a thing (like DABUS) to be recognised as the inventor of an invention without thereby falling within Class (a).
  - (b) That, however, is the consequence of Dr Thaler’s construction. DABUS is, according to him, both a thing and the sole inventor of the inventions described in the Applications. On this basis, there is an invention, but no person falling within Class (a).
  - (c) The consequence of Dr Thaler’s construction would be that there is a class of invention – inventions where the inventor is not a person but a thing lacking personality, a machine – that is unpatentable not because the invention is not a patentable one, but because of the nature of the inventor.

This, as it seems to me, is a powerful argument in support of the definition of the “inventor” as the person who is the actual deviser of the invention.<sup>26</sup> As will be seen, this construction derives powerful support both from the 1977 Act and the case-law.

- (2) The Patents Act 1977 provides in section 130(1) that “inventor” has the meaning assigned to it by section 7. Section 7(3) of the Patents Act 1977 provides:

“In this Act, ‘inventor’ in relation to an invention means the actual deviser of the invention and ‘joint inventor’ shall be construed accordingly.”

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<sup>25</sup> See paragraph 40 above. For the reasons I have given, it is my conclusion that Class (a) includes only persons. The question I am now considering is whether that conclusion is reached by virtue of the fact that an “inventor” within the meaning of section 7 is inevitably a person.

<sup>26</sup> I heard no argument on the converse question of whether the owner of the machine that has “invented” an invention can him- or herself be regarded as the “inventor”. Dr Thaler, as has been seen, denied that he was the inventor and the IPO – entirely rightly – therefore did not address the point. I raise this question, but without resolving it, in paragraph 52(2) below. It is entirely possible, for different reasons, that in the case of machine-created inventions, there is no “inventor”, and that the outcome I am seeking to avoid – an invention without an inventor – is reached because the person owning the machine is not the “actual deviser” of the invention. As I explain in paragraph 52(2) below, this is not a question on which I can reach a view, as the point was not before me. However, it is important that I make clear that I consider the point an open one and that nothing in this judgment is to be taken as determining it.

Dr Thaler quite correctly submitted that section 7(3) contains no express statement that an inventor must be a person. However, the term “deviser” at least implies someone devising something. In short, the natural reading is that the inventor is a person and the invention a thing.

- (3) In *Yeda*, Lord Hoffmann said this about the definition in section 7(3):<sup>27</sup>

“The inventor is defined in section 7(3) as “the actual deviser of the invention”. The word “actual” denotes a contrast with a deemed or pretended deviser of the invention; it means, as Laddie J said in *University of Southampton’s Applications* [2005] RPC 220, 234, the natural person who “came up with the inventive concept.” It is not enough that someone contributed to the claims, because they may include non-patentable integers derived from prior art: see *Henry Brothers (Magherafelt) Ltd v Ministry of Defence* [1997] RPC 693, 706; [1999] RPC 442. As Laddie J said in the *University of Southampton* case, the “contribution must be to the formulation of the inventive concept”. Deciding upon inventorship will therefore involve assessing the evidence adduced by the parties as to the nature of the inventive concept and who contributed to it. In some cases this may be quite complex because the inventive concept is a relationship of discontinuity between the claimed invention and the prior art. Inventors themselves will often not know exactly where it lies.”

This is very high authority supporting the meaning of “inventor” as a person. Indeed, in *Yeda*, Lord Hoffmann went further, and refers to the inventor as the natural person who came up with the inventive concept.<sup>28</sup> As to this:

- (a) There is no authority to which I was referred or which I have myself been able to find which explains why the inventor is limited to natural persons only, as opposed to including also legal persons. Whilst one can see the need to limit Class (a) and so the term “inventor” to someone having personality, the exclusion of legal persons from the definition seems less clear-cut. The 1977 Act could, after all, have explicitly referred to “natural persons” rather than just the “inventor”.
- (b) On one level, the point may not matter in this case, since (on any view) DABUS is not a person. But because Dr Thaler’s arguments regarding the Patents Act 1977 ranged widely, I consider that it is important to reach a holistic view of the operation of the relevant provisions in the 1977 Act.
- (c) It seems to me that, when once the notion of an “inventive step” is factored in, the restriction of the term “inventor” to natural person becomes inevitable. An “invention” by definition<sup>29</sup> must involve an “inventive step”, which is something “not obvious to a person skilled in the art”.<sup>30</sup> It is difficult to see how an inventive step can be conceived of by a corporation – which must act through agents – without also striking one of

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<sup>27</sup> At [20].

<sup>28</sup> Although Lord Hoffmann referred to Laddie J’s decision in *University of Southampton’s Applications* [2005] RPC 220 at 234, there is no discussion of this point in Laddie J’s decision. He simply refers to “who came up with the inventive concept or concepts. He or they are the inventors...”.

<sup>29</sup> See section 1(1)(b) of the Patents Act 1977.

<sup>30</sup> Section 3 of the Patents Act 1977.

those agents. In other words, the inventive step in the mind of a natural person is attributed to the corporation, which only has the inventive step in its “mind” by virtue of such attribution.<sup>31</sup> There is some sense in keeping the definition of inventor close to that which must arise out of the mind of an individual.

(d) This construction is supported by two other aspects in the Act:

- (i) First, sections 39ff contain detailed provisions regarding employees’ inventions. In essence, whilst the employee remains the inventor, there are many circumstances in which the invention is statutorily transferred to the employer. Given that the employee will typically be a natural person and the employer typically a legal person, these sections seem to me to underline that the inventive concept is very much a matter arising from the mind of a natural person, whilst the economic benefits of the invention pass to another, in this case the employer.
- (ii) Section 7(3) refers to the “actual deviser of the invention”.<sup>32</sup> Some meaning must be given to this word: it seems to me that the point of the use of this term is to emphasise that attribution of an inventive concept to a non-natural person is not something that falls within the meaning of the term “inventor”, because such a person is not the “actual” deviser of the invention.

(4) I shall come to consider the scope of Classes (b) and (c) in greater detail, but at least at first sight these classes concern the transfer (in different ways) of a right that originally vested in the inventor. As I have noted,<sup>33</sup> the law differentiates between the first creation of rights in property and their subsequent transfer. Class (a) is an instance of the former; and Classes (b) and (c) instances of the latter. It follows that persons falling within Classes (b) and (c) can only derive their rights (whether directly or indirectly, for there may be multiple transfers) from an inventor, who must be capable of holding and transferring property, viz the invention and the right to apply for a patent. Again, this is a strong indicator that an inventor must be a person, particularly when section 7(2)(a) refers to an “inventor” and not to a “person”. The inevitable reading, as it seems to me, is that an “inventor” is a person.

46. I should stress that nothing in this analysis should be taken to suggest that DABUS is not itself capable of an inventive concept. As I have noted, I am proceeding on the basis that DABUS has “invented” the inventions the subject of the Applications. Nevertheless, I conclude that DABUS is not, and cannot be, an inventor within the meaning of the 1977 Act, simply because DABUS is not a person.

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<sup>31</sup> Hence Lord Hoffmann’s reference, in s reference, in *Yeda*, to a “deemed” or “pretended” deviser: see paragraph 45(3) above.

<sup>32</sup> Emphasis added.

<sup>33</sup> See paragraph 38(3) above.

(e) *Classes (b) and (c)*

47. It is convenient to deal with these two classes together because (in different ways) they concern transfers of property to persons within each class in accordance with the mechanisms described.
48. It is – as I have noted – plain that the members of both classes are and must be persons. That, in itself, is not a difficulty in the case of the Applications: Dr Thaler is, undoubtedly, a person. It is unnecessary to decide whether Classes (b) and (c) are, like Class (a), limited to natural persons to the exclusion of legal persons. Such a conclusion would be a surprising one: unlike in the case of inventors, there is no intrinsic reason why corporations should be excluded from being granted patents in the case of Class (b) and Class (c); and the economic disruption of a conclusion that legal persons were excluded would be considerable. To my mind, the reason why section 7(2)(a) referred to an “inventor” and not to “the person inventing”, whilst sections 7(2)(b) and (c) refer to a “person” was precisely to underline this distinction.
49. In my judgment, Dr Thaler’s contention that he is entitled to the grant of patents pursuant to the Applications because he falls within one of Class (b) or Class (c) is hopeless and must fail:
- (1) Dr Thaler has abjured the status of inventor. He says DABUS is the inventor, whilst conceding that DABUS is not a person. Even if I accepted that DABUS was capable of being an “inventor” – which, for the reasons I have given, I do not – Dr Thaler’s application would be hopeless, because DABUS would – by reason of its status as a thing and not a person – be incapable of conveying any property to Dr Thaler. In short, the ability to transfer, which DABUS lacks, is fatal to Dr Thaler’s contentions. The same point can be put in a different way: because DABUS is a thing, it cannot even hold property, let alone transfer it.
  - (2) Dr Thaler is a person quite capable of being the transferee of a property right. The problem that he has is that there is nothing to be transferred to him and nobody capable of transferring it. This difficulty was highlighted in Dr Thaler’s inability to identify any mechanism or transaction (whether within section 7(2)(b) or (c) or otherwise) whereby rights could pass to him. The best that Dr Thaler could do was to rely on his ownership and control of DABUS, which for the purposes of this appeal I am prepared to accept.<sup>34</sup> In his written submissions, Dr Thaler advanced the contention that “if you own the machine, you own the output of that machine”.<sup>35</sup> In particular, at paragraph 67, Dr Thaler contended:

“A product made by a machine, such as an industrial product, belongs to the owner or beneficial owner of the machine. This applies whether or not the product is precisely as intended by the operator of the machine or if the product is altered in some way, for instance by a malfunction of the machine or by a modification brought

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<sup>34</sup> I proceed on the basis that Dr Thaler is the only person involved in the ownership and operation of DABUS. If – contrary to my conclusion – ownership or something like it were sufficient to effect a transfer of the invention or the right to apply for a patent, it would be necessary to articulate clearly what forms of ownership and/or control would suffice. These are not matters that I need to consider in this judgment.

<sup>35</sup> See, for instance, paragraphs 66ff of Dr Thaler’s written submissions.

about by machine learning. There has never been any suggestion and there is no law that would entitle the machine to own any rights in a product it manufactured, whether or not the resultant product was precisely in accordance with the intentions of the operator of the machine. There is no reason to consider the position to be any different if the manufacture of that product *per se* results in the generation any other rights such as intellectual property rights.”

Dr Thaler relied on an analogous case arising out of the law of copyright. The relevant law is helpfully set out in *Copinger and Skone James on Copyright*.<sup>36</sup>

“Few people would have any difficulty with the concept that someone who uses word-processing software to write a document is the author of that document. The software is a tool for writing, it does not supply the necessary ingredient of “originality”, i.e. the skill, labour and judgment (intellectual creativity) required for the composition of the document. Software can, however, assist in the creative process to a much greater degree. Many types of software, for example, enable complex images and structures to be designed with the assistance of graphical libraries and rules. Software can perform extremely complex calculations to generate data for scientific and other uses, and from this generate complex outputs, including music, still or moving images, and other computer programs. The question then arises as to whether a work created with the aid of such software has a human author, and if so, who it is. In many cases, of course, the software will merely be a tool used by an individual to create a work. When framing the [Copyright, Design and Patents Act 1988], however, it was recognised that there may be circumstances when it may be impossible to identify a human author of such a work, the only immediate human involvement perhaps being the activation of a machine. Against this eventuality, the 1988 Act provides for a special category of works, namely those which are “computer-generated”, being those works generated by a computer in circumstances such that there is no human author. In relation to such works, the author is to be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken. This definition uses the same terminology as is used in relation to the definition of “producer” in the context of determining the author of a film. So, where arcade video games generated composite frames, each of which was a computer-generated work, then the arrangements necessary for the creation of the works were considered to have been undertaken by the person who had devised the appearance of the various elements of the game and the rules and logic by which each frame was generated and who had written the relevant computer program. The player of the game was not, however, an author of any of the artistic works created in the successive frame images. His input was not artistic in nature and he had contributed no skill or labour of an artistic kind. Nor had he undertaken any of the arrangements necessary for the creation of the frame images. All he had done was to play the game.

The differences between such works and works of which there is a human author are significant. Not only is the question of authorship and thus ownership affected but also there is problem in understanding how a computer-generated work could satisfy the requirement of originality under the Act.”

(3) As to this:

- (a) Although the IPO rightly warned against over-generalisation, I am quite prepared to accept that there is a general rule that the owner of a thing is

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<sup>36</sup> Davies, Caddick and Harbottle, *Copinger and Skone James on Copyright*, 17<sup>th</sup> ed (2016) at [4-25].

owner of the fruits of that thing. Thus, the owner of a fruit tree will generally own the fruit produced by that tree.

- (b) The problem – as the passage from *Copinger* quoted above illustrates – is that such rules need to be framed with a degree of care and specificity, at least where the rules regarding the property in question are statutory.<sup>37</sup> No such rules have been framed in the context of patents, the statutory regime for which is contained in the Patents Act 1977.
- (c) Moreover, in the context of patents, there are particular difficulties. That is because – unlike in the case of the hypothetical fruit tree or, indeed, copyright – merely inventing something does not result in a patent being granted to the inventor. As has been seen, in order to be granted, a patent must be applied for – and that must be done by a person. It is therefore quite impossible to say that simply because (i) DABUS has invented something and (ii) Dr Thaler owns DABUS, Dr Thaler is entitled to the grant of a patent. There must either be an application by the inventor within section 7(2)(a) (which cannot be made because DABUS is not an inventor nor a person) or the inventor must have transferred the right to apply enabling Dr Thaler to apply under one of section 7(2)(b) or (c) (which again cannot be in this case).
- (d) It would be far easier to contend that Dr Thaler was entitled to the grant of a patent pursuant to section 7(2)(a) of the Patents Act 1977, on the ground that he (Dr Thaler) owned the machine that did the inventing. That would actually be a much closer analogy to the general proposition advanced by Dr Thaler that “if you own the machine, you own the output of that machine”. However, as I have noted, this was not a contention advanced by Dr Thaler: indeed, it was positively not advanced.

#### (4) Conclusion

- 50. For all these reasons, the various grounds of appeal advanced by Dr Thaler in relation to section 13 of the Patents Act 1977 (but, for the reasons I have given, really engaging section 7 of that Act) fail and must be dismissed.

#### E. DISPOSAL AND POSTSCRIPT

- 51. For all these reasons, the grounds of appeal fail and Dr Thaler’s appeal must be dismissed. I will leave it to the parties to frame the appropriate order.
- 52. There are two points that I should make by way of postscript:
  - (1) I have reached my conclusions essentially by reference to the Patents Act 1977, and the law relating to that Act, with a minor detour into copyright. Both sides put before me legal materials ranging well beyond the Patents Act 1977. I have considered that material, but it did not assist me, both because (as it seems to me) the provisions of the Patents Act 1977 are extremely clear and because nothing

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<sup>37</sup> The common law can proceed on its usual, incremental, basis.

particularly clear-cut in terms of analogy could be derived from these other areas of law.

- (2) As I have noted, the question of whether the owner/controller of an artificially intelligent machine that “invents” something can be said, him- or herself, to be the inventor was not a matter that was argued before me. Dr Thaler expressly declined to advance that submission not merely because he considered it bad in law, but more importantly because (in moral terms) he considered that he would illegitimately be taking credit for an invention that was not his. Clearly, what arguments are or are not framed in relation to patent applications are matters for the applicant. However, I would wish to make clear that I in no way regard the argument that the owner/controller of an artificially intelligent machine is the “actual deviser of the invention” as an improper one. Whether the argument succeeds or not is a different question and not one for this appeal: but it would be wrong to regard this judgment as discouraging an applicant from at least advancing the contention, if so advised.

# FEDERAL COURT OF AUSTRALIA

## Commissioner of Patents v Thaler [2022] FCAFC 62

Appeal from: *Thaler v Commissioner of Patents* [2021] FCA 879

File number: VID 496 of 2021

Judgment of: **ALLSOP CJ, NICHOLAS, YATES, MOSHINSKY AND BURLEY JJ**

Date of judgment: 13 April 2022

Catchwords: **PATENTS** – artificial intelligence – where *Patents Regulations 1991* (Cth) require name of the inventor to be provided in application under the Patent Cooperation Treaty – where patent application named DABUS, an artificial intelligence machine, as inventor – where parties agreed that the invention described in the patent application was the output of the process undertaken by DABUS – where Deputy Commissioner of Patents determined that patent application did not comply with *Patents Regulations* – where primary judge set aside decision of Deputy Commissioner – concept of “inventor” under the *Patents Act 1990* (Cth) – whether inventor must be a natural person – relationship between inventor and person entitled to be granted a patent – appeal allowed

Legislation: *Constitution* s 51(xviii)  
*Acts Interpretation Act 1901* (Cth) ss 2(1), 2C, 15AA  
*Patents Act 1903* (Cth) s32(2)  
*Patents Act 1952* (Cth) s 34(1)  
*Patents Act 1990* (Cth) ss 2A, 13, 14, 15, 29, 29A, 31, 32, 33, 34, 36, 45, 49, 59, 64(2)(a), 101B(2), 101E(1) 113, 138, 172, 182, 188, sch 1  
*Patents Regulations 1991* (Cth) reg 3.1A, 3.2C, 3.2C(2)(aa), 3.18(2)(a)(i), 3.18(2)(f)  
*Statute of Monopolies 1624* (21 Jac c 3) s 6

Blackstone’s *Commentaries of the Laws of England* (Clarendon Press, Book 2, 1766)  
Explanatory Memorandum, Intellectual Property Laws Amendment (Productivity Commission Response Part 2 and other Measures) Bill 2019 (Cth)  
Explanatory Memorandum, Patents Bill 1989 (Cth)  
Explanatory Statement, *Select Legislative Instrument No.*

88, 2015

Hindmarch, *The Law Relating to Patents* (1846)

Industrial Property Advisory Committee (1984) *Patents, Innovation and Competition in Australia: a report to the Hon. Barry O. Jones, MP, Minister for Science and Technology, 29 August 1984*

Terrell, T, Terrell C, Jones JR, *Terrell on the Law of Patents* (8<sup>th</sup> ed, Sweet & Maxwell, London, 1934)

Cases cited:

*Alcan (NT) Alumina Pty Ltd v Commissioner of Territory Revenue (Northern Territory)* [2009] HCA 41; 239 CLR 27  
*Alphapharm Pty Ltd v Lundbeck A/S* [2014] HCA 42; 254 CLR 247

*Atlantis Corporation v Schindler* [1997] FCA 1105; 39 IPR 29

*D'Arcy v Myriad Genetics Inc* [2015] HCA 35; 258 CLR 334

*Deal v Father Pius Kodakkathanath* [2016] HCA 31; 258 CLR 281

*Dunlop v Cooper* [1908] HCA 67; 7 CLR 146

*JMVB Enterprises Pty Ltd v Camoflag Pty Ltd* [2005] FCA 1474; 67 IPR 68

*JMVB Enterprises Pty Ltd v Camoflag Pty Ltd* [2006] FCAFC 141; 154 FCR 348

*Kafataris v Davis* [2016] FCAFC 134; 120 IPR 206

*Kimberly-Clark Australia Pty Ltd v Arico Trading International Pty Ltd* [2001] HCA 8; 207 CLR 1

*Marsden v The Saville Street Foundry and Engineering Co Ltd* (1878) 3 Ex D 203

*Miller v Miller* [2011] HCA 9; 242 CLR 446

*National Resource Development Corporation v Commissioner of Patents* [1959] HCA 67; 102 CLR 252

*No-Fume Ltd v Frank Pitchford & Co Ltd* (1935) 52 RPC 231

*Polwood Pty Ltd v Foxworth Pty Ltd* [2008] FCAFC9; 165 FCR 527

*Prestige Group v Dart Industries Inc* [1990] FCA 406; 26 FCR 197

*R v Wheeler* (1819) 2 B & Ald. 345

*Regional Express Holdings Ltd v Australian Federation of Air Pilots* [2017] HCA 55; 262 CLR 456

*Stack v Davies Shephard Pty Ltd* [2001] FCA 501; 108 FCR 422

*Stephen L. Thaler* [2021] APO 5

*Tate v Haskins* [1935] HCA 40; 53 CLR 594

*Thaler v Commissioner of Patents* [2021] FCA 879; 160 IPR 72

*Thaler v Comptroller General of Patents, Trade Marks and Designs* [2021] EWCA Civ 1374

*The Clothworkers of Ipswich Case* (1615) Godb 252; 78 ER 147

*University of Western Australia v Gray (No 20)* [2008] FCA 498; 76 IPR 222

*University of Western Australia v Gray* [2009] FCAFC 116; 179 FCR 346

*Vehicle Monitoring Systems Pty Ltd v SARB Management Group Pty Ltd* [2020] FCA 408; 150 IPR 216

*Vehicle Monitoring Systems Pty Ltd v SARB Management Group Pty Ltd* [2021] FCAFC 224

Division:	General Division
Registry:	Victoria
National Practice Area:	Intellectual Property
Sub-area:	Patents and associated Statutes
Number of paragraphs:	123
Date of hearing:	9 February 2022
Counsel for the Appellant:	Ms S Goddard SC with Mr H Bevan SC
Solicitor for the Appellant:	Australian Government Solicitor
Counsel for the Respondent:	Mr D Shavin QC with Ms C Cunliffe
Solicitor for the Respondent:	Allens

## **ORDERS**

**VID 496 of 2021**

**BETWEEN:**            **COMMISSIONER OF PATENTS**  
Appellant

**AND:**                **STEPHEN THALER**  
Respondent

**ORDER MADE BY:** **ALLSOP CJ, NICHOLAS, YATES, MOSHINSKY AND  
BURLEY JJ**

**DATE OF ORDER:** **13 APRIL 2022**

### **THE COURT ORDERS THAT:**

1.     The appeal be allowed.
2.     Orders 1, 2 and 3 of the orders made on 30 July 2021 be set aside.
3.     There be no order as to costs.

Note: Entry of orders is dealt with in Rule 39.32 of the *Federal Court Rules 2011*.

## REASONS FOR JUDGMENT

### THE COURT:

1	INTRODUCTION	[1]
2	AGREED FACTS	[8]
3	RELEVANT LEGISLATION	[9]
4	THE DECISION OF THE DEPUTY COMMISSIONER	[30]
5	THE DECISION OF THE PRIMARY JUDGE	[39]
6	THE SUBMISSIONS	[59]
6.1	The Commissioner's submissions	[59]
6.2	Dr Thaler's submissions	[64]
7	CONSIDERATION	[73]
8	DISPOSITION	[123]

### 1. INTRODUCTION

- 1 The central question in this appeal is whether a device characterised as an artificial intelligence machine can be considered to be an “inventor” within the meaning ascribed to that term in the *Patents Act 1990* (Cth) and the *Patents Regulations 1991* (Cth).
- 2 The respondent, Stephen Thaler, is the applicant for patent **application** No. 2019363177 entitled “Food container and devices and methods for attracting enhanced attention” which was filed on 17 September 2019 under the terms of the Patent Cooperation Treaty (Washington, 19 June 1970) (**PCT**). In the application, Dr Thaler gave as the name of the inventor “**DABUS**” with the additional comment “[t]he invention was autonomously generated by an artificial intelligence”. DABUS is an acronym for “device for the autonomous bootstrapping of unified sentence”.
- 3 The application entered the national phase of processing on 9 September 2020, and, shortly after that date, IP Australia wrote to Dr Thaler’s patent attorneys stating that the application did not comply with reg 3.2C of the *Regulations* because it failed to identify a natural person as the inventor. IP Australia invited Dr Thaler to supply the name of one or more natural persons as the inventors, or provide submissions explaining how DABUS could be recorded as an inventor, failing the acceptance of which the application would lapse. Dr Thaler advanced

submissions in support of the position that an artificial intelligence could legitimately be named as an inventor.

4 The question was considered by Dr S D Barker, the **Deputy Commissioner** of Patents, who determined that the terms of the *Patents Act* and *Regulations* were inconsistent with an artificial intelligence being treated as an inventor: *Stephen L. Thaler* [2021] APO 5. The consequence was that the application lapsed.

5 Dr Thaler applied to this Court for judicial review of the decision of the Deputy Commissioner on the basis that he had erred in law. The primary judge concluded that an inventor as recognised under the *Patents Act* can be an artificial intelligence system or device and ordered that the Deputy Commissioner's determinations be set aside: *Thaler v Commissioner of Patents* [2021] FCA 879; 160 IPR 72 (J) at [226]-[227].

6 The **Commissioner** of Patents now appeals from the decision of the primary judge on two broad bases, each particularised in multiple ways. First, that the primary judge misconstrued s 15 of the *Patents Act* and reg 3.2C(2)(aa) of the *Regulations* and, secondly, that the primary judge erred by making factual findings beyond the evidence before the Court. She seeks orders that the orders of the primary judge be set aside and that the application before the primary judge be dismissed.

7 For the reasons set out below, we find that the appeal must be allowed.

## 2. AGREED FACTS

8 The following facts were agreed between the parties for the purpose of the present proceedings:

- (1) Artificial intelligence systems are implemented within machines and are programmed to simulate specific thought processes and actions of humans. Artificial neural networks are implemented within machines and self-organise to simulate the way in which the human brain processes and generates information. Artificial intelligence systems may incorporate, or be constituted by, artificial neural networks.
- (2) DABUS is an artificial intelligence system that incorporates artificial neural networks.
- (3) The output of DABUS is an alleged invention the subject of the application.
- (4) DABUS is not a natural or a legal person

(5) Dr Thaler is the owner of the copyright in the DABUS source code, the owner of the computer on which DABUS operates, and is responsible for the maintenance and running costs of DABUS and the computer on which it operates.

(6) Dr Thaler is not the inventor of the alleged invention the subject of the application.

### 3. RELEVANT LEGISLATION

9 The parties agreed that the relevant form of the *Patents Act* is compilation No. 49 and the form of the *Regulations* is compilation No. 72, both of which are dated 26 August 2021.

10 Section 2A of the *Patents Act* provides:

#### **Object of this Act**

The object of this Act is to provide a patent system in Australia that promotes economic wellbeing through technological innovation and the transfer and dissemination of technology. In doing so, the patent system balances over time the interests of producers, owners and users of technology and the public.

11 Chapter 2 of the *Patents Act* is entitled “[p]atent rights, ownership and validity”.

12 Within Part 1 of Chapter 2 is s 13(1), which provides that the exclusive rights given by a patent to the patentee are “to exploit the invention and to authorise another person to exploit the invention”.

13 Section 13(2) provides that the exclusive rights are personal property and are capable of assignment and of devolution by law.

14 Section 14(1) provides that an assignment of a patent must be in writing, signed by or on behalf of the assignor and assignee.

15 Within Part 2 of Chapter 2 is s 15, which is central to this appeal. It provides:

#### **15 Who may be granted 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.

16 Chapter 3 is entitled “[f]rom application to acceptance” and concerns the process of making an application for a patent, the examination of such an application and the acceptance of a patent application by the Commissioner.

17 Section 29 sets out rules for the making of an application for a patent. It provides:

**29 Application for patent—general rules**

- (1) A person may apply for a patent for an invention by filing, in accordance with the regulations, a patent request and such other documents as are prescribed.
- (2) An application may be a provisional application or a complete application.
- (3) A patent request in relation to a provisional application must:
- (a) be in the approved form; and
  - (b) be in English; and
  - (c) be accompanied by a provisional specification.
- (4) The provisional specification referred to in paragraph (3)(c) must:
- (a) be in the approved form; and
  - (b) be in English.
- (4A) A patent request in relation to a complete application must:
- (a) be in the approved form; and
  - (b) be in English; and
  - (c) be accompanied by a complete specification; and
  - (d) comply with the formalities requirements determined in an instrument under section 229.
- (4B) The complete specification referred to in paragraph (4A)(c) must:
- (a) be in the approved form; and
  - (b) be in English; and
  - (c) comply with the formalities requirements determined in an instrument under section 229.
- (5) In this section:
- person* includes a body of persons, whether incorporated or not.

18 Section 29A supplies particular rules for making PCT applications:

**29A Applications for patents—special rules for PCT applications**

- (1) A PCT application is to be treated as a complete application under this Act for a standard patent.
- (2) The description, drawings, graphics, photographs and claims contained in a PCT application are to be treated as a complete specification filed in respect of the application.
- (3) The specification of a PCT application is to be taken to be amended in the circumstances, on the day and in the manner as prescribed by the regulations.
- (4) A PCT application is to be taken to comply with the prescribed requirements of this Act that relate to applications for standard patents, but is not to be taken, merely because of subsection (1) or (2), to comply with any other requirements of this Act.
- (5) An applicant of a PCT application must do the following within the prescribed period:
  - (a) if the application was not filed in the receiving Office in English—file a translation of the application into English;
  - (b) in any case—file the prescribed documents and pay the prescribed fees.
- (6) An applicant is not entitled to ask that any action be taken, or that he or she be allowed to take any action, under this Act in relation to a PCT application unless the following requirements of subsection (5) have been met (if applicable):
  - (a) a translation of the application into English has been filed;
  - (b) the prescribed documents have been filed;
  - (c) the prescribed fees have been paid.

Note: A failure to comply with subsection (5) may also result in the PCT application lapsing: see paragraph 142(2)(f).

19 It is an agreed fact that the application satisfies the requirements of s 29A(5).

20 Regulation 3.2C is accordingly applicable:

### **3.2C Specifications—formalities check for PCT application**

- (1) This regulation applies to a PCT application if the applicant complied with the requirements of subsection 29A(5) of the Act.
- (2) The applicant must:
  - (a) provide:
    - (i) an address for service in Australia or New Zealand at which a document under the Act or these Regulations may be given to the applicant personally, or to a person nominated as the applicant's representative; or
    - (ii) another address for service in Australia to which it is practicable and reasonable for Australia Post, or a

- person acting for Australia Post, to deliver mail; or
- (iii) an address for service in New Zealand to which it is practicable and reasonable for a person providing mail delivery services to deliver mail; and
- (aa) *provide the name of the inventor of the invention to which the application relates.*
- (3) The PCT application must comply with the formalities requirements determined in an instrument under section 229 of the Act.
- (4) *The Commissioner may, within one month from the date the applicant complied with subsection 29A(5) of the Act, direct the applicant to do anything necessary to ensure that the requirements mentioned in subregulations (2) and (3) are met.*
- (5) The PCT application lapses if:
  - (a) the applicant has been given a direction under subregulation (4); and
  - (b) the applicant has not complied with the direction within 2 months of the date of the direction.
- (6) If the PCT application lapses under subregulation (5), the Commissioner must:
  - (a) advertise that fact in the *Official Journal*; and
  - (b) notify the applicant that the PCT application has lapsed.

(emphasis added)

- 21 Regulation 3.1A(2) provides that for a PCT application, the applicant is taken to be the “nominated person”.
- 22 Section 31 of the *Patents Act* provides that two or more persons (within the meaning of s 29) may make a joint patent application.
- 23 Section 32 provides that the Commissioner may make determinations to enable an application to proceed in the event that a dispute arises between any two or more joint applicants.
- 24 Section 33(1) provides:

### **33 Applications by opponents etc.**

*Opposition to standard patent if a person other than nominated person eligible for grant of patent*

- (1) If:
  - (a) an application has been made for a standard patent; and
  - (b) the grant of the standard patent is opposed under section 59 by one or more persons; and

- (c) the Commissioner decides, under section 60, that:
  - (i) one or more opponents are eligible persons in relation to the invention, so far as claimed in any claim of the opposed patent application (the *original claim*); and
  - (ii) the nominated person in respect of the application is not an eligible person in relation to the invention; and
  - (iii) there is no other reason that a patent should not be granted; and
- (d) a complete application is made under section 29 by one or more of the eligible persons for a patent in relation to the invention;

the Commissioner may grant those eligible persons a patent jointly for the invention, so far as so claimed.

25 Section 33(2) provides that, where one or more persons opposes the grant of a patent and the Commissioner decides that both the “nominated person” and one or more of the opponents are eligible persons in relation to the invention, the Commissioner may grant a patent for the invention to those eligible persons jointly. Sections 33(3) and (4) provide provisions to a similar effect in relation to innovation patents.

26 Division 2 of Part 1 of Chapter 3 sets out the formal requirements for patent specifications.

27 Chapter 5 concerns oppositions to the grant of standard patents. Section 59 provides that the Minister or any other person may, in accordance with the *Regulations*, oppose the grant of a standard patent. One ground is:

- (a) that the nominated person is either:
  - (i) not entitled to a grant of a patent for the invention; or
  - (ii) entitled to a grant of a patent for the invention but only in conjunction with some other person;

28 Section 138(1) provides that the Minister or any other person may apply to a prescribed court for an order revoking a patent. Section 138(3)(a) provides that one ground for revoking a patent is that “the patentee is not entitled to the patent”.

29 Schedule 1 of the *Patents Act* provides a **dictionary** of terms. These relevantly include the following:

*invention* means any manner of new manufacture the subject of letters patent and grant of privilege within section 6 of the Statute of Monopolies, and includes an alleged invention.

...

***nominated person*** means the person identified in a patent request as the person to whom the patent is to be granted.

...

***patentee*** means the person for the time being entered in the Register as the grantee or proprietor of a patent.

#### 4. THE DECISION OF THE DEPUTY COMMISSIONER

30 In his decision, the Deputy Commissioner recited the history of the application whereby, after the application entered the national phase of processing, a formalities check was undertaken as required by reg 3.2C, and a direction was issued stating that it was the Commissioner’s understanding that an inventor must be a natural person. The Deputy Commissioner noted that Dr Thaler responded by submitting that DABUS should be listed as the inventor because, whilst he accepted that the *Patents Act* requires a person to be granted a patent, in the present case he “derives title to the invention from the inventor” pursuant to s 15(1)(c) because he owns and created DABUS and is entitled to its output. Dr Thaler developed this point with a submission that he repeated before the primary judge and in the present appeal:

The common law confers ownership of anything produced by DABUS to its owner, the applicant. There is a general rule that the owner of a thing is the owner of the fruits of that thing, much like the owner of a fruit tree is entitled to the fruit produced by that tree. The principle of accession or first possession can apply.

31 The Deputy Commissioner identified the relevant issue as being whether an artificial intelligence machine is capable of being an inventor for the purposes of the *Patents Act* and *Regulations*. After referring to several provisions of the *Patents Act* and *Regulations* and passages of case law said to aid in their interpretation, the Deputy Commissioner determined that the requirement that the patent applicant name “the inventor of the invention” in reg 3.2C(2)(aa) is to be understood in the context of s 15.

32 In deciding against Dr Thaler, the Deputy Commissioner made three main points. He **first** noted that the *Patents Act* includes no definition of the word “inventor”. He considered that it is a word that should bear its ordinary English meaning and that any standard dictionary shows that the traditional meaning of “inventor” is “a person who invents”. He noted that no evidence was adduced to indicate that in the present day an inventor can include a machine.

33 He **secondly** tested the proposition that “inventor” could include a machine by considering whether or not this would be consistent with the other provisions of the *Patents Act* having regard to the objects of the *Patents Act*, set out in s 2A (see [10] above), and the terms of s 15.

- 34 The Deputy Commissioner noted that s 15(1) provides that a patent for an invention may only be granted to a “person” who is defined as the “nominated person” in reg 3.1A. He observed that such a grantee includes a natural person and extends, by virtue of the operation of s 2C of the *Acts Interpretation Act 1901* (Cth), to include “a body politic or corporate as well as an individual”. However, he observed that the entitlement of the person to whom a patent has been granted (that is, the patentee) flows from the inventor and, absent devolution, the inventor will become the patentee. The Deputy Commissioner considered that this implied that the inventor must also be a person. In the alternative, he posed the question of whether it was possible to identify a person who meets the requirements of s 15(1) if the inventor is taken to be an artificial intelligence machine.
- 35 The Deputy Commissioner considered that in *JMVB Enterprises Pty Ltd v Camoflag Pty Ltd* [2006] FCAFC 141; 154 FCR 348 at [69]-[72] the Full Court (Emmett, Stone and Bennett JJ) resolved that an inventor is “whoever devises the invention” and that s 15(1) is so organised that the grant of a patent is limited, relevantly, to a person who is either the inventor or to a person who derives title to the invention from the inventor.
- 36 The Deputy Commissioner considered that s 15(1) is not workable if the inventor is an artificial intelligence machine. Starting with s 15(1)(b), he observed that this provision requires that the person to whom the patent is to be granted must be entitled to have the patent assigned to them, and that the act of assigning property is something not within the legal capacity of an artificial intelligence machine. Similarly, he noted that s 15(1)(c) refers to persons who derive title from the inventor. The Deputy Commissioner rejected the contention that, by owning the machine, Dr Thaler could be regarded to be in an analogous position to the owner of a fruit tree, concluding that ownership of the fruit in the example given would automatically vest in the owner of the primary property by virtue of the ownership of the fruit tree and not as a result of a transfer of that ownership from another person. Whilst accepting that this type of analysis might deal with the ownership of an invention created by an artificial intelligence machine, he concluded that it could not be said that the owner of an artificial intelligence machine “derives title to the invention” in the sense required by s 15(1)(c). He also rejected the proposition that an artificial intelligence machine could have any beneficial interest in any property such that, even if it were accepted that it could communicate an invention to Dr Thaler for the purpose of applying for a patent, it could not be said that he could be regarded as holding an interest in the invention as the agent of DABUS and thereby derive title in the sense required by s 15(1)(c) in that way.

37 **Thirdly**, the Deputy Commissioner considered that no other provisions in the *Patents Act* (referring specifically to ss 64(2), 101B(2), 101E(1), 172(1), 182(1), 182(3) and 185) or *Regulations* (referring specifically to reg 3.2C(2)(aa)) provided him any assistance in his deliberations.

38 The Deputy Commissioner concluded that s 15(1) is not capable of sensible operation in the situation where an inventor would be an artificial intelligence machine, as it is not possible to identify a person who could be granted a patent. He considered that it was not necessary to consider the operation of the objects stated in s 2A because the relevant provisions of the *Patents Act* are not ambiguous.

## 5. THE DECISION OF THE PRIMARY JUDGE

39 The primary judge considered that the Deputy Commissioner fell into error for the following reasons (at J[10]):

First, an inventor is an agent noun; an agent can be a person or thing that invents. Second, so to hold reflects the reality in terms of many otherwise patentable inventions where it cannot sensibly be said that a human is the inventor. Third, nothing in the Act dictates the contrary conclusion.

40 The primary judge considered that the Commissioner’s position on review confused the question of ownership and control of a patentable invention with the question of who can be an inventor. Whilst he accepted that only a human or other legal person could be an owner, controller or patentee, he considered that it was a fallacy to argue from this starting point that an inventor can only be human. He considered that nothing in the *Patents Act* justified the result, which was that, in the absence of a human inventor, an otherwise patentable invention would be precluded from the grant of a patent. This was, he considered, the antithesis of the object set out in s 2A of the *Patents Act*. In so concluding, he considered that the Commissioner’s approach read limitations and qualifications into the statutory term “inventor” and resorted to outdated definitions of the word “inventor”, failing to grapple with the idea underlying the term and the evolving nature of patentable inventions and their creators.

41 In the background section of his reasons the primary judge supplied several pages of information addressing what he characterised as background technical matters concerning artificial neural networks. It is not in dispute that none of this, except for J[19], was in evidence. The primary judge then described DABUS, primarily (but not exclusively) by reference to the agreed facts. He found that DABUS “in one sense can be said to mimic aspects of human brain function” and accepted for the purposes of the proceedings Dr Thaler’s assertion that:

DABUS, and its underlying neural paradigm, represents a paradigm shift in machine learning since it is based upon the transient chaining topologies formed among associative memories, rather than activation patterns of individual neurons appearing within static architectures. From an engineering perspective, the use of network resonances to drive the formation of chaining topologies, spares programmers the ordeal of matching the output nodes of one [artificial neural network] with the input nodes of others, as in deep learning schemes. In effect, complex neural architectures autonomously wire themselves together using only scalar resonances.

Reinforcement or weakening of such chains takes place when they appropriate special hot button nets containing memories of salient consequences. Therefore, instead of following error gradients, as in traditional artificial neural net training, conceptual chains are reinforced in proportion to the numbers and significances of advantages offered. Classification is not in terms of human defined categories, but via the consequence chains branching organically from any given concept, effectively providing functional definitions of it. Ideas form as islands of neural modules aggregate through simple learning rules, the semantic portions thereof, being human readable as pidgin language.

42 This description was also not in evidence.

43 The primary judge concluded that an output of the process so described is the alleged invention the subject of the application.

44 The primary judge then described over several pages how artificial intelligence has been used in pharmaceutical research, drawing on further materials that were also not in evidence. He concluded:

Now I have just dealt with one field of scientific inquiry of interest to patent lawyers. But the examples can be multiplied. But what this all indicates is that no narrow view should be taken as to the concept of “inventor”. And to do so would inhibit innovation not just in the field of computer science but all other scientific fields which may benefit from the output of an artificial intelligence system.

45 The primary judge then set out relevant parts of the *Patents Act* and *Regulations* and summarised the effect of the decision of the Deputy Commissioner. He then summarised the arguments of the parties.

46 The primary judge began his **analysis** of the dispute by making what he characterised as six general observations. The first was that no specific provision in the *Patents Act* “expressly refutes” the proposition that an artificial intelligence system can be an inventor. The second was that, unlike copyright law, no specific aspect of patent law requires a human author. The third was that the word “inventor” is not a defined term and has its ordinary meaning. As an agent noun (like “computer”, “dishwasher” or “lawnmower”) the agent can be a person or a thing. In this context the primary judge noted that, whereas once the word “inventor”, like “computer”, might originally have been apt to describe persons when only humans could make

inventions (or perform computations), now the term may be used to describe machines which can carry out the same function. Fourthly, the primary judge considered that the concept of “inventor” should be seen as analogously flexible and evolutionary to the widening conception of the term “manner of manufacture” as considered in *D’Arcy v Myriad Genetics Inc* [2015] HCA 35; 258 CLR 334 at [18] (French CJ, Kiefel, Bell and Keane JJ). Fifthly, he considered that the approach to the construction of the *Patents Act* should be consistent with the s 2A object clause inserted recently into the *Patents Act* and that the Deputy Commissioner erred in expressing the view that he should have regard to it only where there was ambiguity. The primary judge said at J[124]:

In my view it is consistent with the object of the Act to construe the term “inventor” in a manner that promotes technological innovation and the publication and dissemination of such innovation by rewarding it, irrespective of whether the innovation is made by a human or not.

47 He considered that, consistently with s 2A, recognition of computer inventorship would “incentivise the development by computer scientists of creative machines and also the development by others of the facilitation and use of the output of such machines, leading to new scientific advantages”. In so doing, his Honour considered that one is simply recognising the “reality” that machines have been autonomously or semi-autonomously generating patentable results “for some time now”.

48 The primary judge then posited, as a question of policy, that if the output of an artificial intelligence system is said to be an invention, who other than the system should be the inventor? Having raised this issue, his Honour provided his opinion (at J[131]) that:

...[i]n some cases, the better analysis, which is consistent with the s 2A object, is to say that the system is the inventor. That would reflect the reality. And you would otherwise avoid uncertainty...

49 The primary judge considered that if only an artificial intelligence system could be said to have created the output, but only human inventors are permitted, there may not be an inventor at all, and one may not be able to patent the invention. The primary judge said at J[132]:

...Generally, it is quite undesirable to preclude a class of otherwise patentable inventions from patentability on the basis of an exclusion that is not apparent from the express words of the Act. Indeed, that would be the antithesis of promoting innovation.

50 The primary judge considered the argument that if one permitted computer-generated patent applications that the patent system would reach a breaking point due to the likely increase in volume of applications. His Honour rejected that argument, noting that one requires a legal

person to make a patent application, and so a person will have ultimate control over any computer generated application. The primary judge concluded on this point at J[134]:

Generally, the outcome of the Commissioner's position is incompatible with s 2A. The Commissioner accepts that Dr Thaler is not the inventor, and indeed in analogous circumstances concerning the output of an artificial intelligence system would seem to suggest that the person owning or controlling the machine would not be the inventor. But the product or method that is described or detailed in such an output could involve an inventive step as that concept is used in the Act. But on the Commissioner's logic there would be no inventor. Accordingly, it would follow on the Commissioner's reasoning that you could not make a PCT application for the invention, as you would not satisfy reg 3.2C(2)(aa). This would be a strange result, and at odds with the object in s 2A...

51 Sixthly, the primary judge next turned to consider the test for inventive step under ss 18(1)(b)(ii) and 7 of the *Patents Act*. His Honour concluded that the *Patents Act* focusses on inventive step as a hypothetical and objective construct which is not at all concerned with the inventor's mental processes and that whether the inventive step is produced by a human or a machine is irrelevant to the inquiry in s 7(2).

52 The primary judge next considered the construction of s 15. He rejected the conclusion reached by the Deputy Commissioner that entitlement to the grant of a patent flows from the inventor under s 15(1), and that, absent devolution, the inventor will become the patentee. His Honour preferred the view that s 15(1) contemplates four separate classes of person who may be granted a patent.

53 Turning to s 15(1)(a), he accepted that s 15(1)(a) provides that a patent may be granted to a person who is the inventor and that DABUS is excluded from eligibility for grant on this basis, because it is not a person.

54 However, he considered that s 15(1)(b) does not require the existence of an inventor at all, but rather that the applicant is entitled to have the patent assigned to him in the event that there is a grant. He considered that one such circumstance may be where the inventor is an employee. He considered that another is where a third party misappropriates an invention, in which case the inventor's employer could bring an action seeking an equitable assignment from the third party and posited, in that circumstance, that the inventor would not be a party to the assignment. The primary judge considered that, on its face, s 15(1)(b) could also apply where an invention made by an artificial intelligence system, rather than by a human inventor, was the subject of a contract or had been misappropriated, giving rise in either case to a legal or equitable right of assignment. In this regard the primary judge noted that s 113 (person claiming under an

assignment or agreement) similarly does not refer to the inventor. His Honour rejected the finding of the Deputy Commissioner that s 15(1)(b) is limited to the case only of an assignment from the inventor which pre-supposes an earlier vesting of title in the inventor. He considered that s 15(1)(b) does not require this expressly or by necessary implication. To the contrary, the primary judge found that, because Dr Thaler is the owner, programmer and operator of DABUS, the invention was made for him and that on established principles of property law, he is the owner of the invention in a way analogous to the ownership of the progeny of animals. We note that this finding should not be considered to be determinative on the subject because the question of the entitlement of Dr Thaler to the invention as claimed was not the subject of the proceedings before the primary judge.

55 As we have set out above, s 15(1)(c) provides that a patent may be granted to a person who derives title to the invention from the inventor or a person mentioned in s 15(1)(b). The primary judge considered that this subsection recognises that the rights of a person who derives title to the invention from an inventor extend beyond assignments in s 15(1)(b) to encompass other means by which an interest may be conferred. In this regard, his Honour considered that the ordinary meaning to be given to “derives” is “obtained”, “got” or “acquired”. His Honour distinguished the reasoning of the Full Courts in *JMVB Enterprises* at [69]-[72] (Emmett, Stone and Bennett JJ) and *Stack v Davies Shephard Pty Ltd* [2001] FCA 501; 108 FCR 422 at [21] (Whitlam, Sundberg and Dowsett JJ) on the basis that it was inapplicable. He reasoned that, as the owner and controller of DABUS, Dr Thaler would own any inventions made by DABUS when they came into his possession. Dr Thaler obtained possession of the invention of the application through and from DABUS. Accordingly, by reason of his possession of the invention combined with his ownership and control of DABUS, Dr Thaler prima facie obtained or derived title to the invention. His Honour considered that there is no need for the inventor ever to have owned the invention, and there is no need for title to be derived by an assignment.

56 Having reached these conclusions the primary judge rejected as incorrect the construction of s 15(1) adopted by the Deputy Commissioner. He considered that no other section in the *Patents Act* or *Regulations* precluded the conclusions that he had reached.

57 The primary judge concluded:

[221] As I have said, s 15 concerns who may be granted the patent. The Commissioner is not being asked to decide that question now. The question is whether a valid PCT application has been presently lodged. The only impediment it would seem is reg 3.2C(2)(aa) and the Commissioner’s

interpretation of that requirement.

[222] First, in my view the name of the inventor can be a non-human. The Commissioner is incorrect in saying that you cannot have a non-human inventor.

[223] Second, if the Commissioner would have it that reg 3.2C(2)(aa) requires the name of a human inventor, that is not what the Act mandates. Accordingly, if the Commissioner is correct, I would read down the regulation to avoid it being ultra vires, so that in effect it reads “the name of a human inventor (if applicable)”.

[224] Third, the Deputy Commissioner ought not to have used subordinate legislation to summarily rule out a substantive consideration and examination of Dr Thaler’s application in circumstances where:

- (a) Dr Thaler was a valid applicant;
- (b) prima facie his application is not said not to disclose a patentable invention;
- (c) no other difficulties with his application have been identified;
- (d) the question of grant is some years away; and
- (e) it cannot be said now that Dr Thaler could not later bring himself within s 15(1)(b) and / or s 15(1)(c) in terms of being entitled to a grant.

[225] On this aspect, and if it is necessary to say so, I also agree with Dr Thaler’s procedural point that I referred to earlier.

[226] In summary, in my view, an inventor as recognised under the Act can be an artificial intelligence system or device. But such a non-human inventor can neither be an applicant for a patent nor a grantee of a patent. So to hold is consistent with the reality of the current technology. It is consistent with the Act. And it is consistent with promoting innovation.

58 The “procedural point” is apparently a reference to a submission advanced by Dr Thaler, summarised at J[109] to [111], that the Commissioner ought to have awaited the examination stage under s 45 to consider whether the patent request and complete specification complied with the requirements of s 15(1).

## 6. THE SUBMISSIONS

### 6.1 The Commissioner’s submissions

59 The Commissioner takes issue with the findings of the primary judge that by determining the question under reg 3.2C(2)(aa) at the formalities stage she has acted prematurely. She submits that the **Explanatory Statement** to *Select Legislative Instrument No. 88, 2015* issued under the Authority of the Minister for Industry and Science (authorities tab 25) demonstrates that reg 3.2(2)(aa) requires a name to be given to show entitlement. She further submits that the

word “inventor” in the reg 3.2C(2)(aa) has the same meaning as in the *Patents Act*, citing *Regional Express Holdings Ltd v Australian Federation of Air Pilots* [2017] HCA 55; 262 CLR 456 at [21]. She submits that the failure by Dr Thaler to comply with the direction under reg 3.2C(4) to give the name of the inventor (as that term is to be understood under the *Patents Act*) had the inevitable consequence that the application lapsed under reg 3.2C(5) for failure to satisfy a mandatory requirement. She submits that even though the Commissioner might have delayed refusal under examination of the application under s 45(1) and reg 3.18(2)(a)(i), the question as to the proper construction of “inventor” under reg 3.2C(2)(aa) arose as an important question of principle that was properly considered at this stage.

60 Turning to the substantive question, the Commissioner submits that the identification of an inventor draws its lineage from s 6 of the *Statute of Monopolies* 1624 (21 Jac c 3) and has always been confined to human inventors, citing *Thaler v Comptroller General of Patents, Trade Marks and Designs* [2021] EWCA Civ 1374 (**Thaler UK**) and *Stack* at [13]-[18] (Whitlam, Sundberg and Dowsett JJ). She submits that the learned author of *Terrell on the Law of Patents* (Sweet & Maxwell, 8<sup>th</sup> ed, 1934) (**Terrell 8<sup>th</sup> ed**) emphasised (at pp 18-20) that the question of whether the patentee is the true and first inventor is entirely separate from the question of whether the invention itself was new, the former question placing emphasis on the human inventor and his or her ingenuity. She contends that an analogy may be drawn between patent rights and other intellectual property rights such as copyright, trade marks and designs in respect of which the Commonwealth Parliament is given power by s 51(xviii) of the *Constitution*. Such rights are, she submits, intended to support innovation by rewarding human endeavour by encouraging the making of inventions and the authorship of works. Since artificial intelligence is not a person, she submits that there is no question of encouragement to innovate.

61 The Commissioner submits that each of paragraphs (b), (c) and (d) in s 15(1) concern title to a patent for an invention made by the inventor referred to in paragraph (a), citing *Stack*, *JMVB Enterprises* and *Vehicle Monitoring Systems Pty Ltd v SARB Management Group Pty Ltd* [2020] FCA 408; 150 IPR 216 at [236] (Burley J) and on appeal in *Vehicle Monitoring Systems Pty Ltd v SARB Management Group Pty Ltd* [2021] FCAFC 224 at [52] (Nicholas, Yates and O’Byrne JJ). In this way, she submits that paragraphs (b), (c) and (d) are not *sui generis* sources of entitlement but add persons who can otherwise claim title from the inventor. She submits that contrary to the finding of the primary judge at J[64], s 15(1)(a) clearly excludes a non-person such as an artificial intelligence from being the inventor for the purposes of s 15(1). She

submits that the primary judge erred in his construction of s 15(1)(b) and s 15(1)(c) because, in each case, determining entitlement to the grant of a patent proceeds from the starting point of identifying a person as the inventor. Further, in the case of s 15(1)(c), the Commissioner submits that it requires that title be derived “from the inventor”, that inventor being the inventor of s 15(1)(a), citing *Thaler UK* at [20]-[23] and the corresponding entitlement provisions in the *Patents Act 1977* (UK). She submits that it is not possible for Dr Thaler to “derive title to the invention” from DABUS in circumstances where no inventor, other than the person in s 15(1)(a), is contemplated by the *Patents Act*. In this regard, the Commissioner submits that the reference by the primary judge in his reasons to “possession of the invention” is inapposite, because that phrase does not mean a property right, but rather the conception of the invention in the mind of the inventor, citing *Dunlop v Cooper* [1908] HCA 67; 7 CLR 146 at 155-156 (Griffiths CJ).

62 The Commissioner contends that the primary judge erred in the emphasis that he placed on the objects clause in s 2A of the *Patents Act*, citing [14] of the Explanatory Memorandum to the *Intellectual Property Laws Amendment (Productivity Commission Response Part 2 and Other Measures) Bill 2019* (Cth) which stated that the object clause “does not alter the ordinary meaning of the legislation or overturn existing case law and established precedent”. She submits that the primary judge erred in finding that his construction is “consistent with the object of the Act to construe the term ‘inventor’ in a manner that promotes technological innovation...” in circumstances, first, where there was no evidentiary support for that proposition and, secondly, where his Honour approached the task of statutory construction by reference to: (a) what he regarded as desirable policy; (b) imputing that policy to the legislation; and (c) then characterising that as the purpose of the legislation, citing *Deal v Father Pius Kodakkathanath* [2016] HCA 31; 258 CLR 281 at [37] (French CJ, Kiefel, Bell and Nettle JJ).

63 The Commissioner further drew on the preconditions for validity of a patent – novelty, inventiveness and innovativeness – to support a submission that the assessment of these criteria of validity is performed having regard to “a person skilled in the relevant art”, a human person whose knowledge and skills are notionally applied by the Court. She submits that such provisions cannot work sensibly if the inventor is not a human and, indeed, proceed on the basis that the inventor is a human. By contrast, the Commissioner contends that ss 172 and 182 of the *Patents Act* lend support for the construction that an inventor must be a person and may not be an artificial intelligence machine. She submits that the primary judge erred in concluding otherwise at J[204]-[207] and J[210]-[212].

## 6.2 Dr Thaler's submissions

64 Dr Thaler supports the reasons of the primary judge.

65 In relation to the procedural point, Dr Thaler notes that the Commissioner does not submit that reg 3.2C(2)(aa) independently supports the conclusion that the inventor must be a human. It follows, he submits, that the primary judge was correct to conclude that the inventor can be a non-human and that the *Patents Act* does not mandate a human inventor. He submits separately, that since he provided the name of the inventor, then consistent with the requirements of reg 3.2C(2)(aa), the Commissioner should have examined the request and specification to consider whether s 15 was complied with under reg 3.18(2)(a)(i). He submits that it was possession of the invention which entitled the applicant to a patent. In this regard, Dr Thaler draws support from the reasons of Birss J in *Thaler UK* at [36] and [89], noting contrary comments by Arnold J at [130]-[133].

66 On the substantive point, Dr Thaler contends that the approach of the Commissioner bespeaks error because, on her construction, an invention which is otherwise valid may nonetheless be unpatentable because it was invented by an artificial intelligence machine, not by a human. He accepts that the language of s 15 governs entitlement to the grant of a patent, but contests the proposition that s 15 governs the meaning of the word “inventor”, particularly as that term is not defined in the *Patents Act*. He contends that s 15(1)(b) or (c) are alternatives to s 15(1)(a) and neither require the inventor from whom the patentee obtains title be a person. He submits that to succeed in this appeal, which relates to a formalities rejection rather than consideration of the actual facts going to the existence of Dr Thaler's title, the Commissioner would need to show that there is no situation in which Dr Thaler could qualify under either s 15(1)(b) or s 15(1)(c) of the *Patents Act*.

67 In relation to s 15(1)(b), Dr Thaler submits that entitlement can arise by agreement, by conduct or informally, or by operation of law. He submits that in the present case, Dr Thaler owns, programs and operates DABUS and, if another person stole and sought to patent DABUS' invention, he would be entitled to an assignment of the patent, including under the law of equitable confidentiality. This, he submits, is consistent with the reasoning of the Court of Appeal in *Thaler UK*.

68 In relation to s 15(1)(c), Dr Thaler contends that the concept of “derivation” is broader than “assignment” in s 15(1)(b) and means “received, obtained, got, gain or obtain or acquired”. Dr Thaler submits that it is consistent with *Blackstone's Commentaries of the Laws of England*

(Clarendon Press, Book 2, 1766) at pp 405-407, that occupancy, or exclusive possession, of an unpatented invention is the foundation of ownership. He further submits that the significance of possession is recognised in the form of application for an invention, which require applicants to declare that they are in possession of the invention, citing, *inter alia*, *Dunlop* at 155.

69 Dr Thaler submits that where the owner of the physical property, in the form of an artificial intelligence machine, also programmed and operated the machine, and the resulting invention was not published to anyone but the owner of the artificial intelligence machine, the Court should not foreclose the argument that the owner “derives title to the new intangible”. He submits that this factual question is for another day. For the present case, he submits that it is sufficient that circumstances can be posited where the title can be derived from an existing tangible object.

70 In this context Dr Thaler repeats his submission that his ownership of the work product of the artificial intelligence machine is analogous to the ownership of the progeny of animals, or to fruit and crops, adopting the findings of the primary judge at J[167].

71 Dr Thaler also submits that the resort by the primary judge to s 2A of the *Patents Act* was orthodox. Furthermore, he submits that to the extent that the primary judge made findings that were not supported by any evidence (at J[20]-[28], J[41]-[42] and J[44]-[56] of his reasons), those findings merely represented non-controversial background and did not form part of the *ratio decidendi* of his decision. To the extent that the primary judge expressed views that factual matters supported his view on the fulfilment of the objects of the *Patents Act*, Dr Thaler submits that those findings were immaterial, because his Honour had expressed a view on the objects of the *Patents Act* before making reference to those materials.

72 Dr Thaler concludes by submitting that the ordinary meaning of “inventor” is an agent noun, where the inventor is the agent, whether person or machine, who invents. The meaning of “inventor”, as contended for by Dr Thaler, is open and is consistent with the object of the *Patents Act*.

## 7. CONSIDERATION

73 The immediate cause of the present dispute arises from the Commissioner’s application of reg 3.2C(2)(aa), which requires an applicant to provide the name of the inventor of the invention to which a patent application relates. The Commissioner determined, in effect, that it was a legal impossibility that an artificial intelligence machine could be such an inventor, with the

consequence that the application lapsed in accordance with reg 3.2C(5). The primary judge took a different view.

74 Reg 3.2C(2)(aa) imposes an obligation upon the applicant, and reg 3.2C(4) empowers the Commissioner to direct an applicant to, *inter alia*, provide the name of the inventor of the invention to which the application relates. Where the applicant has not complied with such a direction within two months of the date of that direction, the application will lapse: reg 3.2C(5).

75 The purpose of reg 3.2C(2)(aa) is set out in the Explanatory Statement which provides that the name of the inventor of the invention “is required to ensure that *the entitlement of the applicant to be granted a patent is clear*”. The path to entitlement to the grant of a patent may be traced in the *Patents Act* and *Regulations* from the filing of an application onwards. Under s 29(1), a person may apply for an invention by filing, in accordance with the regulations, a patent request and such other documents as are prescribed: s 29(1). Section 29(4A) sets out the requirements for a patent request in relation to a complete application. Section 29A(1) provides that a PCT application is to be treated as a complete application. The person who is identified in a patent request as the person to whom the patent is to be granted, whether for a complete application or a PCT application, is defined as the “nominated person”: *Patents Act* sch 1; *Regulations* reg 3.1A(2).

76 After an application has been filed, the Commissioner must, if requested to do so, examine it and report on whether, to the best of her knowledge, the patent request and specification complies with *inter alia*, s 15 and, for a PCT application, regs 3.2C(2) and (3): *Patents Act* s 45; *Regulations* regs 3.18(2)(a)(i) and 3.18(2)(f). The Commissioner must accept a patent request if she is satisfied, on the balance of probabilities, as to the matters prescribed, and then notify the applicant of acceptance and publish a notice of acceptance in the Official Journal: ss 49(1) and (5). Thereafter, any person may oppose the grant of the patent on the grounds set out in s 59 which relevantly include that the nominated person is not entitled to a grant of a patent for the invention: ss 59(a) and 33.

77 Separately, pursuant to s 36, the Commissioner may, if satisfied on the balance of probabilities that the nominated person is not an eligible person, but that one or more applicants who have applied under that section are eligible persons, make a declaration to that effect: s 36(1)(c)(i). Such a declaration may be made whether or not the patent application lapses or is withdrawn: s 36(2).

- 78 Following grant, a patent may be revoked on the grounds set out in s 138(3) which relevantly include that the patentee is not entitled to the patent: s 138(3)(a), as qualified by s 22A.
- 79 It is apparent that the mechanism supplied by reg 3.2C is intended to provide a preliminary stage whereby the Commissioner may screen a PCT application for non-compliance with the requirements prescribed therein.
- 80 In reaching his conclusions, the primary judge found that the Deputy Commissioner wrongly used reg 3.2C(2)(aa) “to summarily rule out a substantive consideration and examination of the application” on the apparent basis that nothing in the *Patents Act* would permit this course. On appeal, Dr Thaler supports that finding, arguing that because he provided the name of the inventor he satisfied the requirements of reg 3.2C(2)(aa) and the request and specification ought to have proceeded to examination in accordance with reg 3.18(2)(a)(i).
- 81 These complaints are directed to the procedural question of whether or not the Commissioner ought to have deferred consideration of the present question until the examination phase. Nothing in the present appeal turns upon this point. The parties prepared and conducted the proceedings before the primary judge and also the appeal on the basis that the substantive issue to be determined is whether or not the primary judge was correct to find that, as an artificial intelligence machine, DABUS is capable of being an “inventor” within reg 3.2C(2)(aa), as that term is understood in the scheme of the *Patents Act* and *Regulations*. The primary judge decided that point. However, it is appropriate, having regard to the primary judge’s criticism, for us to note that reg 3.2C(2) requires that an applicant provide an address for service and the name of the inventor of the invention. Where, on its face, it is apparent that one or both of those requirements has not been satisfied following a direction given by the Commissioner under reg 3.2C(4), the application lapses under reg 3.2C(5) and the Commissioner has no alternative but to take the course under reg 3.2C(6). In the present case the Deputy Commissioner formed the view, following a direction issued under reg 3.2C(4), that the name provided did not comply with the requirements of reg 3.2C(2)(aa) because it was a legal impossibility for an artificial intelligence machine to be “the inventor of an invention”. Accordingly, he concluded that the requirements of reg 3.2C had not been met. This was an appropriate course to take.
- 82 We now turn to the substantive question which is whether the primary judge erred in concluding that the Deputy Commissioner had erred in law by finding that DABUS could not be “the inventor” pursuant to reg 3.2C(2)(aa).

83 The duty to resolve an issue of statutory construction is a text-based activity. However, questions of policy can inform the Court’s task of statutory construction: *Alphapharm Pty Ltd v Lundbeck A/S* [2014] HCA 42; 254 CLR 247 at [42] (Crennan, Bell and Gageler JJ); *Acts Interpretation Act* s 15AA. It is accordingly appropriate to consider policy considerations, however the surest guide to ascertaining the legislative intention is the language of the text of the legislation itself: *Alcan (NT) Alumina Pty Ltd v Commissioner of Territory Revenue (Northern Territory)* [2009] HCA 41; 239 CLR 27 at [47] (Hayne, Heydon, Crennan and Kiefel JJ).

84 Regulation 3.2C(2)(aa) requires the applicant to “provide the name of the *inventor of the invention*”. This, as the Explanatory Statement makes clear, is for the purpose of ensuring that the entitlement of the applicant to be granted a patent is clear. The reference in the Explanatory Statement to “entitlement” picks up that term as it is used in the *Patents Act* to refer to the eligibility of an applicant (or “nominated person”) to the grant of a patent for an invention: see ss 33, 34, 59 and 113. Accordingly, we would understand the reference in reg 3.2C(2)(aa) to “inventor” and “invention” to have the same meaning as used in the *Patents Act*. “Inventor” is used in the *Patents Act* in s 15(1). The “invention” as that term is used in reg 3.2C(2)(aa) must be the invention the subject of the patent application.

85 Section 15(1)(a) provides that “a patent for *an invention* may only be granted to a person who is *the inventor*”. The term “invention” is defined in the dictionary to mean:

...any manner of new manufacture the subject of letters patent and grant of privilege within section 6 of the Statute of Monopolies, and includes an alleged invention.

86 Section 6 provided an exception to the prohibition on monopolies for the term of 14 years “of the sole working or making of any manner of new Manufactures within this Realm, *to the true and first Inventor and Inventors of such Manufactures*, which others at the time of making such Letters Patents and Grants shall not use”.

87 In *Terrell 8<sup>th</sup> ed* there is discussion (at pp 13-22) of the meaning of the expression “true and first inventor” in s 6 of the *Statute of Monopolies* and equivalent terms in later legislation. The learned author refers (at pp 18-19) to the rationale underlying the identification of such a person or persons:

In *Cornish v Keene* ([1835] 1 WPC 501 at 507), Tindal CJ said: ‘Sometimes it is a material question to determine whether the party who got the patent was the real and original inventor or not; *because these patents are granted as a reward, not only for the benefit conferred upon the public by the discovery, but also to the ingenuity of the*

*first inventor*; and although it is proved that it is a new discovery, so far as the world is concerned, yet if anybody is able to show that although that (ie the publication to the world) was new – that the party who got the patent was not the man whose ingenuity first discovered it, that he borrowed it from A or B, or had taken it from a book that was printed in England, and which was open to all the world – then, although the public had the benefit of it, it would be an important question whether he was the first and original inventor of it.’ There is no doubt that, in the circumstances stated by the Chief Justice, the person obtaining the patent would not be the true and first inventor.

(emphasis added)

- 88 We note that the consideration for “the reward” of the grant of the patent in the form of a statutory monopoly has long been the disclosure of the invention to the public in a manner that enables a person skilled in the art to perform the invention upon the expiry of the term of the patent: *Kimberly-Clark Australia Pty Ltd v Arico Trading International Pty Ltd* [2001] HCA 8; 207 CLR 1 at [25] (Gleeson CJ, McHugh, Gummow, Hayne and Callinan JJ) citing *No-Fume Ltd v Frank Pitchford & Co Ltd* (1935) 52 RPC 231 at 243 (Romer LJ). As noted above, a person’s entitlement to that reward is closely linked to the act of invention by the true and first inventor.
- 89 The expression “true and first inventor” in s 6 of the *Statute of Monopolies* was, through usage, extended to apply to a person who did not in fact invent the invention but who imported that invention from abroad. However, the rationale for extending the entitlement of that person to a patent for the invention was the same as that applying to the entitlement of the person who was literally the true and first inventor; namely, that by doing so the person who imported the invention ought to be rewarded for introducing into the kingdom an invention that was not previously known. This came from a time when travelling abroad involved considerable peril, and so it was considered to be no less a meritorious service that the person imported, rather than invented, the invention in question: see *Stack* at [15]-[16]; *Marsden v The Saville Street Foundry and Engineering Co Ltd* (1878) 3 Ex D 203 at 206-207 (Jessel MR); *The Clothworkers of Ipswich Case* (1615) Godb 252; 78 ER 147; *Terrell 8<sup>th</sup> ed* at pp 14-16. That extended usage has, following the introduction of various Patents Acts, fallen away.
- 90 The role of the inventor has been repeatedly emphasised in the context of Australian patents legislation preceding the *Patents Act* under present consideration. In *Tate v Haskins* [1935] HCA 40; 53 CLR 594, the High Court (Rich, Dixon, Evatt and McTiernan JJ) considered the obligation of a person to describe the invention in the specification within the terms of the *Patents Act 1903* (Cth), drawing on the lengthy history of the development of patent law (at 606-607):

The requirement that a complete specification shall conform to the provisional has its source in the history of English patent law. The specification took its origin in the introduction early in the eighteenth century into the letters patent of an express condition that the grant should be void if the grantee should not within six months particularly describe and ascertain the nature of his invention, and in what manner the same was to be performed, by an instrument in writing enrolled in Chancery. There was no provisional specification at that time. The grant itself was made upon a brief description of the invention which was incorporated in the letters patent. This description provided at once a foundation for the grant and a means of restricting the area of the monopoly. *“The language in which the supposed invention is described in a patent of this nature is the language of the patentee himself. He represents to the Crown, that he has invented this or that thing, and that he is the first and sole inventor thereof, etc.; and the Crown yielding to his representation, and willing to give encouragement to all arts and inventions that may be for the public good, grants to the patentee the sole liberty and privilege of using his said invention, for a certain term, under the conditions before noticed. It is obvious, therefore, that if the patentee has not invented the matter or thing of which he represents himself to be the inventor, the consideration of the Royal grant fails, and the grant consequently becomes void. And this will not be the less true, if it should happen that the patentee has invented some other matter or thing, of which, upon a due representation thereof, he might have been entitled to a grant of the exclusive use...”* (per Abbott CJ, *R v Wheeler* (1819) 2 B & Ald. 345 at pp. 349-351; 106 ER 392 at pp. 394, 395...

(emphasis added)

- 91 It is apparent that in the cited passage from in *R v Wheeler* (1819) 2 B & Ald. 345, Abbott CJ used the term “patentee” in a way synonymous with “inventor”. It is the inventor’s invention that warrants the grant.
- 92 Indeed, the modern ground of revocation under s 138(3)(d) of the *Patents Act* – that the patent was obtained by fraud, false suggestion or misrepresentation – proceeds on the assumption that the language of the patentee in the specification reflects the representations made by the inventor to the Crown. As Lockhart J noted in *Prestige Group v Dart Industries Inc* [1990] FCA 406; 26 FCR 197 at 199, if the inventor asserts an inventive merit of his invention and promises a particularly beneficial or useful result, this may persuade members of the public into believing the claims are valid and act on the faith of that by, for example, becoming a licensee or by not using the alleged invention. The reasons of Gummow J in *Prestige Group* at 213-218 include an informative review of the history of this ground of revocation, from its origins in the writ of *scire facias* as a means of applying to revoke a Crown grant of letters patent, to the (then current) terms of the *Patents Act 1952* (Cth) (which the Court was there considering). It is instructive to note the following passage quoted by Gummow J from Hindmarch, *The Law Relating to Patents* (1846) at 377-378 (at 215):

Crown grants are indeed almost always obtained by means of representations made by, or on the behalf of the grantees, and as the sovereign is so much occupied with the affairs of the state, it would be impossible always to ascertain

with certainty whether the representations of a petition for a grant by patent were true or not. The law, therefore, takes especial care to protect the Crown against false petitions and representations. It is accordingly laid down that it is the duty of every one obtaining a grant from the Queen, to see that she is correctly informed respecting the grant. And if it appears that the Queen has been deceived in any material particular, by a false representation or suggestion of the grantee, the patent will be wholly void. And when facts are recited in a patent respecting the subject-matter of the grant, it will be presumed that the statements contained in the recital were represented or suggested to the Queen by the patentee.

The material particulars respecting an alleged invention for which a party seeks to obtain a patent, must, as has already been observed, be stated in the petition for the patent. The petition must therefore state, that the petitioner is the inventor or importer of the invention, and that the invention possesses the qualities of novelty, utility, &c., so as to be the proper subject of a grant by patent. The substance of the petition for a patent is always recited in the patent itself, and therefore the patent itself shows upon what representations of the patentee it has been granted; and if the patentee has represented any thing which was untrue in any material particular, or has induced the Crown to make an illegal grant, the patent is entirely void.

93 It may be seen that this ground of revocation is premised upon the fact that it is the *inventor* who makes representations in the specification about the nature of the invention to the authority responsible for the grant of a patent.

94 Section 32(2) of the *Patents Act 1903* relevantly provided:

Any of the following persons may make application for a patent:

- (a) The actual inventor; or
- (b) his assignee agent attorney or nominee: or
- (c) the actual inventor or his nominee jointly with the assignee of a part interest in the invention; or
- (d) the legal representative of a deceased actual inventor or of his assignee, or
- (e) any person to whom the invention has been communicated by the actual inventor his legal representative or assignee (if the actual inventor, his legal representative or assignee is not resident in the Commonwealth).

95 In *Dunlop*, the appellant opposed a patent application on the ground that the respondents obtained the invention the subject of their patent from him. Griffiths CJ said (at 156):

*...I am of the opinion that the whole scheme of the patent law, emphasized by the obligation imposed on an applicant to declare that he is in possession of the invention, implies that an applicant must have actually made an invention before he can describe it in his provisional specification...But if it appears from admissible evidence—and the applicant's own statements are as such—that he had not then conceived the idea which his words convey to other minds, I think that he is not in possession of the invention, and is not the inventor... In Edison and Swan Electric Light Co. v Woodhouse [32 Ch*

D, 520 at p. 524] Butt J said: “I agree...that an inventor has no right to put into his final specification as part of his invention a discovery which he had not made at the time, of which he was ignorant when he filed his provisional specification...”

(emphasis added)

96 It may be seen that Griffiths CJ considered that the scheme of the *Patents Act 1903* established an implication that an applicant for a patent must have actually made the invention before an application could be made for a patent for that invention. For the patent applicant to be entitled to the invention, the inventor’s role in conceiving of the invention must be able to be demonstrated.

97 Section 34(1) of the *Patents Act 1952* (Cth) was in similar terms. It provided:

Any of the following persons, whether an Australian citizen or not, may make an application for a patent:

- (a) the actual inventor;
- (b) the assignee of the actual inventor;
- (c) the legal representative of a deceased actual inventor;
- (d) the legal representative of a deceased assignee of the actual inventor;
- (e) a person to whom the invention has been communicated by the actual inventor, his legal representative or assignee (if the actual inventor, his legal representative or assignee is not resident in Australia);
- (f) the assignee of such a legal representative as is specified in paragraph (c) or (d);
- (fa) the person who would, if a patent were granted upon an application made by a person referred to in any of the preceding paragraphs be entitled to have the patent assigned to him; or
- (g) the agent or attorney of a person referred to in any of the preceding paragraphs.

98 In each of these provisions, the ability of a person to make an application for a patent was predicated upon the existence of an “actual inventor” from whom the entitlement to the patent was directly or indirectly derived. Paragraphs (a), (c) and (e) describe the actual inventor as, respectively, a person, one that is deceased and has a legal representative (which must be a person), and one that is not resident in Australia. Paragraphs (b), (d), (f) and (fa) all contemplate an assignment happening between the patent applicant and the actual inventor. It is clear from these provisions that only a person with a legal personality could be the “actual inventor” under this legislative scheme.

99 The current *Patents Act* was based in large part on the recommendations of the Industrial Property Advisory Committee in its report *Patents, Innovation and Competition in Australia (IPAC report)*: see *Lahore, Patents, Trade Marks and Related Rights* at [5030]. It contained no recommendations that the role of the inventor, as the person from whom the entitlement to the grant of the patent should be derived, would change. None of the second reading speeches or the Explanatory Memoranda introducing s 15(1) to the *Patents Act* suggested that the established law relating to entitlement was intended to be altered. Indeed, the **Explanatory Memorandum** to the Patents Bill 1989 (Cth) stated the effect of s 15 as follows:

Broadly, a patent may be granted only to the inventor of the invention concerned or to a person deriving rights from the inventor.

100 Although not defined in the *Patents Act*, the term “inventor” in 15(1) plainly enough is a reference to the inventor of the invention the subject of the patent application. “Inventor” has long been held to bear its ordinary English meaning, being the person(s) responsible for making the invention, namely, “the person who makes or devises the process or product”: *JMVB Enterprises* at [71]-[72]; *Atlantis Corporation v Schindler* [1997] FCA 1105; 39 IPR 29 at 54 (Wilcox and Lindgren JJ).

101 The inventor for the purposes of s 15(1)(a) is the person who is responsible for the “inventive concept”. Such an inventor is the person, or one of the people, who materially contributes to the inventive concept as described in the specification and the subject of the claims: *Vehicle Monitoring Systems* at [52]; *Polwood Pty Ltd v Foxworth Pty Ltd* [2008] FCAFC9; 165 FCR 527 at [59]-[66] (Finn, Bennett and Greenwood JJ); *University of Western Australia v Gray (No 20)* [2008] FCA 498; 76 IPR 222 at [1443] (French J) and upheld on appeal in *University of Western Australia v Gray* [2009] FCAFC 116; 179 FCR 346 at [221] and [263] (Lindgren, Finn and Bennett JJ); and *Kafataris v Davis* [2016] FCAFC 134; 120 IPR 206 at [62] and [65] (Greenwood, Middleton and McKerracher JJ).

102 Identification of the inventor within s 15(1) is of central relevance to the operation of the *Patents Act* and is intertwined with concepts material to the validity of patent applications and patents. This may be seen from the assumption to which we have referred in the context of the ground of revocation under s 138(3)(d) that, by the terms of the specification, the *inventor* is making representations as to the nature of the invention. If a relevant misrepresentation is material to the grant, the patent may be revoked.

103 The central relevance of the identification of the inventor is also apparent in the context of challenges to the right of a nominated person to be entitled to the grant of a patent under s 59 and challenges to the validity of a patent under s 138(3)(a). Such challenges can involve an opponent contesting the entitlement of the nominated person to the grant at all, or contending that he or she is jointly entitled to the grant, or by contending that a person other than the patentee is entitled to the patent. The task of the Commissioner or the Court in adjudicating such disputes often involves a nuanced consideration of competing contentions as to who made relevant contributions to the invention, by objectively assessing those individual contributions to the invention. If the final concept of the invention as described in the specification and claimed in the claims would not have come about without a particular person's involvement, then that person has an entitlement to the invention. One must have regard to the invention as a whole, as well as the component parts and the relationship between the participants: see *Polwood* at [53], endorsing the observations of Crennan J in *JMVB Enterprises Pty Ltd v Camoflag Pty Ltd* [2005] FCA 1474; 67 IPR 68 at [132]; and *Vehicle Monitoring Systems* at [104].

104 The relevant test for establishing whether a particular person is entitled to be named an inventor was stated in *Polwood* at [60]:

The invention or inventive concept of a patent or patent application should be discerned from the specification, the whole of the specification including the claims. The body of the specification describes the invention and should explain the inventive concepts involved. While the claims may claim less than the whole of the invention, they represent the patentee's description of the invention sought to be protected and for which the monopoly is claimed. The claims assist in understanding the invention and the inventive concept or concepts that gave rise to it. There may be only one invention but it may be the subject of more than one inventive concept or inventive contribution. The invention may consist of a combination of elements. It may be that different persons contributed to that combination.

See also the detailed discussion of this subject in *Vehicle Monitoring Systems* at [62]-[104].

105 None of the cases cited in the preceding five paragraphs confronted the question that arose before the primary judge of whether or not the “inventor” could include an artificial intelligence machine. We do not take the references in those cases to “person” to mean, definitively, that an inventor under the *Patents Act* and *Regulations* must be a human. However, it is plain from these cases that the law relating to the entitlement of a person to the grant of a patent is premised upon an invention for the purposes of the *Patents Act* arising from the mind of a natural person or persons. Those who contribute to, or supply, the inventive concept are entitled to the grant. The grant of a patent for an invention rewards their ingenuity.

- 106 Where s 15(1)(a) provides that a patent for an invention may only be granted to “a person who is an inventor”, the reference to “a person” emphasises, in context, that this is a natural person. In this regard, we respectfully disagree with the Deputy Commissioner insofar as he considered that “person”, as understood in s 15(1)(a), to have the extended definition supplied by s 2C of the *Acts Interpretation Act*. There is a sufficient contrary intention in the *Patents Act* for s 2C not apply to s 15(1)(a): *Acts Interpretation Act* s 2(1).
- 107 On a natural reading of s 15(1), each of ss 15(1)(b), (c) and (d) provide for circumstances where a person becomes entitled to the grant of a patent by ultimately receiving that entitlement from the inventor in s 15(1)(a). Put another way, there must be a legal relationship between the actual inventor and the person first entitled to the grant. That was the construction adopted by the Full Court in *Stack* which, after reviewing many of the historical matters to which we refer above, concluded at [21] that “[a] patent may only be granted to the inventor or somebody claiming through the inventor”, a proposition with which we respectfully agree. Such a construction is also consistent with the broad statement as to the intended effect of s 15 provided in the Explanatory Memorandum (see [99] above).
- 108 Under s 15(1)(b), the person claims through the inventor of s 15(1)(a) by way of assignment. It is the person who would, on the grant of a patent for the invention, be entitled to have the patent assigned to them. From whom is the first assignment to come? Understood in context, most naturally, the assignment must come from the inventor of s 15(1)(a) who, as we have noted, must be a natural person. Something without a legal identity cannot give effect to an assignment.
- 109 Under s 15(1)(c), the person derives title to the invention from one of two alternatives, either “from the inventor” or from “a person mentioned in (b)”. The “inventor” is most naturally understood to refer to the same inventor as in (a), who is a natural person. To hold otherwise would be to ascribe a different meaning to “inventor” in (c) to that used in (a), which we doubt Parliament would have intended. The “person mentioned in (b)” is the same person we have addressed in the preceding paragraph.
- 110 Under s 15(1)(d), the person entitled to be granted the patent is the legal representative of a deceased person mentioned in (a), (b) or (c).
- 111 This approach to the construction of s 15 is supported by reference to the legislative history of the development of the law of patents in Australia to which we have referred.

112 In this regard, we respectfully disagree with the primary judge that one may construe each of ss 15(1)(a), (b), (c) and (d) as alternatives to the effect that, by operation of (b) and (c), a person identified, such as Dr Thaler, may draw entitlement to the grant of a patent from an inventor who is not the person identified in (a) (or indeed a natural person at all). To so find overlooks the scheme of the *Patents Act* that we have described, and fails to give s 15(1) a natural reading. It also overlooks the history of the development of the law of patents to which one is directed by the term “invention” in the chapeau to s 15(1), defined in the *Patents Act* by reference to the *Statute of Monopolies*.

113 In our view, the reasoning of the primary judge regarding how it may be that Dr Thaler, as a matter of law, owns the work performed by DABUS, and that such ownership could entitle him to the grant of the application, does not arise, having regard to the view that we have taken to the construction of s 15(1) and reg 3.2C(2)(aa). 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 *Regulations*. Such an inventor must be identified for any person to be entitled to a grant of a patent under ss 15(1)(b)-(d).

114 For completeness, we note that no other provision in the *Patents Act* is inconsistent with the construction that we have preferred: see, in particular, ss 64(2)(a), 101B(2), 101E(1), 113, 172(1), 182(3) and 185 which all use the term “inventor”.

115 Of course, the development of patent law since 1624 has not until now been confronted with the question of whether or not an inventor may be other than a natural person. However, as noted, the law to which we have referred has proceeded on the assumption that only a natural person could be an inventor. That assumption found expression in the different context considered by the High Court in *D’Arcy* where the majority (French CJ, Kiefel, Bell and Keane JJ) said of claims 1-3 in the patent then in suit at [6]:

...Despite the formulation of the claimed invention as a class of product, its substance is information embodied in arrangements of nucleotides. The information is not “made” by *human action*. It is discerned. That feature of the claims raises a question about how they fit within the concept of a “manner of manufacture”. As appears from s 6 of the Statute of Monopolies, an invention is something which involves “making”. It must reside in something. It may be a product. It may be a process. It may be an outcome which can be characterised, in the language of *NRDC*, as an “artificially created state of affairs”. Whatever it is, *it must be something brought about by human action*. The requirement, in each claim, that the sequence in the isolate bear specified mutations or polymorphisms raises the same problem in a particular way. Satisfaction of that integer depends upon a characteristic of the human being from whom the nucleic acid is isolated, a characteristic which is not shared by all human beings. It has

nothing to do with the *person* who isolates the nucleic acid bearing the mutant sequence.

(emphasis added and citations omitted)

- 116 The references to “human action” were deliberate. They pick up the requirement set out in *National Resource Development Corporation v Commissioner of Patents* [1959] HCA 67; 102 CLR 252 that a manner of new manufacture bring about an artificially created state of affairs: at 276-277 (Dixon CJ, Kitto and Windeyer JJ). The assumption in both cases was that human agency was required in the development of the invention in suit. That approach accords with the legislative history to which we have referred, namely that the origin of entitlement to the grant of a patent lies in human endeavour, which is rewarded by the grant of a limited term monopoly.
- 117 Accordingly, having regard to the statutory language, structure and history of the *Patents Act*, and the policy objectives underlying the legislative scheme, we respectfully disagree with the conclusion reached by the primary judge. The Deputy Commissioner was correct to reach the conclusion that, by naming DABUS as the inventor, the application did not comply with reg 3.2C(2)(aa).
- 118 Two further matters warrant observation.
- 119 First, in filing the application, Dr Thaler no doubt intended to provoke debate as to the role that artificial intelligence may take within the scheme of the *Patents Act* and *Regulations*. Such debate is important and worthwhile. However, in the present case it clouded consideration of the prosaic question before the primary judge, which concerned the proper construction of s 15 and reg 3.2C(2)(aa). In our view, there are many propositions that arise for consideration in the context of artificial intelligence and inventions. They 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 an artificial intelligence is capable of being recognised as an inventor, should the standard of inventive step be recalibrated such that it is no longer judged by reference to the knowledge and thought processes of the hypothetical un inventive skilled worker in the field? If so, how?

What continuing role might the ground of revocation for false suggestion or misrepresentation have, in circumstances where the inventor is a machine?

120 Those questions and many more require consideration. Having regard to the agreed facts in the present case, it would appear that this should be attended to with some urgency. However, the Court must be cautious about approaching the task of statutory construction by reference to what it might regard as desirable policy, imputing that policy to the legislation, and then characterising that as the purpose of the legislation: *Deal* at [37]; *Miller v Miller* [2011] HCA 9; 242 CLR 446 at [29] (French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ). It would appear that this was the approach favoured by the primary judge.

121 Secondly, we do not accept the premise of the proposition, accepted by the primary judge and apparently influential in his reasoning, that if DABUS is not accepted to be an inventor, no invention devised by an artificial intelligence system is capable of being granted a patent. In the present case, it was said to be an agreed fact that DABUS is the inventor of the invention the subject of the application and that Dr Thaler is not. However, the characterisation of a person as an inventor is a question of law. The question of whether the application the subject of this appeal has a human inventor has not been explored in this litigation and remains undecided. Had this question been explored, it may have been necessary to consider what significance should be attributed to various matters including the (agreed) facts that Dr Thaler is the owner of the copyright in the DABUS source code and the computer on which DABUS operates, and that he is also responsible for the maintenance and running costs.

122 Finally, we note that the outcome in the present case is the same as the outcome of the Court of Appeal in *Thaler UK*. Whilst there are important aspects of the reasoning of the learned judges in that Court with which we respectfully agree, we consider that the task in the present case focusses on the particular statutory language of the *Patents Act*, which in material respects differs from that in the equivalent patents legislation in the United Kingdom.

## 8. DISPOSITION

123 For the reasons set out above we consider that the first ground of the appeal must succeed with the consequence that the appeal should be allowed. We do not consider that it is necessary to consider the second. The result is that the decision of the primary judge should be set aside and the orders made by the Deputy Commissioner reinstated. The Commissioner accepts that it is appropriate in the circumstances of this case that there be no order as to costs.

I certify that the preceding one hundred and twenty-three (123) numbered paragraphs are a true copy of the Reasons for Judgment of the Honourable Chief Justice Allsop, and Justices Nicholas, Yates, Moshinsky and Burley.

Associate:

Dated: 13 April 2022

**Internal distribution code:**

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- (B) [ X ] To Chairmen and Members
- (C) [ - ] To Chairmen
- (D) [ - ] No distribution

**Datasheet for the decision  
of 21 December 2021**

**Case Number:** J 0008/20 - 3.1.01

**Application Number:** 18275163.6

**Publication Number:** 3564144

**IPC:** B65D6/02, B65D8/00, B65D6/00,  
B65D13/02, B65D21/02, B65D1/02

**Language of the proceedings:** EN

**Title of invention:**  
FOOD CONTAINER

**Applicant:**  
Thaler, Stephen L.

**Headword:**  
Designation of inventor/DABUS

**Relevant legal provisions:**  
EPC Art. 81, 60(1), 90(3)  
EPC R. 19(1), 19(2)

**Keyword:**  
Designation of inventor - artificial intelligence

**Decisions cited:**  
G 0001/88, G 0001/18, J 0008/82, T 0866/01, T 0315/03,  
T 1157/01, T 1548/11, T 1157/17, T 1051/20, T 0388/12

**Headnote:**

A machine is not an inventor within the meaning of the EPC



**Juristische Beschwerdekammer**

**Legal Board of Appeal**

**Chambre de recours juridique**

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**Case Number: J 0008/20 - 3.1.01**

**D E C I S I O N**  
**of the Legal Board of Appeal 3.1.01**  
**of 21 December 2021**

**Appellant:** Thaler, Stephen L.  
(Applicant) 1767 Waterfall Drive  
St. Charles MO 63303 (US)

**Representative:** Williams Powell  
5 Chancery Lane  
London WC2A 1LG (GB)

**Decision under appeal:** **Decision of the Receiving Section of the  
European Patent Office posted on 27 January 2020  
refusing European patent application No.  
18275163.6 pursuant to Article 90(5) EPC.**

**Composition of the Board:**

**Chairman** W. Sekretaruk  
**Members:** R. Romandini  
A. Jimenez

## **Summary of Facts and Submissions**

- I. On 17 October 2018 and 7 November 2018 the applicant (henceforth: the appellant) filed two European patent applications with the EPO, the first one, EP 18 275 163, concerning a "Food Container" and the second one, EP 18 275 174, relating to "Devices and Methods for Attracting Enhanced Attention". Neither application designated an inventor in the request for grant, nor did the appellant file a separate document designating the inventor. In both cases, this deficiency led the Receiving Section to send a communication pursuant to Article 90(3) and Rule 60 EPC, inviting the appellant to submit an inventor designation drawn up according to Article 81 and Rule 19(1) EPC within the deadline set out in Rule 60(1) EPC.
- II. The appellant responded to this communication on 24 July 2019 by filing two EPO Forms 1002. In both cases the content of the form was the same in that the appellant indicated "DABUS" as inventor, with the comment that "the invention was autonomously generated by an artificial intelligence". Furthermore, he stated that he had acquired the right to the patent as employer. The form was accompanied by an addendum, according to which DABUS, a particular type of connectionist artificial intelligence, had not only generated but had also identified the novelty of the respective inventions. In that document it was also stated that the appellant - as owner of the machine indicated as inventor - was to be acknowledged as the assignee of the requested patent. The relevant passages read as follows:

*"Machines should not own patents. They do not have legal personality or independent rights and cannot own property. The machine's owner should be the default owner of any intellectual property it produces and any benefits that would otherwise subsist in a natural person owner. This is most consistent with current ownership norms surrounding personal property (including both machines and patents). In the present application, we submit that DABUS should be acknowledged as the inventor of any resultant patents, with Stephen Thaler, the machine's owner, as the assignee of any such patents."*

- III. The appellant filed a subsequent EPO Form 1002 on 2 August 2019 stating that he had derived the right to the patent as successor in title. The brief accompanying letter reads as follows:

*"With reference to our submission of 23 July 2019, we enclose a corrected designation of inventor form 1002 indicating that Mr. Thaler derives the rights of the invention by being the successor in title, namely the owner of the AI inventor."*

The addendum filed on 24 July 2019 was not amended.

- IV. The Receiving Section considered it expedient to consolidate the proceedings and appoint oral proceedings. In the annex to the summons to oral proceedings the Receiving Section observed that the designation of the inventor filed for the two applications did not meet the requirements laid down in Article 81 and Rule 19 EPC. It noted that the applicant could remedy this deficiency by indicating the family name, given name and full address of the inventor within sixteen months after the date of filing or, at

latest, before completion of the technical preparation for the publication of the European patent application, in accordance with Rule 60 EPC. Furthermore, it observed that if the deficiencies were not remedied within that time limit, the application would be refused in accordance with Article 90(5) EPC. In the same communication (point 17), the Receiving Section announced its intention to decide on the inventor designation issue at the oral proceedings.

V. The oral proceedings took place on 25 November 2019. With decisions sent to the appellant on 27 January 2020 the Receiving Section refused the applications in accordance with Article 90(5) EPC. Both decisions relied on two grounds, namely:

a) a designation indicating a machine as inventor did not meet the requirements of Article 81 and Rule 19(1) EPC, because an inventor within the meaning of the EPC had to be a natural person;

b) the "statement indicating that the applicant acquired the right to the European patent from DABUS as employer", and "the correction of this statement to indicate succession in title" did not meet the requirements of Articles 60(1) and 81 EPC, because a machine had no legal personality. Therefore, it could neither be an employee of the applicant nor transfer any right to him.

VI. The appellant lodged an appeal against both decisions. The present decision concerns the first of these two appeals and relates to application EP 18 275 163.6.

VII. With the statement of grounds of appeal, the appellant requested that the decision of the Receiving Section be

set aside, that the application be reinstated and that DABUS, the actual deviser of the invention, be named as inventor in accordance with the provisions of Articles 62, 81 and Rule 20 EPC. This request relies on the designation of inventor filed on 2 August 2019 (see Notice of Appeal of 13 March 2020).

VIII. In the statement of grounds of appeal, the appellant also identified a number of procedural violations which in his view had occurred in the proceedings before the Receiving Section. He argued in particular that:

- (a) the decision was based on facts and evidence not previously presented to the appellant (section 1.2 of the grounds of appeal);
- (b) the Receiving Section went beyond its competence in deciding the case (section 1.3 of the grounds of appeal);
- (c) the application had been refused before the 16-month term prescribed by Rule 60(1) EPC expired (section 1.1 of the grounds of appeal);
- (d) the Receiving Section had refused to name the inventor on the published application, in breach of Rule 20 EPC (section 1.3 of the grounds of appeal);
- (e) the Receiving Section had issued two separately appealable decisions although the proceedings were consolidated, thereby forcing the appellant to file two identical appeals and pay two appeal fees.

However, the statement of grounds did not include any specific requests based on these allegations.

IX. Following the appeal, by letter of 29 September 2020, the President of the European Patent Office (EPO) requested under Article 18 RPBA 2020 to comment on questions of general interest which in his view had arisen in both proceedings. The Board granted the request. The submissions were timely filed on 11 May 2021.

X. The Board issued a communication under Article 15(1) RPBA on 21 June 2021. In reaction to this communication the appellant filed an auxiliary request with letter of 14 September 2021. This auxiliary request was based on:

- an amended description ("providing information as to the conception of the invention by the AI system DABUS");

- an amended designation of the inventor (EPO Form 1002) stating that no person was identified as inventor as "the invention was conceived autonomously by DABUS", and that the appellant had derived the right to the European patent "by virtue of being the owner and creator of DABUS".

The appellant also submitted an amended version of the addendum filed on 24 July 2019 in the proceedings before the Receiving Section for the "sake of completeness".

XI. During the oral proceedings before the Board, the appellant confirmed that his final requests were:

- that the decision of the Receiving Section be set aside and the case be remitted to the Receiving Section for further prosecution for reason that the declaration of inventor filed on 2 August 2019 (main request) or the declaration of inventor filed on 14 September 2021

(auxiliary request) and the accompanying statements indicating the origin of the right to the European Patent met the requirements of the EPC.

Furthermore, in case none of the above requests were found allowable, the appellant asked that the following questions be referred to the Enlarged Board of Appeal:

- 1. In case of an invention made by an artificial intelligence in the absence of a traditional human inventor (AI generated invention) do Article 81, first sentence, and Rule 19 EPC remain applicable?*
- 2. If so, in what way should an applicant indicate the designated inventor in order to satisfy the requirements of Article 81, first sentence, and Rule 19 EPC?*

The appellant confirmed that he had no requests relating to the alleged procedural violations.

XII. The Board announced its decision at the end of the oral proceedings. After the oral proceedings, the European Patent Office informed the registrar of the Legal Board of Appeal that the appellant had not paid the examination fee and the designation fee in due time. A notice of loss of rights according to Rule 112(1) EPC was issued on 31 January 2022. The appellant filed a request for further processing on 29 March 2022. The Examining Division granted the request on 6 April 2022.

XIII. *Documents and decisions submitted during the appeal proceedings*

The appellant has submitted and referred to the following documents or decisions during the appeal proceedings:

- Decision of the UK IPO of 4 December 2019 (Attachment II);
- USPTO Request for Comments (Attachment III);
- WIPO Conversation on AI (Attachment IV);
- WO2020/079499 (Attachment V);
- Judgement dated 21 September 2021 of the Court of Appeal of England and Wales in *Thaler v Comptroller General of Patents Trade Marks And Designs* [2021] EWCA Civ 1374;
- Judgement dated 30 July 2021 of the Federal Court of Australia, *Thaler v Commissioner of Patents* [2021] FCA 879.

XIV. *The appellant's arguments*

The appellant has not presented his arguments as to why the decision under appeal was wrong in a structured and hierarchical way. Instead, he has criticised single paragraphs of the decision under appeal and supplemented this analysis with some general remarks and a separate Annex.

In spite of this, the Board understood the appellant's arguments in favour of setting aside the decision under appeal to be as follows:

- (a) At the time the EPC was drafted, artificial intelligence was not a reality and had not even been contemplated as a possibility. The EPC was drafted with human inventors in mind. However, human inventorship was not a condition for granting a patent. In refusing the application, the

Receiving Section based its decision "on the substantive point that the EPC allegedly does not permit and was not intended to permit the patenting of inventions by any inventor other than an human inventor". In this way, the Receiving Section not only overstepped its competence; by referring to the formal requirement for a designation of an inventor, it had made "inventorship a substantive condition for the granting of a patent by the EPO".

- (b) It was not necessary to be a natural person in order to make an invention within the meaning of Article 52 EPC. Inventorship was a matter of fact: it was based on the technical contribution made to an invention. The entity which comes up with the inventive concept was the deviser of the invention and should be recognised as such.
- (c) Allowing AI to be designated as inventor also responded to an interest of the public and to fairness. The public had a right to know how the invention was made. Patents would incentivise the development of AI systems. Acknowledging machines as inventors would acknowledge the work of machine's creators (see addendum filed on 24 July 2019).
- (d) Designation of the inventor was a formal matter. As was apparent from the travaux préparatoires, the drafters of the EPC had intended that the applicant should indicate the true deviser of the invention. This was exactly what happened in the present proceedings. The approach of the Receiving Section would force applicants to mask the identity of the actual inventor and name a human as inventor in

place of the AI system. Compelling an applicant to take such measures in order to satisfy a formal requirement would "undermine the very principle of designating and making public the identity of the actual deviser of the invention".

- (e) There was no international standard according to which an inventor had to be a natural person. A large number of EPC Contracting States did not state in their national patent laws that the inventor must be a natural person.
- (f) AI generated inventions were patentable under Article 52 EPC. They were also patentable under Article 27 TRIPS Agreement. The EPO should not deny patent protection for such inventions on the basis of designation rules, or for lack of entitlement, because breach of the former was only a procedural violation, and the latter was a matter for national courts.
- (g) Article 60 EPC defined the right to the patent and attributed it to the inventor and the successor in title. This could neither be an obstacle to the application being granted, nor provide a basis for restricting patents to human-made inventions for three reasons. Firstly, Article 60 EPC was not an exhaustive provision on the right to an invention in a European patent or patent application. National laws provided other mechanisms by which a third party could obtain the rights to an invention, which did not require any transfer of rights from an inventor or for the third party to be a successor in title (see for instance Section 7 of the UK Patents Act). Secondly, the concept of succession was broad enough to cover scenarios

other than assignment. Finally, the EPO was not competent to verify the accuracy of the statement on the origin of the right to the invention and had no competence to assess entitlement. This was a matter left to national courts, which applied national law. The EPO was bound by the Protocol on Jurisdiction and the Recognition of Decisions in respect of the Right to the Grant of a European Patent to accept a derivation of title based upon the law of any Contracting State having jurisdiction to decide the matter.

- (h) Refusing an application for a patentable invention because it did not designate a natural person as inventor was not only in conflict with the principles set out in Article 52 EPC, but it also had undesirable policy ramifications: it meant that all investments which resulted in inventions developed by AI would not be eligible for patent protection, because even if the result were patentable, it would not belong to anybody.

The arguments above were made in respect of the main request in written submissions and at the oral proceedings. With respect to the auxiliary request, the appellant submitted that he agreed with the Board's preliminary view that the rules governing the designation of the inventor were not applicable "where the invention is deemed to be the autonomous output of an AI device" (see letter dated 14 September 2021).

XV. *EPO President's comments*

Insofar as relevant for the present proceedings the EPO President's submissions of 11 May 2021 are as follows:

- (a) The designation of inventor filed by the applicant did not comply with the EPC, because the EPC required the inventor to be a natural person. This conclusion followed from:
- (i) the wording of Rule 19 EPC, which required the indication of the name of the inventor;
  - (ii) the fact that the EPC did not provide for non-persons, but only for legal or natural persons as applicant, inventor or in any other role in the patent grant proceedings; in matters of inventorship, in the EPC reference was made only to natural persons (e.g., Article 60(1), second sentence, EPC)
  - (iii) the travaux préparatoires, which referred to the inventor as a natural person;
  - (iv) international applicable standards.
- (b) The applicant's statement as to the origin of the right to the invention did not comply with Article 81 EPC because the applicant could not be considered the successor in title of an AI system. AI systems had no legal personality and could not transfer any rights. The applicant's statements were also contradictory. On the one hand, he stated that he was the inventor's successor in title. On the other hand, he admitted (in the addendum) that AI systems have no rights that they could transfer.
- (c) The EPO had competence to examine whether the designation filed by an applicant complies with

Article 81 and Rule 19(1) EPC (Article 90(3) and Article 16 EPC). An obviously deficient statement resulted in the refusal of the application under Art 90(5) EPC.

- (d) Concerning the alleged procedural violations raised by the appellant the President contended that the Receiving Section was competent to issue the decision. Indeed, the examination of the formal requirements of an application was within its exclusive competence under Article 16 EPC. The Legal Division was only competent for decisions in respect of entries in the Register of the European Patents. The decision under appeal did not concern a correction after the publication of the application, nor an entry in the Register. The Receiving Section was also entitled to refuse the application before the time limit under Rule 60(1) EPC expired. At the oral proceedings the Receiving Section had informed the applicant that it intended to interrupt the proceedings with the purpose of coming to a decision and asked the applicant whether he had anything to add. Since the applicant stated that he had no further comments, he had waived the right to file a designation within the remaining time limit set out in Rule 20(1) EPC. The applicant had subsequent possibilities to file a designation of inventor. But in the statement of grounds of appeal, he maintained the statements filed before the first instance. These circumstances indicated that the applicant made a deliberate choice not to file any designation of inventor and had waived his right to take advantage of the time limit set out in Rule 60(1) EPC. According to the President, indeed, an applicant could waive rights under the EPC not only

explicitly, but also implicitly. In support of this, the President cited some Boards of Appeal decisions, in particular T 144/09, T 936/09 and T 289/84.

XVI. *Third party submissions*

During the proceedings third parties made submissions under Article 115 EPC. While one of them questioned the admissibility of the appeal, others mostly discussed the allowability of the requests. For reasons explained below the Board did not take these submissions into account.

**Reasons for the Decision**

1. *Admissibility of the appeal*

The appeal is admissible. The appellant has filed an application which the Receiving Section has rejected. He is therefore adversely affected by the decision under review. Whether he is entitled to the requested patent or not does not matter for the admissibility of the appeal, contrary to the position set out in one of the third-party submissions.

2. *Granting the appellant's request filed under Article 121 EPC and impact on the appeal proceedings*

When the Board decided on the appeal the appellant had paid neither the examination fee (Article 94(1) EPC) nor the designation fee (Article 79(2) EPC). Since the time limit set out in Rule 70(1) and 39(1) EPC

respectively had already passed on the day of the oral proceedings before the Board, the European application was deemed to be withdrawn at the time. Hence, the decision announced at the end of the oral proceedings was without any effect and object. Providing reasons on the merits was not only unnecessary: it would also have been a waste of limited judicial resources. After the Board's decision, the Receiving Section sent a notice of loss of rights. The appellant, in turn, requested further prosecution, which the Examining division has granted on 6 April 2022. The latter decision lies within the competence of the department that should have also decided on the omitted act. It must therefore be respected by the Board. The assessment of its effect for the appeal proceedings lies, by contrast, with the Board. They are as follows:

Where a request filed under Article 121(1) EPC is granted, the legal consequence of the failure to observe the time limit is deemed not to have ensued (Article 121(3) EPC). The application is to be treated as if the failure to observe the time limit had not occurred. For the appeal proceedings this means that the application is to be deemed as still pending at the date the oral proceedings took place. In accordance herewith the decision to dismiss the appeal has a legal effect, and the Board must provide reasons for it.

### 3. *Submissions of third parties*

Under Article 115 EPC the observations filed by third parties in proceedings before the EPO should concern the patentability of the invention. The present proceedings do not concern the question of whether the invention disclosed in the application is patentable

under Articles 52-57 EPC. Nor do they relate to the general issue of whether an AI system is able to develop an invention without human direction and contribution. Thus, the Board does not need to consider any of the submissions made by third parties.

#### 4. *Assessment on the merits*

##### 4.1 *Introduction*

The requests filed by the appellant raise three issues.

The first is whether an applicant can designate an entity which is not a natural person as the inventor and thereby satisfy the requirements set out in Article 81, first sentence, EPC. This question is relevant for the main request.

The second question concerns the statement on the origin of the right to the European patent pursuant to Article 81, second sentence, EPC: to comply with the EPC is it enough for an applicant to file any declaration irrespective of its content, or does the latter need to satisfy specific requirements? This issue is relevant for the auxiliary request.

The last and related question concerns the role of the EPO, and more precisely whether and to what extent the EPO can examine and object to statements filed under Article 81, first and second sentence, EPC. This question is relevant for both requests.

In dealing with these matters, the Board considers it useful to first explain how it interprets the relevant provisions of the EPC. After this, the requests on file

will be addressed. A third section deals briefly with possible objections to the Board's conclusions.

#### 4.2 *Legal framework*

The application has been rejected because the inventor's designation did not comply with Article 81, first and second sentence, and Rule 19 EPC. However, further provisions are relevant for the assessment of the appeal as well as for the reasoning of the decision under review. These are discussed below.

##### 4.2.1 *Article 81 EPC*

According to Article 81 EPC "[t]he European patent application shall designate the inventor" (first sentence); where the applicant is not the inventor or is not the sole inventor "[t]he designation shall contain a statement indicating the origin of the right to the European patent" (second sentence). This obligation for the applicant is complementary to the right of the inventor, set out in Article 62 EPC, to be mentioned as such before the EPO.

To implement these provisions, Rule 20 EPC provides that "[t]he designated inventor shall be mentioned in the published patent application and the European patent specification, unless the inventor informs the European Patent Office in writing that he has waived his right to be mentioned". Under Rule 21 EPC, "[a]n incorrect designation of an inventor shall be rectified upon request and only with the consent of the wrongly designated person". Where such a request is filed by a third party, the consent of the applicant or the proprietor of the patent is required. Provisions to the same effect were already included in the implementing

regulations to the EPC 1973.

It follows from the wording of Article 81 and the aforementioned secondary legislation that the designation of the inventor is a mandatory requirement of the application. However, the inventor is not mentioned in the publication if they ask not to be. The statement on the origin of the right to the invention is in turn an integral part of the designation of inventor, but only where applicant and inventor are not the same person.

Article 81, second sentence, EPC does not require a generic explanation as to why an applicant, who is not the inventor, is entitled to file a European patent application. The provision is more specific: it refers to the "origin of the right to the European patent". In this way, by its very wording, Article 81 EPC establishes a link to Article 60 EPC, where the right to a European patent is mentioned and provided for.

#### 4.2.2 *Article 60(1) EPC*

Under Article 60(1), first sentence, EPC, "[t]he right to a European patent shall belong to the inventor or his successor in title". According to Article 60(1), second sentence, EPC, "[i]f the inventor is an employee, the right shall be determined in accordance with the law of the State in which the employee is mainly employed". Default rules are provided in Article 60(1), third sentence, EPC, for the case where this State cannot be determined.

Article 60(1) EPC is a stand-alone substantive provision of the EPC and fulfils three functions.

Firstly, it creates the right to the European patent; secondly, it vests this right in the inventor; finally, it provides for the separate transferability of the right even before a European application is filed.

Article 60(1) EPC envisages two ways to acquire the right to a European patent: the first is to develop the invention ("inventor"), and the second is to derive the right from the inventor after an invention has been made ("successor in title").

Both the concepts of inventor and successor in title are notions of the EPC; they must be interpreted uniformly and autonomously. While the concept of inventor does not require any support from domestic legislation, the concept of successor in title implies an interaction with national law. Indeed, the EPC has not established a comprehensive, self-sufficient legal order and private law. This does not mean that Article 60(1) EPC constitutes a pure reference to national legislation devoid of any content. "Successor in title" has an ordinary meaning under Article 31(1) of the Vienna Convention on the Law of Treaties (1969) ("VCLT"): it refers to a situation where a *pre-existing* right goes from one subject (the legal predecessor; see also Article 55(1)(a) EPC) into the sphere of another (the legal successor, Article 60(1) EPC). National law governs the question of whether the transfer is valid or has occurred by operation of a contract, inheritance or other rules of law. Since the EPC is silent on the matter with the exception of employment relationships, a national court seized with the issue will identify the applicable rules according to their domestic conflict of laws-provisions (van Empel, *The Granting of European Patents*, Leiden 1975, 81; Ubertaini, *Profili soggettivi del brevetto*, Milano 1985, 281; Cronauer,

Das Recht auf das Europäische Patent, 1988, Köln et al, 105).

However, when national courts decide on entitlement under the Protocol on Jurisdiction and the Recognition of Decisions in respect of the Right to the Grant of a European Patent, they must apply Article 60(1) EPC and not the provisions governing entitlement to national patents. Therefore, even if, e.g., UK or Australian law provided for other forms of acquiring originally or deriving the right to the patent (such as possession) and these forms went beyond the scope of Article 60(1) EPC, as suggested by the appellant, these rules would apply to domestic applications, but not to European patents, the right to which is attributed to the subjects listed in Article 60(1) EPC and no one else.

In view of the normative link between Article 60(1) and Article 81 EPC, not just any declaration, irrespective of its content, can be considered to comply with the EPC. It must be one which identifies the origin of the right in a manner consistent with Article 60(1) EPC. This is the case where the declaration identifies the applicant as the employer or the successor in title of the inventor.

#### 4.2.3 *Role of the EPO*

Under Article 60(3) EPC "the applicant shall be deemed to be entitled to exercise the right to a European patent". Under Rule 19(2) EPC "[t]he EPO shall not verify the accuracy of the designation of the inventor". Finally, the EPC contains no rules which the EPO could apply in assessing whether or not the statement required by Article 81, second sentence, EPC, plausibly explains the origin of the right to the

European patent. In view of this background, it is arguable - and it has been argued by the appellant - that the EPO should not and cannot examine the designation of the inventor, including the statement on the origin of the right to the patent. The Board disagrees with this contention. Indeed, under Article 90(3) EPC, "the European Patent Office shall examine (...) whether the requirements in Articles 14, 78 and 81 (...) have been satisfied". In the Board's view, this means that in the case of the designation of the inventor the EPO must check whether the request for grant or the separate statement identifies an inventor within the meaning of the EPC. Where the applicant is not the inventor, it must also examine whether the statement filed under Article 81, second sentence, EPC identifies an origin for the right to the patent which falls within the scope of Article 60(1) EPC.

The EPO must only examine whether the statement filed under Article 81, second sentence, EPC, assuming that it is correct, refers to a situation encompassed by Article 60(1) EPC. It does not need to assess whether, according to the relevant law, the applicant was *de jure* entitled to file the application, or if the relevant transaction or relationship was valid and really occurred. The examination is only a formal assessment: it does not require the EPO to identify any applicable law, assess evidence, or examine whether a designation is accurate or true entitlement exists. For this reason, the Board deems such an examination to be consistent with the principles set out in Article 60(3) EPC and Rule 19(2) EPC.

#### 4.3 *Main Request*

- 4.3.1 The main request is not allowable because the designation of the inventor does not comply with

Article 81, first sentence, EPC. Under the EPC the designated inventor has to be a person with legal capacity. This is not merely an assumption on which the EPC was drafted. It is the ordinary meaning of the term inventor (see, for instance, Oxford Dictionary of English: "a person who invented a particular process or device or who invents things as an occupation"; Collins Dictionary of the English language: "a person who invents, esp. as a profession").

4.3.2 There is no reason to assume that the EPC uses the term in a special way departing from its ordinary meaning. When a provision of the EPC 2000 refers to or includes the inventor(s), it uses the terms person or legal predecessor (e.g., Article 60(2) EPC or Article 55(1) EPC). So did the EPC 1973 in the corresponding legal provisions. Article 60(1) EPC vests the rights to the European patent in the inventor; thus, it postulates a person with legal capacity. In this context, with the secondary legislation (Rule 19 EPC) invoked by the Receiving Section supporting this interpretative outcome, it is not necessary to resort to the travaux for the analysis. There is no lexical or contextual ambiguity which the Board needs to dispel.

4.3.3 It is possible under the Vienna Convention to adopt an interpretative approach which relies on the purpose of Article 81 EPC (G 1/18, Reasons, point 3), or an evolutive reading which considers subsequent practices or agreements of the Contracting States (Article 31(3) VCLT; on these concepts see Metzger, Axel, *Interpretation of IP Treaties in Accordance with Art 31-33 VCLT: A Case Study on the Practice of the European Patent Office* (July 14, 2020), forthcoming, Henning Große Ruse-Khan, Axel Metzger (eds.), *Intellectual Property Beyond Borders* (tbc), 2020/2021,

available at SSRN: <https://ssrn.com/abstract=3650364> or <http://dx.doi.org/10.2139/ssrn.3650364>). However, neither of these methods would help the appellant's case. The purpose of the provisions dealing with the inventor and its designation is primarily to confer and to protect rights of the inventor (J 8/82, Reasons, points 12-13), to facilitate the enforcement of potential compensation claims provided under domestic law, and to identify a legal basis for entitlement to the application (on this see also the EPO President's comments, points 5-9). Designating a machine without legal capacity can serve neither of these purposes.

- 4.3.4 The existence of a subsequent practice or agreement which could allow the Board to overcome the language of the treaty was neither argued nor shown in these proceedings. The decision from the UK Court of Appeal (Facts and Submissions, XIII) supports the opposite theory: the term inventor was not interpreted as covering an apparatus or a device. In any event, this ruling concerns domestic provisions which govern national applications, and not Article 60 EPC. The judgement of the Federal Court of Australia of 30 July 2021 (Facts and Submissions, XIII) is not from an EPC Contracting State.
- 4.3.5 The further policy arguments made by the appellant, based on the right of the public to know how the invention was made or fairness concerns, cannot change an interpretation based on the plain language of the EPC. They are also not convincing.
- 4.3.6 There is no normative basis for the alleged right of the public to know who the inventor is and how the invention was made. This aspect is not relevant under Article 83 EPC. Neither is it relevant for the rules

governing the designation of the inventor. Whether the latter is published depends only on a unilateral decision of the inventor. The same holds true for the correction of wrong designations. Third parties have no rights in this regard. These rules are hardly reconcilable with the theory that the public has a right under the EPC to know who the inventor is (see also the analysis in Stierle, GRUR Int. 2020, 918, 923; this article was referred to in the EPO President's comments, fn. 8).

4.3.7 As to the argument of fairness, even if it was relevant under the EPC, it does not require allowing an applicant to designate a machine as inventor. Applicants can explain how the invention was made elsewhere, and in particular in the description. This is not required, but also not prohibited by the EPC.

4.3.8 In view of the above considerations the Receiving Section was right to raise an objection under Article 90(3) EPC. The EPO is entitled to verify that the designation identifies an inventor within the meaning of the EPC.

4.3.9 In summary, the main request does not comply with the EPC, because a machine is not an inventor within the meaning of the EPC. For this reason alone it is not allowable. There was no need to consider the requirements set out in Article 81, second sentence, EPC.

#### 4.4 *Auxiliary request*

4.4.1 The auxiliary request relies on the argument that Article 81, first sentence, EPC does not apply where the application does not relate to a human-made

invention. The Board agrees with this approach. The provisions concerning the designation were drafted to confer specific rights on the inventor. It is arguable that where no human inventor can be identified, then the ratio legis of Article 81, first sentence, EPC does not apply.

Where inventor and applicant differ, however, a statement on the origin of the right to the European patent is necessary under Article 81, second sentence, EPC. This provision remains applicable whether an invention was made by a person or by a device.

- 4.4.2 According to the statement accompanying the auxiliary request, the appellant has derived the right to the European patent as owner and creator of the machine. This statement does not bring the appellant within the scope of Article 60(1) EPC. Indeed, it does not refer to a legal situation or transaction which would have made him successor in title of an inventor within the meaning of the EPC. For this reason, the auxiliary request does not comply with Article 81, second sentence, EPC in conjunction with Article 60(1) EPC, and is not allowable.

4.5 *Referral to the Enlarged Board of Appeal*

- 4.5.1 The appellant asked that the Board refer two questions to the Enlarged Board of Appeal, both relating to the applicability of Article 81, first sentence, EPC (see above, Facts and Submissions, XI).

Under Article 112 EPC the Board has to refer questions when the answer to them is necessary to decide on the appeal. This requirement was not met for the questions

concerned.

- 4.5.2 As far as the auxiliary request is concerned, whatever the answer given to the referral questions, it would not change the outcome. The auxiliary request is not allowable because of Article 81, second sentence, EPC, and not because of Article 81, first sentence, EPC.
- 4.5.3 The main request, in turn, does not rely on the contention that the requirement set out in Article 81, first sentence, EPC does not apply to the present case. Instead, it relies on the argument that the appellant has the right to satisfy that requirement by indicating a machine as inventor. The only question which would be relevant for this request is therefore whether an entity without legal capacity can be an inventor within the meaning of the EPC. For the reasons set out above the answer to this question follows from the plain wording of the EPC and the function of the designation requirements. There is no subsequent practice or agreement which could be invoked to challenge this answer. For this reason, a referral did not appear necessary to dispose of this request as well.

#### 4.6 *Objections*

- 4.6.1 There are two conceivable objections to the Board's conclusions on the auxiliary request and the request for a referral. These are in part based on submissions of the appellant, in part reformulated or supplemented by the Board for the sake of clarity.
- 4.6.2 Firstly, under Article 52(1) EPC any invention which is novel, industrially applicable and involves an inventive step is patentable. The appellant has argued that the scope of this provision is not limited to

human-made inventions. The Board agrees. How the invention was made apparently plays no role in the European patent system. This is true even for the morality clause of Article 53(a) EPC: an invention is excluded where its future exploitation would be offensive. Whether its making, namely "the inventor's activities during making or development of his invention" might be regarded as contrary to "ordre public" or morality, is irrelevant for the plain letter of Article 53(a) EPC (see T 0866/01, Reasons, point 5.6; T 315/03, Reasons, point 4.2). Therefore, it is arguable that AI-generated inventions too are patentable under Article 52(1) EPC. If national courts were to follow this interpretation, the scope of Article 52(1) EPC and Article 60(1) EPC would not be coextensive: there would be inventions patentable under Article 52(1) EPC, for which no right to a patent is provided under Article 60(1) EPC.

- 4.6.3 Secondly, filing a statement on the origin of the right to the European patent is a requirement under the EPC where inventor and applicant differ. It is only a formal requirement. Its function can reasonably be seen only as informing the public on the possible origin of the right, so that determined third parties, who may be entitled to the subject-matter disclosed in the application, can react and start proceedings in national courts (see also the observations made in the ruling *Nippon Piston Ring Co's Application* [1987] RPC 120, 131, to which the judgement of the UK Court of Appeal submitted by the appellant refers). It would be disproportionate to deny protection to patentable subject-matter for failing to fulfil such a formal requirement. This is because of the limited additional utility which this statement may have for the public or

the individual parties and in view of the absence of a full examination on the actual merits by the EPO.

4.6.4 Therefore, as for the designation of the inventor under Article 81, first sentence, EPC, here too the Board could consider that the lawmakers had in mind only human-made inventions in drafting Article 60 EPC and Article 81, second sentence, EPC. Consequently, the Board could provide that no statement on the origin of the right is required where the application concerns an invention developed by a machine or accept any statement irrespective of its content. Where the Board would not be ready to go that far, it would at least have to *ex officio* refer questions relating to Article 81, second sentence, EPC to the Enlarged Board of Appeal.

4.6.5 In the Board's view these objections share a weakness: in order to consider them and set aside the decision under appeal it would be necessary to fully ignore a formal requirement of the EPC. The Board believes that it should refrain from this step in this case for at least three reasons.

4.6.6 Firstly, the Board is not convinced that there is a problem of unequal treatment of specific applicants and categories of inventions which is in conflict with the objective purpose of the EPC and calls for an evolutive interpretation of the law. The Board is not aware of any case law which would prevent the user or the owner of a device involved in an inventive activity to designate himself as inventor under European patent law. The EPC, in turn, does not prevent the applicant from providing information in the application which is not relevant for carrying out the invention but may satisfy the fairness concerns identified by the

appellant in the addendum of 24 July 2019 (see above, Facts and Submissions, XIV). Secondly, it is the task of the lawmakers to amend the EPC and to assess whether a real problem exists. Different solutions may be conceivable to the issue raised by the appellant. It is not for the Board to select one of the possible approaches. Finally, the Board is not aware of any other proceedings which concern an unrelated application and where these issues have become relevant.

- 4.6.7 For these reasons the Board did not consider it necessary either to *ex officio* involve the Enlarged Board of Appeal on the interpretation of Article 81, second sentence, EPC.

4.7 *Procedural aspects*

- 4.7.1 The appellant has not requested to set aside the decision under appeal based on the alleged procedural violations (see Facts and Submissions, VIII). Nor has he requested that the appeal fee be refunded. However, in light of the submissions the appellant made both in the statement setting out the grounds of appeal and the letter of 14 September 2021, the Board has to consider *ex officio* whether a procedural violation has taken place.
- 4.7.2 According to the Board the Receiving section was competent to issue the decision under appeal. The application was rejected because it did not comply with the formal requirements set out in Article 81 EPC. It is the task of the Receiving Section to examine compliance with this provision, as provided by Articles 16 and 90(3) EPC. In the Board's view it is irrelevant

that substantive provisions may have or had an impact on the interpretation of the relevant procedural provisions (see above, point 4.2).

- 4.7.3 Concerning the new evidence on which the decision allegedly relies (see above, Facts and Submissions, VIII, (a)), the allegation was not substantiated. The reasons for the refusals were anticipated in the annex to the summons. The decision includes some references to national law which were not anticipated in that preliminary opinion. However, they only support the conclusions of the Receiving Section. The basis for the decision is that under the EPC the inventor must be a natural person.
- 4.7.4 The EPO's refusal to publish the designation as filed only implemented the Receiving Section's preliminary opinion that that designation was formally deficient. It cannot constitute a procedural violation. The same holds true for the issue of two distinct decisions. The Receiving Section consolidated the proceedings, but not the applications, which remain separate and distinct.
- 4.7.5 The decision to refuse the application before the time limit set out in Rule 60(1) EPC expired was, by contrast, not justified. The EPO President contends that under the EPC and the case law quoted (see above, Facts and Submissions, XV(d)) it was possible to implicitly waive a right, and this occurred in the first instance proceedings. The Board does not share this opinion for two reasons.
- 4.7.6 Firstly, the decisions referred to are not pertinent to the issue. They all concern the admission of *late* filed requests or submissions. An applicant or a patent proprietor has no right to file new requests on appeal,

and he cannot waive any entitlement in this respect. The same holds true for the oral proceedings before an opposition division. Decision T 936/09 (Reasons, point 1.14) also did not deal with the surrender of a right. The Board in T 936/09 considered the appellant's conduct in the first instance proceedings to be of significance only when considering the admissibility of a request or exercising discretion under Article 12(4) RPBA 2007. Therefore, the Board was not referred to any established case law concerning waivers which would support the EPO President's statement. The present Board is not aware of any such case law. To the contrary: several decisions state that in accordance with the maxim "a jure nemo recedere praesumitur" (see G 1/88 OJ 1989, 189, Reasons, point 2.4) in the absence of an explicit withdrawal "surrender of a right cannot be simply presumed" (T 1157/01, Reasons, point 6; T 1567/17, Reasons, point 2.3.1 (a); T 1051/20, Reasons, point 1.4; see also T 1548/11, Reasons, point 1.3).

- 4.7.7 Secondly, even if it were possible under the EPC to tacitly waive a right, the Board is of the view that any relevant waiver must be unequivocal (T 0388/12, Reasons, point 4.2). The latter requirement was not met in the present proceedings. The appellant was summoned with a reference to the right to file a designation within sixteen months (see above, Facts and submission, IV). In view of the information provided in the Annex the Receiving Section should have at least explained, before announcing a decision, that it was about to refuse the application unless an EPC-compliant designation was filed *at the oral proceedings themselves*. The minutes do not provide evidence that it did. Against this background, the mere statement that the appellant had no further comments did not represent an unequivocal waiver of the right to file a

declaration within the remaining time under Rule 60(1) EPC.

- 4.7.8 Nevertheless, the Board neither considers it appropriate to set the decision aside for this reason, nor equitable to refund the appeal fee. The Board is not convinced that there is a causal link between the procedural violation and filing the appeal. The appellant has not filed a designation indicating as inventor a natural person with the statement of grounds of appeal. He has maintained the requests pending before the Receiving Section. While this subsequent behaviour cannot support the theory that the appellant surrendered his right at the oral proceedings, it does support the view that even if the time limit had not been cut, the appellant would have maintained his position and not designated a person as inventor. Thus, the appeal would have been necessary anyway.

## Order

### For these reasons it is decided that:

The request for referral of questions to the Enlarged Board of Appeal is refused.

The appeal is dismissed.

The Registrar:

The Chairman:



C. Eickhoff

W. Sekretaruk

Decision electronically authenticated

**Internal distribution code:**

- (A) [ - ] Publication in OJ  
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(C) [ - ] To Chairmen  
(D) [ X ] No distribution

**Datasheet for the decision  
of 21 December 2021**

**Case Number:** J 0009/20 - 3.1.01

**Application Number:** 18275174.3

**Publication Number:** 3563896

**IPC:** A61M21/00, A61M16/00

**Language of the proceedings:** EN

**Title of invention:**

DEVICES AND METHODS FOR ATTRACTING ENHANCED ATTENTION

**Applicant:**

Thaler, Stephen L.

**Headword:**

Designation of inventor/DABUS II

**Relevant legal provisions:**

EPC Art. 81, 60(1), 90(3)

EPC R. 19(1), 19(2)

**Keyword:**

Designation of inventor - artificial intelligence

**Decisions cited:**

G 0001/88, G 0001/18, J 0008/82, T 0866/01, T 0315/03,  
T 1157/01, T 1051/20, T 0388/12, T 1548/11

**Catchword:**

A machine is not an inventor within the meaning of the EPC



**Juristische Beschwerdekammer**

**Legal Board of Appeal**

**Chambre de recours juridique**

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**Case Number: J 0009/20 - 3.1.01**

**D E C I S I O N**  
**of the Legal Board of Appeal 3.1.01**  
**of 21 December 2021**

**Appellant:** Thaler, Stephen L.  
(Applicant) 1767 Waterfall Drive  
St. Charles MO 63303 (US)

**Representative:** Williams Powell  
5 Chancery Lane  
London WC2A 1LG (GB)

**Decision under appeal:** **Decision of the Receiving Section of the  
European Patent Office posted on 27 January 2020  
refusing European patent application No.  
18275174.3 pursuant to Article 90(5) EPC.**

**Composition of the Board:**

**Chairman** W. Sekretaruk  
**Members:** R. Romandini  
A. Jimenez

## **Summary of Facts and Submissions**

*The present appeal lies from the Receiving Section's refusal of European patent application No. 18 275 174. The submissions made and the legal issues raised in the present proceedings are identical to those in case J 0008/20 concerning European patent application No. 18 275 163. The same holds true for the submissions before the department of first instance. The decisions appealed in J 0008/20 and in the present proceedings were both issued by the EPO Receiving Section following the same (consolidated) oral proceedings. In substance, they are identical. In turn, the present board summoned for oral proceedings for the same date in both cases. At the end of the oral proceedings, the board announced the same outcome for both appeals. Against this background the present decision is almost identical to that in J 0008/20.*

- I. On 17 October 2018 and 7 November 2018 the applicant (henceforth: the appellant) filed two European patent applications with the EPO, the first one, EP 18 275 163, concerning a "Food Container" and the second one, EP 18 275 174, relating to "Devices and Methods for Attracting Enhanced Attention". Neither application designated an inventor in the request for grant, nor did the appellant file a separate document designating the inventor. In both cases, this deficiency led the Receiving Section to send a communication pursuant to Article 90(3) and Rule 60 EPC, inviting the appellant to submit an inventor designation drawn up according to Article 81 and Rule 19(1) EPC within the deadline set out in Rule 60(1) EPC.

II. The appellant responded to this communication on 24 July 2019 by filing two EPO Forms 1002. In both cases the content of the form was the same in that the appellant indicated "DABUS" as inventor, with the comment that "the invention was autonomously generated by an artificial intelligence". Furthermore, he stated that he had acquired the right to the patent as employer. The form was accompanied by an addendum, according to which DABUS, a particular type of connectionist artificial intelligence, had not only generated but had also identified the novelty of the respective inventions. In that document it was also stated that the appellant - as owner of the machine indicated as inventor - was to be acknowledged as the assignee of the requested patent. The relevant passages read as follows:

*"Machines should not own patents. They do not have legal personality or independent rights and cannot own property. The machine's owner should be the default owner of any intellectual property it produces and any benefits that would otherwise subsist in a natural person owner. This is most consistent with current ownership norms surrounding personal property (including both machines and patents). In the present application, we submit that DABUS should be acknowledged as the inventor of any resultant patents, with Stephen Thaler, the machine's owner, as the assignee of any such patents."*

III. The appellant filed a subsequent EPO Form 1002 on 2 August 2019 stating that he had derived the right to the patent as successor in title. The brief accompanying letter reads as follows:

*"With reference to our submission of 23 July 2019, we*

*enclose a corrected designation of inventor form 1002 indicating that Mr. Thaler derives the rights of the invention by being the successor in title, namely the owner of the AI inventor."*

The addendum filed on 24 July 2019 was not amended.

- IV. The Receiving Section considered it expedient to consolidate the proceedings and appoint oral proceedings. In the annex to the summons to oral proceedings the Receiving Section observed that the designation of the inventor filed for the two applications did not meet the requirements laid down in Article 81 and Rule 19 EPC. It noted that the applicant could remedy this deficiency by indicating the family name, given name and full address of the inventor within sixteen months after the date of filing or, at latest, before completion of the technical preparation for the publication of the European patent application, in accordance with Rule 60 EPC. Furthermore, it observed that if the deficiencies were not remedied within that time limit, the application would be refused in accordance with Article 90(5) EPC. In the same communication (point 17), the Receiving Section announced its intention to decide on the inventor designation issue at the oral proceedings.
- V. The oral proceedings took place on 25 November 2019. With decisions sent to the appellant on 27 January 2020, the Receiving Section refused the applications in accordance with Article 90(5) EPC. Both decisions relied on two grounds, namely:
- (a) a designation indicating a machine as inventor did not meet the requirements of Article 81 and Rule 19(1) EPC, because an inventor within the meaning

of the EPC had to be a natural person;

- (b) the "statement indicating that the applicant acquired the right to the European patent from DABUS as employer", and "the correction of this statement to indicate succession in title" did not meet the requirements of Articles 60(1) and 81 EPC, because a machine had no legal personality. Therefore, it could neither be an employee of the applicant nor transfer any right to him.

- VI. The appellant lodged an appeal against both decisions. The present decision concerns the second of these two appeals and relates to the application No. 18 275 174.
- VII. With the statement of grounds of appeal, the appellant requested that the decision of the Receiving Section be set aside, that the application be reinstated and that DABUS, the actual deviser of the invention, be named as inventor in accordance with the provisions of Articles 62, 81 and Rule 20 EPC. This request relies on the designation of inventor filed on 2 August 2019 (see Notice of Appeal of 13 March 2020).
- VIII. In the statement of grounds of appeal, the appellant also identified a number of procedural violations which in his view had occurred in the proceedings before the Receiving Section. He argued in particular that:
  - (a) the decision was based on facts and evidence not previously presented to the appellant (section 1.2 of the grounds of appeal);
  - (b) the Receiving Section went beyond its competence in deciding the case (section 1.3 of the grounds of

appeal);

- (c) the application had been refused before the 16-month term prescribed by Rule 60(1) EPC expired (section 1.1 of the grounds of appeal);
- (d) the Receiving Section had refused to name the inventor on the published application, in breach of Rule 20 EPC (section 1.3 of the grounds of appeal);
- (e) the Receiving Section had issued two separately appealable decisions although the proceedings were consolidated, thereby forcing the appellant to file two identical appeals and pay two appeal fees.

However, the statement of grounds did not include any specific requests based on these allegations.

- IX. Following the appeal, by letter of 29 September 2020, the President of the European Patent Office (EPO) requested under Article 18 RPBA 2020 to comment on questions of general interest which in his view had arisen in both proceedings. The Board granted the request. The submissions were timely filed on 11 May 2021.
- X. The Board issued a communication under Article 15(1) RPBA on 21 June 2021. In reaction to this communication the appellant filed an auxiliary request with letter of 14 September 2021. This auxiliary request was based on:
  - an amended description ("providing information as to the conception of the invention by the AI system DABUS");
  - an amended designation of the inventor (EPO Form

1002) stating that no person was identified as inventor as "the invention was conceived autonomously by DABUS", and that the appellant had derived the right to the European patent "by virtue of being the owner and creator of DABUS".

The appellant also submitted an amended version of the addendum filed on 24 July 2019 in the proceedings before the Receiving Section for the "sake of completeness".

- XI. During the oral proceedings before the Board, the appellant confirmed that his final requests were:
- that the decision of the Receiving Section be set aside and the case be remitted to the Receiving Section for further prosecution for reason that the declaration of inventor filed on 2 August 2019 (main request) or the declaration of inventor filed on 14 September 2021 (auxiliary request) and the accompanying statements indicating the origin of the right to the European Patent met the requirements of the EPC.

Furthermore, in case none of the above requests were found allowable, the appellant asked that the following questions be referred to the Enlarged Board of Appeal:

- 1. In case of an invention made by an artificial intelligence in the absence of a traditional human inventor (AI generated invention) do Article 81, first sentence, and Rule 19 EPC remain applicable?*
- 2. If so, in what way should an applicant indicate the designated inventor in order to satisfy the requirements of Article 81, first sentence, and Rule 19 EPC?*

The appellant confirmed that he had no requests relating to the alleged procedural violations.

XII. The Board announced its decision at the end of the oral proceedings. After the oral proceedings, the European Patent Office informed the registrar of the Legal Board of Appeal that the appellant had not paid the examination fee and the designation fee in due time. A notice of loss of rights according to Rule 112(1) EPC was issued on 31 January 2022. The appellant filed a request for further processing on 29 March 2022. The Examining Division granted the request on 6 April 2022.

XIII. *Documents and decisions submitted during the appeal proceedings*

The appellant has submitted and referred to the following documents or decisions during the appeal proceedings:

- Decision of the UK IPO of 4 December 2019 (Attachment II);
- USPTO Request for Comments (Attachment III);
- WIPO Conversation on AI (Attachment IV);
- WO2020/079499 (Attachment V);
- Judgement dated 21 September 2021 of the Court of Appeal of England and Wales in *Thaler v Comptroller General of Patents Trade Marks And Designs* [2021] EWCA Civ 1374;
- Judgement dated 30 July 2021 of the Federal Court of Australia, *Thaler v Commissioner of Patents* [2021] FCA 879.

XIV. *The appellant's arguments*

The appellant has not presented his arguments as to why the decision under appeal was wrong in a structured and hierarchical way. Instead, he has criticised single paragraphs of the decision under appeal and supplemented this analysis with some general remarks and a separate Annex.

In spite of this, the Board understood the appellant's arguments in favour of setting aside the decision under appeal to be as follows:

- (a) At the time the EPC was drafted, artificial intelligence was not a reality and had not even been contemplated as a possibility. The EPC was drafted with human inventors in mind. However, human inventorship was not a condition for granting a patent. In refusing the application, the Receiving Section based its decision "on the substantive point that the EPC allegedly does not permit and was not intended to permit the patenting of inventions by any inventor other than an human inventor". In this way, the Receiving Section not only overstepped its competence; by referring to the formal requirement for a designation of an inventor, it had made "inventorship a substantive condition for the granting of a patent by the EPO".
- (b) It was not necessary to be a natural person in order to make an invention within the meaning of Article 52 EPC. Inventorship was a matter of fact: it was based on the technical contribution made to an invention. The entity which comes up with the inventive concept was the deviser of the invention and should be recognised as such.

- (c) Allowing AI to be designated as inventor also responded to an interest of the public and to fairness. The public had a right to know how the invention was made. Patents would incentivise the development of AI systems. Acknowledging machines as inventors would acknowledge the work of machine's creators (see addendum filed on 24 July 2019).
- (d) Designation of the inventor was a formal matter. As was apparent from the travaux préparatoires, the drafters of the EPC had intended that the applicant should indicate the true deviser of the invention. This was exactly what happened in the present proceedings. The approach of the Receiving Section would force applicants to mask the identity of the actual inventor and name a human as inventor in place of the AI system. Compelling an applicant to take such measures in order to satisfy a formal requirement would "undermine the very principle of designating and making public the identity of the actual deviser of the invention".
- (e) There was no international standard according to which an inventor had to be a natural person. A large number of EPC Contracting States did not state in their national patent laws that the inventor must be a natural person.
- (f) AI generated inventions were patentable under Article 52 EPC. They were also patentable under Article 27 TRIPS Agreement. The EPO should not deny patent protection for such inventions on the basis of designation rules, or for lack of entitlement, because breach of the former was only a procedural

violation, and the latter was a matter for national courts.

- (g) Article 60 EPC defined the right to the patent and attributed it to the inventor and the successor in title. This could neither be an obstacle to the application being granted, nor provide a basis for restricting patents to human-made inventions for three reasons. Firstly, Article 60 EPC was not an exhaustive provision on the right to an invention in a European patent or patent application. National laws provided other mechanisms by which a third party could obtain the rights to an invention, which did not require any transfer of rights from an inventor or for the third party to be a successor in title (see for instance Section 7 of the UK Patents Act). Secondly, the concept of succession was broad enough to cover scenarios other than assignment. Finally, the EPO was not competent to verify the accuracy of the statement on the origin of the right to the invention and had no competence to assess entitlement. This was a matter left to national courts, which applied national law. The EPO was bound by the Protocol on Jurisdiction and the Recognition of Decisions in respect of the Right to the Grant of a European Patent to accept a derivation of title based upon the law of any Contracting State having jurisdiction to decide the matter.
- (h) Refusing an application for a patentable invention because it did not designate a natural person as inventor was not only in conflict with the principles set out in Article 52 EPC, but it also had undesirable policy ramifications: it meant that all investments which resulted in inventions

developed by AI would not be eligible for patent protection, because even if the result were patentable, it would not belong to anybody.

The arguments above were made in respect of the main request in written submissions and at the oral proceedings. With respect to the auxiliary request, the appellant submitted that he agreed with the Board's preliminary view that the rules governing the designation of the inventor were not applicable "where the invention is deemed to be the autonomous output of an AI device" (see letter dated 14 September 2021).

XV. *EPO President's comments*

Insofar as relevant for the present proceedings the EPO President's submissions of 11 May 2021 are as follows:

- (a) The designation of inventor filed by the applicant did not comply with the EPC, because the EPC required the inventor to be a natural person. This conclusion followed from:
  - (i) the wording of Rule 19 EPC, which required the indication of the name of the inventor;
  - (ii) the fact that the EPC did not provide for non-persons, but only for legal or natural persons as applicant, inventor or in any other role in the patent grant proceedings; in matters of inventorship, in the EPC reference was made only to natural persons (e.g., Article 60(1), second sentence, EPC)

- (iii) the travaux préparatoires, which referred to the inventor as a natural person;
  - (iv) international applicable standards.
- (b) The applicant's statement as to the origin of the right to the invention did not comply with Article 81 EPC because the applicant could not be considered the successor in title of an AI system. AI systems had no legal personality and could not transfer any rights. The applicant's statements were also contradictory. On the one hand, he stated that he was the inventor's successor in title. On the other hand, he admitted (in the addendum) that AI systems have no rights that they could transfer.
- (c) The EPO had competence to examine whether the designation filed by an applicant complies with Article 81 and Rule 19(1) EPC (Article 90(3) and Article 16 EPC). An obviously deficient statement resulted in the refusal of the application under Art 90(5) EPC.
- (d) Concerning the alleged procedural violations raised by the appellant the President contended that the Receiving Section was competent to issue the decision. Indeed, the examination of the formal requirements of an application was within its exclusive competence under Article 16 EPC. The Legal Division was only competent for decisions in respect of entries in the Register of the European Patents. The decision under appeal did not concern a correction after the publication of the application, nor an entry in the Register. The

Receiving Section was also entitled to refuse the application before the time limit under Rule 60(1) EPC expired. At the oral proceedings the Receiving Section had informed the applicant that it intended to interrupt the proceedings with the purpose of coming to a decision and asked the applicant whether he had anything to add. Since the applicant stated that he had no further comments, he had waived the right to file a designation within the remaining time limit set out in Rule 20(1) EPC. The applicant had subsequent possibilities to file a designation of inventor. But in the statement of grounds of appeal, he maintained the statements filed before the first instance. These circumstances indicated that the applicant made a deliberate choice not to file any designation of inventor and had waived his right to take advantage of the time limit set out in Rule 60(1) EPC. According to the President, indeed, an applicant could waive rights under the EPC not only explicitly, but also implicitly. In support of this, the President cited some Boards of Appeal decisions, in particular T 144/09, T 936/09 and T 289/84.

XVI. *Third party submissions*

During the proceedings third parties made submissions under Article 115 EPC. While one of them questioned the admissibility of the appeal, others mostly discussed the allowability of the requests. For reasons explained below the Board did not take these submissions into account.

## **Reasons for the Decision**

### *1. Admissibility of the appeal*

The appeal is admissible. The appellant has filed an application which the Receiving Section has rejected. He is therefore adversely affected by the decision under review. Whether he is entitled to the requested patent or not does not matter for the admissibility of the appeal, contrary to the position set out in one of the third-party submissions.

### *2. Granting the appellant's request filed under Article 121 EPC and impact on the appeal proceedings*

When the Board decided on the appeal the appellant had paid neither the examination fee (Article 94(1) EPC) nor the designation fee (Article 79(2) EPC). Since the time limit set out in Rule 70(1) and 39(1) EPC respectively had already passed on the day of the oral proceedings before the Board, the European application was deemed to be withdrawn at the time. Hence, the decision announced at the end of the oral proceedings was without any effect and object. Providing reasons on the merits was not only unnecessary: it would also have been a waste of limited judicial resources. After the Board's decision, the Receiving Section sent a notice of loss of rights. The appellant, in turn, requested further prosecution, which the Examining division has granted on 6 April 2022. The latter decision lies within the competence of the department that should have also decided on the omitted act. It must therefore be respected by the Board. The assessment of its effect for the appeal proceedings lies, by contrast, with the Board. They are as follows:

Where a request filed under Article 121(1) EPC is granted, the legal consequence of the failure to observe the time limit is deemed not to have ensued (Article 121(3) EPC). The application is to be treated as if the failure to observe the time limit had not occurred. For the appeal proceedings this means that the application is to be deemed as still pending at the date the oral proceedings took place. In accordance herewith the decision to dismiss the appeal has a legal effect, and the Board must provide reasons for it.

### 3. *Submissions of third parties*

Under Article 115 EPC the observations filed by third parties in proceedings before the EPO should concern the patentability of the invention. The present proceedings do not concern the question of whether the invention disclosed in the application is patentable under Articles 52-57 EPC. Nor do they relate to the general issue of whether an AI system is able to develop an invention without human direction and contribution. Thus, the Board does not need to consider any of the submissions made by third parties.

### 4. *Assessment on the merits*

#### 4.1 *Introduction*

The requests filed by the appellant raise three issues.

The first is whether an applicant can designate an entity which is not a natural person as the inventor and thereby satisfy the requirements set out in Article 81, first sentence, EPC. This question is relevant for the main request.

The second question concerns the statement on the origin of the right to the European patent pursuant to Article 81, second sentence, EPC: to comply with the EPC is it enough for an applicant to file any declaration irrespective of its content, or does the latter need to satisfy specific requirements? This issue is relevant for the auxiliary request.

The last and related question concerns the role of the EPO, and more precisely whether and to what extent the EPO can examine and object to statements filed under Article 81, first and second sentence, EPC. This question is relevant for both requests.

In dealing with these matters, the Board considers it useful to first explain how it interprets the relevant provisions of the EPC. After this, the requests on file will be addressed. A third section deals briefly with possible objections to the Board's conclusions.

## 4.2 *Legal framework*

The application has been rejected because the inventor's designation did not comply with Article 81, first and second sentence, and Rule 19 EPC. However, further provisions are relevant for the assessment of the appeal as well as for the reasoning of the decision under review. These are discussed below.

### 4.2.1 *Article 81 EPC*

According to Article 81 EPC "[t]he European patent application shall designate the inventor" (first sentence); where the applicant is not the inventor or is not the sole inventor "[t]he designation shall

contain a statement indicating the origin of the right to the European patent" (second sentence). This obligation for the applicant is complementary to the right of the inventor, set out in Article 62 EPC, to be mentioned as such before the EPO.

To implement these provisions, Rule 20 EPC provides that "[t]he designated inventor shall be mentioned in the published patent application and the European patent specification, unless the inventor informs the European Patent Office in writing that he has waived his right to be mentioned". Under Rule 21 EPC, "[a]n incorrect designation of an inventor shall be rectified upon request and only with the consent of the wrongly designated person". Where such a request is filed by a third party, the consent of the applicant or the proprietor of the patent is required. Provisions to the same effect were already included in the implementing regulations to the EPC 1973.

It follows from the wording of Article 81 and the aforementioned secondary legislation that the designation of the inventor is a mandatory requirement of the application. However, the inventor is not mentioned in the publication if they ask not to be. The statement on the origin of the right to the invention is in turn an integral part of the designation of inventor, but only where applicant and inventor are not the same person.

Article 81, second sentence, EPC does not require a generic explanation as to why an applicant, who is not the inventor, is entitled to file a European patent application. The provision is more specific: it refers to the "origin of the right to the European patent". In this way, by its very wording, Article 81 EPC

establishes a link to Article 60 EPC, where the right to a European patent is mentioned and provided for.

#### 4.2.2 *Article 60(1) EPC*

Under Article 60(1), first sentence, EPC, "[t]he right to a European patent shall belong to the inventor or his successor in title". According to Article 60(1), second sentence, EPC, "[i]f the inventor is an employee, the right shall be determined in accordance with the law of the State in which the employee is mainly employed". Default rules are provided in Article 60(1), third sentence, EPC, for the case where this State cannot be determined.

Article 60(1) EPC is a stand-alone substantive provision of the EPC and fulfils three functions. Firstly, it creates the right to the European patent; secondly, it vests this right in the inventor; finally, it provides for the separate transferability of the right even before a European application is filed.

Article 60(1) EPC envisages two ways to acquire the right to a European patent: the first is to develop the invention ("inventor"), and the second is to derive the right from the inventor after an invention has been made ("successor in title").

Both the concepts of inventor and successor in title are notions of the EPC; they must be interpreted uniformly and autonomously. While the concept of inventor does not require any support from domestic legislation, the concept of successor in title implies an interaction with national law. Indeed, the EPC has not established a comprehensive, self-sufficient legal

order and private law. This does not mean that Article 60(1) EPC constitutes a pure reference to national legislation devoid of any content. "Successor in title" has an ordinary meaning under Article 31(1) of the Vienna Convention on the Law of Treaties (1969) ("VCLT"): it refers to a situation where a *pre-existing* right goes from one subject (the legal predecessor; see also Article 55(1)(a) EPC) into the sphere of another (the legal successor, Article 60(1) EPC). National law governs the question of whether the transfer is valid or has occurred by operation of a contract, inheritance or other rules of law. Since the EPC is silent on the matter with the exception of employment relationships, a national court seized with the issue will identify the applicable rules according to their domestic conflict of laws-provisions (van Empel, *The Granting of European Patents*, Leiden 1975, 81; Ubertazzi, *Profili soggettivi del brevetto*, Milano 1985, 281; Cronauer, *Das Recht auf das Europäische Patent*, 1988, Köln et al, 105).

However, when national courts decide on entitlement under the Protocol on Jurisdiction and the Recognition of Decisions in respect of the Right to the Grant of a European Patent, they must apply Article 60(1) EPC and not the provisions governing entitlement to national patents. Therefore, even if, e.g., UK or Australian law provided for other forms of acquiring originally or deriving the right to the patent (such as possession) and these forms went beyond the scope of Article 60(1) EPC, as suggested by the appellant, these rules would apply to domestic applications, but not to European patents, the right to which is attributed to the subjects listed in Article 60(1) EPC and no one else.

In view of the normative link between Article 60(1) and

Article 81 EPC, not just any declaration, irrespective of its content, can be considered to comply with the EPC. It must be one which identifies the origin of the right in a manner consistent with Article 60(1) EPC. This is the case where the declaration identifies the applicant as the employer or the successor in title of the inventor.

#### 4.2.3 *Role of the EPO*

Under Article 60(3) EPC "the applicant shall be deemed to be entitled to exercise the right to a European patent". Under Rule 19(2) EPC "[t]he EPO shall not verify the accuracy of the designation of the inventor". Finally, the EPC contains no rules which the EPO could apply in assessing whether or not the statement required by Article 81, second sentence, EPC, plausibly explains the origin of the right to the European patent. In view of this background, it is arguable - and it has been argued by the appellant - that the EPO should not and cannot examine the designation of the inventor, including the statement on the origin of the right to the patent. The Board disagrees with this contention. Indeed, under Article 90(3) EPC, "the European Patent Office shall examine (...) whether the requirements in Articles 14, 78 and 81 (...) have been satisfied". In the Board's view, this means that in the case of the designation of the inventor the EPO must check whether the request for grant or the separate statement identifies an inventor within the meaning of the EPC. Where the applicant is not the inventor, it must also examine whether the statement filed under Article 81, second sentence, EPC identifies an origin for the right to the patent which falls within the scope of Article 60(1) EPC. The EPO must only examine whether the statement filed

under Article 81, second sentence, EPC, assuming that it is correct, refers to a situation encompassed by Article 60(1) EPC. It does not need to assess whether, according to the relevant law, the applicant was *de jure* entitled to file the application, or if the relevant transaction or relationship was valid and really occurred. The examination is only a formal assessment: it does not require the EPO to identify any applicable law, assess evidence, or examine whether a designation is accurate or true entitlement exists. For this reason, the Board deems such an examination to be consistent with the principles set out in Article 60(3) EPC and Rule 19(2) EPC.

#### 4.3 *Main Request*

- 4.3.1 The main request is not allowable because the designation of the inventor does not comply with Article 81, first sentence, EPC. Under the EPC the designated inventor has to be a person with legal capacity. This is not merely an assumption on which the EPC was drafted. It is the ordinary meaning of the term inventor (see, for instance, Oxford Dictionary of English: "a person who invented a particular process or device or who invents things as an occupation"; Collins Dictionary of the English language: "a person who invents, esp. as a profession").
- 4.3.2 There is no reason to assume that the EPC uses the term in a special way departing from its ordinary meaning. When a provision of the EPC 2000 refers to or includes the inventor(s), it uses the terms person or legal predecessor (e.g., Article 60(2) EPC or Article 55(1) EPC). So did the EPC 1973 in the corresponding legal provisions. Article 60(1) EPC vests the rights to the European patent in the inventor; thus, it postulates a

person with legal capacity. In this context, with the secondary legislation (Rule 19 EPC) invoked by the Receiving Section supporting this interpretative outcome, it is not necessary to resort to the travaux for the analysis. There is no lexical or contextual ambiguity which the Board needs to dispel.

- 4.3.3 It is possible under the Vienna Convention to adopt an interpretative approach which relies on the purpose of Article 81 EPC (G 1/18, Reasons, point 3), or an evolutive reading which considers subsequent practices or agreements of the Contracting States (Article 31(3) VCLT; on these concepts see Metzger, *Interpretation of IP Treaties in Accordance with Art 31-33 VCLT: A Case Study on the Practice of the European Patent Office* (July 14, 2020), forthcoming, Henning Große Ruse-Khan, Axel Metzger (eds.), *Intellectual Property Beyond Borders* (tbc), 2020/2021, available at SSRN: <https://ssrn.com/abstract=3650364> or <http://dx.doi.org/10.2139/ssrn.3650364>). However, neither of these methods would help the appellant's case. The purpose of the provisions dealing with the inventor and its designation is primarily to confer and to protect rights of the inventor (J 8/82, Reasons, points 12-13), to facilitate the enforcement of potential compensation claims provided under domestic law, and to identify a legal basis for entitlement to the application (on this see also the EPO President's comments, points 5-9). Designating a machine without legal capacity can serve neither of these purposes.

- 4.3.4 The existence of a subsequent practice or agreement which could allow the Board to overcome the language of the treaty was neither argued nor shown in these proceedings. The decision from the UK Court of Appeal (Facts and Submissions, XIII) supports the opposite

theory: the term inventor was not interpreted as covering an apparatus or a device. In any event, this ruling concerns domestic provisions which govern national applications, and not Article 60 EPC. The judgement of the Federal Court of Australia of 30 July 2021 (Facts and Submissions, XIII) is not from an EPC Contracting State.

- 4.3.5 The further policy arguments made by the appellant, based on the right of the public to know how the invention was made or fairness concerns, cannot change an interpretation based on the plain language of the EPC. They are also not convincing.
- 4.3.6 There is no normative basis for the alleged right of the public to know who the inventor is and how the invention was made. This aspect is not relevant under Article 83 EPC. Neither is it relevant for the rules governing the designation of the inventor. Whether the latter is published depends only on a unilateral decision of the inventor. The same holds true for the correction of wrong designations. Third parties have no rights in this regard. These rules are hardly reconcilable with the theory that the public has a right under the EPC to know who the inventor is (see also the analysis in Stierle, GRUR Int. 2020, 918, 923; this article was referred to in the EPO President's comments, fn. 8).
- 4.3.7 As to the argument of fairness, even if it was relevant under the EPC, it does not require allowing an applicant to designate a machine as inventor. Applicants can explain how the invention was made elsewhere, and in particular in the description. This is not required, but also not prohibited by the EPC.

4.3.8 In view of the above considerations the Receiving Section was right to raise an objection under Article 90(3) EPC. The EPO is entitled to verify that the designation identifies an inventor within the meaning of the EPC.

4.3.9 In summary, the main request does not comply with the EPC, because a machine is not an inventor within the meaning of the EPC. For this reason alone it is not allowable. There was no need to consider the requirements set out in Article 81, second sentence, EPC.

#### 4.4 *Auxiliary request*

4.4.1 The auxiliary request relies on the argument that Article 81, first sentence, EPC does not apply where the application does not relate to a human-made invention. The Board agrees with this approach. The provisions concerning the designation were drafted to confer specific rights on the inventor. It is arguable that where no human inventor can be identified, then the ratio legis of Article 81, first sentence, EPC does not apply.

Where inventor and applicant differ, however, a statement on the origin of the right to the European patent is necessary under Article 81, second sentence, EPC. This provision remains applicable whether an invention was made by a person or by a device.

4.4.2 According to the statement accompanying the auxiliary request, the appellant has derived the right to the European patent as owner and creator of the machine. This statement does not bring the appellant within the scope of Article 60(1) EPC. Indeed, it does not refer

to a legal situation or transaction which would have made him successor in title of an inventor within the meaning of the EPC. For this reason, the auxiliary request does not comply with Article 81, second sentence, EPC in conjunction with Article 60(1) EPC, and is not allowable.

4.5 *Referral to the Enlarged Board of Appeal*

- 4.5.1 The appellant asked that the Board refer two questions to the Enlarged Board of Appeal, both relating to the applicability of Article 81, first sentence, EPC (see above, Facts and Submissions, XI).

Under Article 112 EPC the Board has to refer questions when the answer to them is necessary to decide on the appeal. This requirement was not met for the questions concerned.

- 4.5.2 As far as the auxiliary request is concerned, whatever the answer given to the referral questions, it would not change the outcome. The auxiliary request is not allowable because of Article 81, second sentence, EPC, and not because of Article 81, first sentence, EPC.

- 4.5.3 The main request, in turn, does not rely on the contention that the requirement set out in Article 81, first sentence, EPC does not apply to the present case. Instead, it relies on the argument that the appellant has the right to satisfy that requirement by indicating a machine as inventor. The only question which would be relevant for this request is therefore whether an entity without legal capacity can be an inventor within the meaning of the EPC. For the reasons set out above the answer to this question follows from the plain wording of the EPC and the function of the designation

requirements. There is no subsequent practice or agreement which could be invoked to challenge this answer. For this reason, a referral did not appear necessary to dispose of this request as well.

#### 4.6 *Objections*

4.6.1 There are two conceivable objections to the Board's conclusions on the auxiliary request and the request for a referral. These are in part based on submissions of the appellant, in part reformulated or supplemented by the Board for the sake of clarity.

4.6.2 Firstly, under Article 52(1) EPC any invention which is novel, industrially applicable and involves an inventive step is patentable. The appellant has argued that the scope of this provision is not limited to human-made inventions. The Board agrees. How the invention was made apparently plays no role in the European patent system. This is true even for the morality clause of Article 53(a) EPC: an invention is excluded where its future exploitation would be offensive. Whether its making, namely "the inventor's activities during making or development of his invention" might be regarded as contrary to "ordre public" or morality, is irrelevant for the plain letter of Article 53(a) EPC (see T 0866/01, Reasons, point 5.6; T 315/03, Reasons, point 4.2). Therefore, it is arguable that AI-generated inventions too are patentable under Article 52(1) EPC. If national courts were to follow this interpretation, the scope of Article 52(1) EPC and Article 60(1) EPC would not be coextensive: there would be inventions patentable under Article 52(1) EPC, for which no right to a patent is provided under Article 60(1) EPC.

- 4.6.3 Secondly, filing a statement on the origin of the right to the European patent is a requirement under the EPC where inventor and applicant differ. It is only a formal requirement. Its function can reasonably be seen only as informing the public on the possible origin of the right, so that determined third parties, who may be entitled to the subject-matter disclosed in the application, can react and start proceedings in national courts (see also the observations made in the ruling *Nippon Piston Ring Co's Application* [1987] RPC 120, 131, to which the judgement of the UK Court of Appeal submitted by the appellant refers). It would be disproportionate to deny protection to patentable subject-matter for failing to fulfil such a formal requirement. This is because of the limited additional utility which this statement may have for the public or the individual parties and in view of the absence of a full examination on the actual merits by the EPO.
- 4.6.4 Therefore, as for the designation of the inventor under Article 81, first sentence, EPC, here too the Board could consider that the lawmakers had in mind only human-made inventions in drafting Article 60 EPC and Article 81, second sentence, EPC. Consequently, the Board could provide that no statement on the origin of the right is required where the application concerns an invention developed by a machine or accept any statement irrespective of its content. Where the Board would not be ready to go that far, it would at least have to *ex officio* refer questions relating to Article 81, second sentence, EPC to the Enlarged Board of Appeal.
- 4.6.5 In the Board's view these objections share a weakness: in order to consider them and set aside the decision under appeal it would be necessary to fully ignore a

formal requirement of the EPC. The Board believes that it should refrain from this step in this case for at least three reasons.

4.6.6 Firstly, the Board is not convinced that there is a problem of unequal treatment of specific applicants and categories of inventions which is in conflict with the objective purpose of the EPC and calls for an evolutive interpretation of the law. The Board is not aware of any case law which would prevent the user or the owner of a device involved in an inventive activity to designate himself as inventor under European patent law. The EPC, in turn, does not prevent the applicant from providing information in the application which is not relevant for carrying out the invention but may satisfy the fairness concerns identified by the appellant in the addendum of 24 July 2019 (see above, Facts and Submissions, XIV). Secondly, it is the task of the lawmakers to amend the EPC and to assess whether a real problem exists. Different solutions may be conceivable to the issue raised by the appellant. It is not for the Board to select one of the possible approaches. Finally, the Board is not aware of any other proceedings which concern an unrelated application and where these issues have become relevant.

4.6.7 For these reasons the Board did not consider it necessary either to *ex officio* involve the Enlarged Board of Appeal on the interpretation of Article 81, second sentence, EPC.

5. *Procedural aspects*

- 5.1 The appellant has not requested to set aside the decision under appeal based on the alleged procedural violations (see Facts and Submissions, VIII). Nor has he requested that the appeal fee be refunded. However, in light of the submissions the appellant made both in the statement setting out the grounds of appeal and the letter of 14 September 2021, the Board has to consider *ex officio* whether a procedural violation has taken place.
- 5.2 According to the Board the Receiving section was competent to issue the decision under appeal. The application was rejected because it did not comply with the formal requirements set out in Article 81 EPC. It is the task of the Receiving Section to examine compliance with this provision, as provided by Articles 16 and 90(3) EPC. In the Board's view it is irrelevant that substantive provisions may have or had an impact on the interpretation of the relevant procedural provisions (see above, point 4.2).
- 5.3 Concerning the new evidence on which the decision allegedly relies (see above, Facts and Submissions, VIII, (a)), the allegation was not substantiated. The reasons for the refusals were anticipated in the annex to the summons. The decision includes some references to national law which were not anticipated in that preliminary opinion. However, they only support the conclusions of the Receiving Section. The basis for the decision is that under the EPC the inventor must be a natural person.
- 5.4 The EPO's refusal to publish the designation as filed only implemented the Receiving Section's preliminary opinion that that designation was formally deficient. It cannot constitute a procedural violation. The same

holds true for the issue of two distinct decisions. The Receiving Section consolidated the proceedings, but not the applications, which remain separate and distinct.

- 5.5 The decision to refuse the application before the time limit set out in Rule 60(1) EPC expired was, by contrast, not justified. The EPO President contends that under the EPC and the case law quoted (see above, Facts and Submissions, XV(d)) it was possible to implicitly waive a right, and this occurred in the first instance proceedings. The Board does not share this opinion for two reasons.
- 5.6 Firstly, the decisions referred to are not pertinent to the issue. They all concern the admission of *late* filed requests or submissions. An applicant or a patent proprietor has no right to file new requests on appeal, and he cannot waive any entitlement in this respect. The same holds true for the oral proceedings before an opposition division. Decision T 936/09 (Reasons, point 1.14) also did not deal with the surrender of a right. The Board in T 936/09 considered the appellant's conduct in the first instance proceedings to be of significance only when considering the admissibility of a request or exercising discretion under Article 12(4) RPBA 2007. Therefore, the Board was not referred to any established case law concerning waivers which would support the EPO President's statement. The present Board is not aware of any such case law. To the contrary: several decisions state that in accordance with the maxim "*a jure nemo recedere praesumitur*" (see G 1/88 OJ 1989, 189, Reasons, point 2.4) in the absence of an explicit withdrawal "surrender of a right cannot be simply presumed" (T 1157/01, Reasons, point 6; T 1567/17, Reasons, point 2.3.1 (a); T 1051/20, Reasons,

point 1.4; see also T 1548/11, Reasons, point 1.3).

5.7 Secondly, even if it were possible under the EPC to tacitly waive a right, the Board is of the view that any relevant waiver must be unequivocal (T 0388/12, Reasons, point 4.2). The latter requirement was not met in the present proceedings. The appellant was summoned with a reference to the right to file a designation within sixteen months (see above, Facts and submission, IV). In view of the information provided in the Annex the Receiving Section should have at least explained, before announcing a decision, that it was about to refuse the application unless an EPC-compliant designation was filed *at the oral proceedings themselves*. The minutes do not provide evidence that it did. Against this background, the mere statement that the appellant had no further comments did not represent an unequivocal waiver of the right to file a declaration within the remaining time under Rule 60(1) EPC.

5.8 Nevertheless, the Board neither considers it appropriate to set the decision aside for this reason, nor equitable to refund the appeal fee. The Board is not convinced that there is a causal link between the procedural violation and filing the appeal. The appellant has not filed a designation indicating as inventor a natural person with the statement of grounds of appeal. He has maintained the requests pending before the Receiving Section. While this subsequent behaviour cannot support the theory that the appellant surrendered his right at the oral proceedings, it does support the view that even if the time limit had not been cut, the appellant would have maintained his position and not designated a person as inventor. Thus, the appeal would have been necessary anyway.

## Order

### For these reasons it is decided that:

The request for referral of questions to the Enlarged Board of Appeal is refused.

The appeal is dismissed.

The Registrar:

The Chairman:



A. Voyé

W. Sekretaruk

Decision electronically authenticated