Intellectual Property Office

BL O/0808/24

22 August 2024

PATENTS ACT 1977

APPLICANT	Vinod Rajan
ISSUE	Whether GB 1703362.2 complies with sections 1(1)(a), 1(1)(b) and 14(5)(b) of the Patents Act 1977
HEARING OFFICER	Peter Mason

DECISION

Introduction

1 Patent Application GB 1703362.2 was filed on 2 March 2017 by Mr Vinod Rajan, an unrepresented applicant. During the usual search stage, the examiner identified a poster published online by the applicant that appeared to disclose the invention, the search was thus truncated. The examiner issued an examination opinion that accompanied the search report. The prior art search remains incomplete to the present date. The examination opinion indicated that the claims were unclear, and that the applicant's published poster appeared to show the invention potentially lacked novelty or an inventive step. The application was subsequently published as GB 2561149 A, in October 2018.

2 Mr Rajan requested a substantive examination. This was accompanied by observations and amendments to the original claims. In the first substantive examination report of 22 February 2022, the examiner objected to those amended claims as being unclear, but as far as they could be understood defining an invention which in light of the citation prima facie lacked novelty.

3 Despite several rounds of amendment and correspondence, the applicant has been unable to convince the examiner that the application is allowable. In an examination report issued on 2 November 2023, the examiner set out an objection under Novelty or Inventive Step and highlighted an issue of claim construction. The letter accompanying that report invited to the applicant to consider requesting a hearing.

4 The applicant asked to be heard on 6 November 2023 and subsequently filed further amendments on 20 November 2023. The hearing was conducted in person at the Intellectual Property Office in Newport on 7 December 2023. As an unrepresented applicant, Mr Rajan represented himself at the hearing. I would like to thank Mr Rajan for attending the hearing in person and taking the time to explain his invention to me. Similarly I would like to thank Mr Rajan for his skeleton arguments and additional documentary information provided both at the hearing and as invited on

the following day. I was assisted at the hearing by Mr Peter Burns, Senior Patent Examiner.

The compliance date

5 The normal, unextended period for putting the application in order ended on 22 February 2023, one year after the issue of the first substantive examination report. When no reply to that examination report was received, the application was terminated. An application for reinstatement was filed by Mr Rajan on 13 July 2023. That matter has already been decided. Reinstatement was allowed on 9 August 2023.

6 The order to reinstate gave the applicant a chance to meet the requirement in section 18(3), which is to make observations or amendments which would bring the application into compliance. It specified an additional period ending on 9 October 2023 to allow for this. This is established Office practice following the judgment in *Anning*[1] and decision in *Ali*[2], as detailed in paragraph 20A.11.1 of the Manual of Patent Practice[3]. The examination report of 2 November 2023 explained that if a hearing were requested, the hearing would be to decide whether the application met the requirements of the Act on 9 October 2023. The applicant has not filed any request to extend the newly specified compliance period further.

7 Therefore, my decision will be confined to whether the application was in order at the end of the compliance period. The application can only be granted or refused in the form it took on 9 October 2023, which includes the claims filed on that day. The further amendments filed on 20 November 2023 have not been considered and there will be no further opportunity to amend the application. This was made clear to Mr Rajan both before and during the hearing.

The invention

8 The application describes a closed cycle fluid system, the fluid having a 'low boiling point'. As well as driving a turbine, additional output is said to be extracted by harnessing the vacuum effect created as the fluid condenses in a cylinder.

9 At the hearing, Mr Rajan explained that his invention uses ambient heat from the atmosphere as a heat source and a refrigerated heat sink, rather than using a high-temperature source with an ambient heat sink. Mr Rajan asserted that 'there is no engine in the world combining both of these effects together'.

The claims

10 The claims to be considered are those filed on 9 October 2023, as I have explained above. There are two claims and I reproduce them here in full. Claim 1 is the only independent claim:

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[1] *Anning's Patent Application [2007] EWHC 2770 (Pat)*
[2] *Ali et al's Patent Application BL O/264/10*
[3] https://www.gov.uk/guidance/manual-of-patent-pracce-mopp/section-20a-reinstatement-of-applications

1. Power generator system sucking ambient heat as heat source from atmosphere using low boiling point fluid as working fluid where the fluid

compressed using pump which compresses the fluid to the desired level to absorb heat from atmosphere and refrigerator

expanded by change of phase from liquid to gas in an expander which generates energy by expansion in a cylinder piston arrangement or turbine

and the exhausted expanded gas shrinks in a refrigerated chamber by change of phase to liquid from gas creates vacuum in the cylinder piston chamber for generating energy

using refrigerator as heat sink well below ambient temperature.

2. Power generator system according to claim 1, in which the absorbed heat from the sink is amplified by the refrigerator and feed to the heat source,

thereby make the heat source always higher than ambient temperature for superheating the compressed fluid using pump.

Issues to be decided

11 It is clear from the correspondence between the examiner and the applicant that the issues of clarity and claim construction were germane to the subsequent consideration of novelty/inventiveness. I will need to consider these fundamentals before I go on to consider novelty and inventive step.

12 The issues for me to decide are whether the claims are clear and concise as required by section 14(5)(b) of the Act. And then whether the invention is novel and inventive as required by sections 1(1)(a) and 1(1)(b) of the Act.

The law

13 The relevant law is as follows. Section 1(1) of the Act sets out what is required of a patentable invention (my emphasis):

1.-(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say –

(a) the invention is new;

(b) it involves an inventive step;

(c) …

(d) …

and references in this Act to a patentable invention shall be construed accordingly.

14 Section 2 of the Act sets out what 'new' means as follows:

> *2.-(1) An invention shall be taken to be new if it does not form part of the state of the art.*
>
> *(2) The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way.*
>
> *(3) The state of the Art in the case on an invention to which an application for a patent or a patent relates shall be taken also to comprise matter contained in an application for another patent which was published on or after the priority date of that invention, if the following conditions are satisfied, that is to say –*
>
> > *(a) That matter was contained in the application for that other patent both as filed and as published; and*
> >
> > *(b) The priority date of that matter is earlier than that of the invention.*

15 Section 3 of the Act explains the requirement of inventive step:

> *3. An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).*

16 In addition to statute, the approach to determining an inventive step is assisted by the well-established "Windsurfing"[4] .test.This test was reformulated by the Court of Appeal in *Pozzoli*[5]. Paragraph 23 of this decision lays out the test as:

> *(1) (a) Identify the notional "person skilled in the art"*
>
> *(b) Identify the relevant common general knowledge of that person;*
>
> *(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;*
>
> *(3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;*
>
> *(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?*

[4] Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd, [1985] RPC 59
[5] Pozzoli Spa v BDMO SA & Anor [2007] EWCA Civ 588

17 Section 14 of the Act sets out requirements for making an application. Section 14(5) states:

> *14.-(5) The claim or claims shall –*
>
> *(a) …*
>
> *(b) be clear and concise;*
>
> *(c) …*
>
> *(d) …*

18 Section 125 of the Act sets out the extent of the invention as follows:

> *125.-(1) For the purposes of this Act an invention for a patent which an application has been made or for which a patent has been granted shall, unless the context otherwise requires, be taken to be that specified in a claim of the specification of the application or patent, as the case may be, as interpreted by the description and any drawings contained in that specification, and the extent of the protection conferred by a patent or application for a patent shall be determined accordingly.*

19 The relevance of the legislation and legal precedent has not been contested.

Analysis

20 The starting point for me lies in considering the meaning of the claims, because until that has been fully considered it cannot be determined whether they are clear and ultimately what the invention defined by those claims is. Until this has been determined, I cannot decide whether that invention is novel or inventive.

Claim construction

21 Before I attempt to construe the scope of claim 1, I will need to consider some of its individual terms and phrases. Following the established principle set out in *Kirin-Amgen*[6], I need to consider what the skilled person in the field would have understood the author to mean by using those words. The starting point is to consider their ordinary definition in the art, if there is one, before considering their context and use within the specification.

Claim terminology

22 The first part of the claim reads "*Power generator system".* The ordinary use of "power generator" in this field would be understood to relate to the generation of electricity, either for powering an immediate load or for distribution. Straight away, I have reason to doubt that this was the understanding intended. I will turn to the specification to help me understand what was meant by the claim wording used.

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[6] Kirin-Amgen v Hoechst Marion Roussel Ltd [2005] RPC 9

23 The description does clearly envisage use of the system to power drones and automobiles, explaining that battery sources are inadequate for the high demand required. The means of generating electricity are not mentioned anywhere in the specification, though they are commonly known, and their presence is implied by these statements. It appears that electricity generation could certainly be the author's intent in using the words "power generator system".

24 However, the specification is also explicit that work is done by the system. At several places, output is calculated in Joules, which is the SI unit for work or energy. What is of note here is that there are a similar number of calculations giving a "power" output in Joules, equated to output generated by or extracted from the system. The skilled person would undoubtedly understand power in this context to be a rate of energy used or transferred, or a rate of work done, both given in Watts. I therefore have no doubt that these "power" calculations would be understood as referring to useful work done during a single cycle of the system but could be used together with timing information to determine power output. This appears at least as likely to be the intent of the claim wording chosen as does the electricity generation mentioned above.

25 I appreciate that electricity and power (and for that matter energy and power) are sometimes used to mean the same thing in common speech. However, I am certain that the skilled person in this field would immediately understand that energy, power and electricity are separate concepts. They are not synonyms. While there is no requirement for the claims to comprise only the prevailing technical terms in the art, there is a legal requirement that they need to be clear in scope.

26 A claim directed to an electricity generating system has a very different scope to a claim which defines a system for doing work such as an engine. I am sure that what Mr Rajan intended overall was that the described device can be used to generate electricity for certain purposes. However, I do not think it is possible to tell whether the wording "Power generator system" is intended to claim an engine system doing useful work, or the generation of electricity by such a system. This is far from an insignificant difference.

27 The claim wording then reads "*sucking ambient heat".* Despite the unusual terminology, it is much easier to understand what was meant by this requirement. I have no doubt that the skilled person would understand the intended scope of this phrase to be that the system, or a constituent of the system, absorbs ambient heat.

28 The next wording to consider is "*low boiling point fluid".* The word "low" is a relative term with no absolute meaning. Nevertheless, in a context involving absorbing ambient heat from the atmosphere I am satisfied that the skilled person would understand the range of this restriction, in its important upper limit at least.

29 I will now consider the terms *"compressed"* and *"compresses".* It is clear to me that a pump does something to the working fluid, but having considered the description I am convinced that compression was not intended. There is nothing in the specification as originally filed which describes that the invention involves compression of the working fluid in the cycle, and the wording "compressed fluid using pump" was first introduced via the amended claims filed on 11 September 2023 and is potentially added subject matter beyond the original specification. The presence of this pump is only mentioned in the original description three times: twice

on page 4 in relation to figure 3; and once on page 5 in relation to figure 4. In order, these passages read:

> "Also pressurizing the liquid using an external pump (7) instead of altitude height."
>
> "The cold liquid coming out of the sink is fed to the pump (7) to pressurize the liquid (8)"
>
> "we can extract more power from the system by super heating the liquid (4) and also adding a liquid pump (11) to increase the pressure of the liquid"

30 Increasing the pressure of a fluid is not the same thing as compressing it; one can result in the other, but this is not inevitable. I will return to the question of potential added matter later in this decision, but nonetheless it is clear to me from the other points covered here that the claim would not be understood to intend compression of the working fluid. On the contrary, the applicant's intent in using these words would be understood to be that the pump should pressurize the working fluid.

31 I now turn to *"the desired level".* Although I accept from the context that the desire is the absorption of heat, this does not make clear to the skilled person what the desired level can be. Firstly, the specification gives an example pressure several times of 100,000 Pascals but I do not think this can be an example of the desired level. The value is used for both the work done by the fluid on a turbine, and the work done by a vacuum chamber. Moreover, the figure is a standard approximation for atmospheric pressure so would not be for something considered pressurized.

32 Secondly, I do not know whether the desired level of pressure is intended for absorption of heat from the atmosphere, or absorption of heat from a refrigerator. One thing which is clear from the claim is that these involve different temperatures. I do not believe that the skilled person would be able to tell whether the fluid has been pressurized to a desired level as was intended.

33 Following on from this, it is clear to me that heat is to be absorbed from a refrigerator as well as from the atmosphere. Refrigerator is used synonymously with heat pump throughout the specification and the required presence of a refrigerator or heat pump is directly implied by the claim.

34 I suggested to Mr Rajan at the hearing that *"expander"* was not a recognised term in the art and asked whether the description defined it. Mr Rajan explained that he intended it to cover a turbine or a piston but did not point me to a passage of the description where this was explained. Since the term is interlinked with other claim wording I shall come back to it shortly, in the context of the whole claim.

35 The terms *"generates energy*" and *"generating energy"* suffer the same issue I explained earlier in relation to "power generator system". The term *"well below"* is, like *"low",* another relative term but here I do not believe the skilled person can tell how far below ambient temperature *"well"* is intended to specify.

Scope of the independent claim

36 I now need to consider the interrelation of these features and what the claimed operation of the system is intended to be. I have no doubt that claim 1 overall is to a system having certain components which a working fluid encounters in turn. A diagram will assist the exposition and I reproduce figure 4 of the specification here:

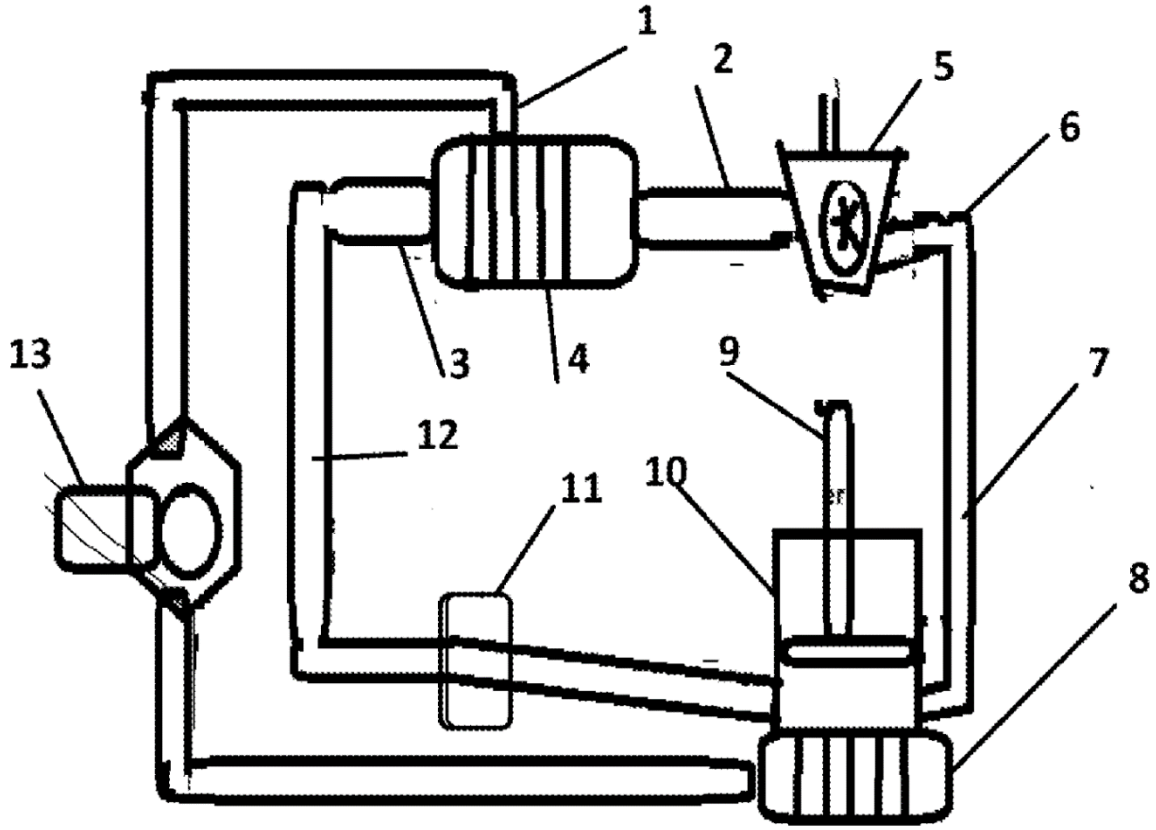


Figure4

37 The claim is to a system using a low boiling point working fluid which is pressurized by pump 11 to a desired level, whatever that may be, to absorb heat from the atmosphere and a refrigerator or heat pump 13. The description explains that a heat exchanger 4 can be present for this purpose. It is clear to me that the fluid is initially liquid because the claim specifies it changes phase to gas, and this is where I need to return to my consideration of the expander.

38 The description recites *"turbine expander expands and work is delivered",* but also discusses an "*expansion chamber*", which is separate to the turbine and is indicated by 2 within figure 4. I must also consider the context within the claim. This reads *"expander which generates energy by expansion in a cylinder piston arrangement or turbine".* It appears to me that the skilled person cannot determine whether the expander is intended to include or refer to the turbine (or cylinder), or whether it is a separate required feature, such as expansion chamber 2 in the figure.

39 The working fluid delivers useful output by way of the turbine or a cylinder piston. Gas then enters a refrigerated chamber 10. I have no doubt that this is a separate requirement to the refrigerator or heat pump mentioned earlier: it could be that the same device is used but this is not necessarily the case, and the claim does not

need to restrict its scope in this way. In the refrigerated chamber, the gas changes phase back to liquid creating a vacuum in the chamber. I do not believe this would be understood as requiring a perfect vacuum.

40 The claim refers here to "*the cylinder piston chamber*". I explained this concern to Mr Rajan at the hearing, for his benefit as an unrepresented applicant. I do not believe that the skilled person would be able to turn to the specification, including the diagrams, to understand whether the change of phase back to liquid needs to occur in a separate chamber or can occur in the cylinder recited earlier in the claim. The claim first requires the gas to be *"exhausted"* but does not specify what from. The words exhaust or exhausted do not appear anywhere in the original description and I cannot determine exactly what the claim is intended to specify here overall.

41 Finally, the vacuum in the cylinder piston chamber gives rise to useful output and utilises a refrigerator or heat pump as a heat sink below ambient temperature. This is described throughout the description as using the concept harnessed by James Watt's steam engine. I have no doubt the skilled person would understand what is meant by this step. Whether the refrigerator is the same feature mentioned earlier in the claim is not specified, but there is no issue in this fact.

42 I therefore construe claim 1 to require:

> *either an engine system outputting work, or an electricity generating system outputting electricity, wherein:* a *low boiling point working fluid is pressurized using a pump to absorb ambient heat, both from the atmosphere and from a heat pump or refrigerator, the fluid changing phase from liquid to gas, to provide output by expansion in a cylinder/piston arrangement or turbine, the gas then changing phase back to liquid in a refrigerated chamber, using a refrigerator or heat pump as a heat sink below ambient temperature, to create a vacuum in the chamber and provide output.*

Clarity

43 At the hearing, I asked Mr Rajan to talk me through the technical features represented by the claim. With his assistance, I undoubtedly now have a clearer understanding of how the device of his invention may be constructed and how it operates. But the requirement under law is that the claims of the patent application must be clear; that is, that the invention must be understandable from the claims, either reading them alone or in the context of the description. The claims define the scope of the monopoly sought and its essential technical features should not be in doubt. Third parties and the public are entitled to a reasonable amount of certainty in the scope of protection, so that they do not inadvertently infringe a granted patent.

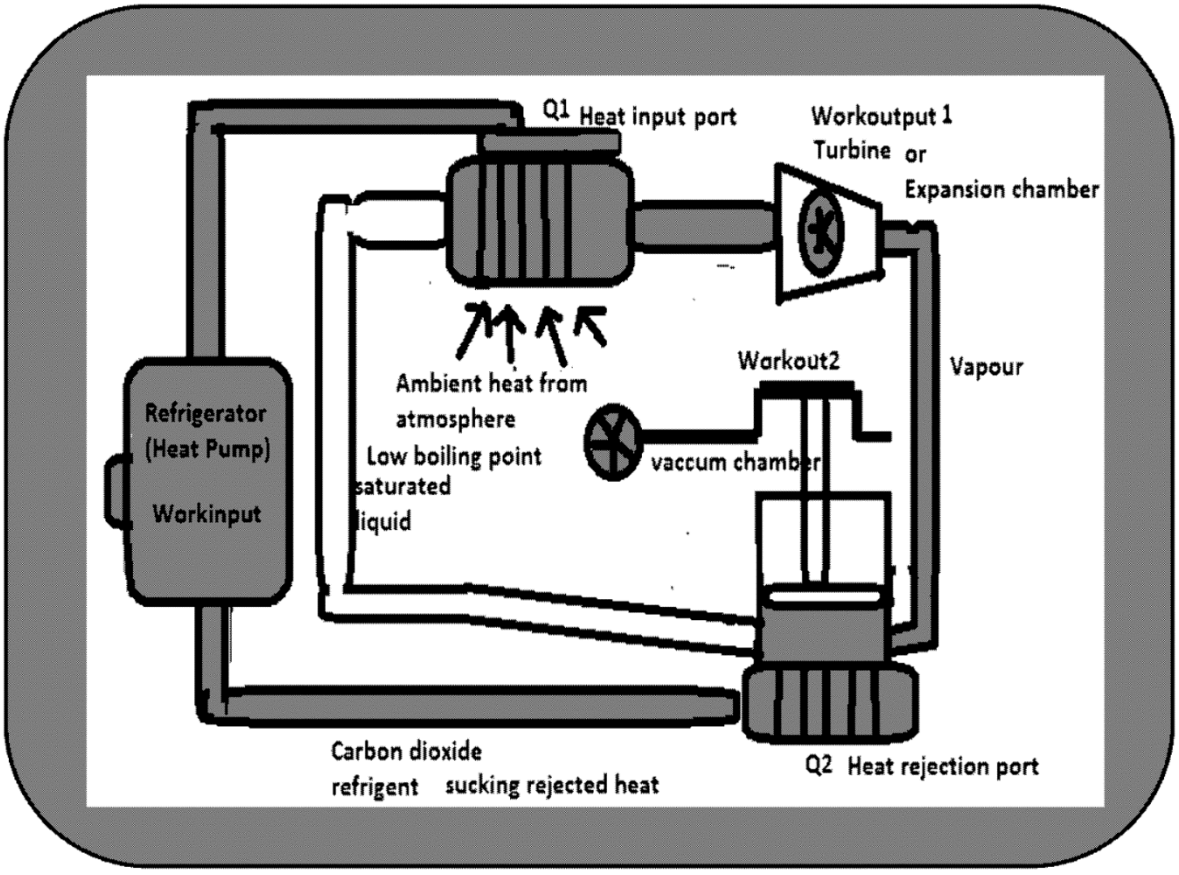
44 Regrettably, it is apparent from my analysis of claim 1 that it is far from clear. This is the case in respect of certain terms used, as well as in respect of how the required features are to operate. I find at least the following to be unclear: whether the claim is directed to generating electricity or to doing work; what would meet the claim in terms of "desired level" or "well below ambient temperature"; whether the claim requires a separate expansion chamber or cylinder, as well as a turbine or first cylinder; and where the gas is exhausted from.

45 It is my view that these issues present a set of 'moving targets' for the skilled person which make the claim indeterminate. In short, the skilled person would have no clear baseline for considering whether any action they took would infringe the claim. For that reason, claim 1 is unclear. As such, I do not need to consider further claim 2. Although I have reached the conclusion that the claim is unclear I will for completeness go on to consider Novelty and Inventiveness with respect to the construction I arrived at above although this is for completeness only.

Novelty

The cited prior art

46 The examiner has cited one piece of prior art, which is a poster published online by the applicant prior to the filing date of the present application. The poster has a single figure and I reproduce it here:



47 I will now consider whether this prior art discloses every feature of claim 1, insofar as I have been able to construe it. This wording of the poster describes a system, being an engine to drive a turbine, which can power electronic devices. The first claim requirement is therefore met, whichever interpretation is used. I also have no doubt that taken as a whole, the poster discloses a working fluid of low boiling point which absorbs ambient heat as well as heat input from a refrigerator. The poster also describes there being a refrigeration cycle and an extraction or rejection of heat for mechanical energy or useful work, and the diagram is labelled with two such work outputs at a turbine and refrigerated vacuum piston chamber respectively. The

changes of phase are shown in the diagram, and it follows from the cycle shown that the refrigerated chamber is below ambient temperature.

48 It is clear to me that the poster does not explicitly disclose the required pump or any distinct pressurization of this fluid, either in the diagram or in the wording. The examiner has argued that such a pump is inherent to the disclosure of this prior art, asserting that a skilled reader would understand a circulator pump to be implicitly present. The applicant disagrees with this assertion.

49 Paragraphs 2.07-2.07.3 of the Manual of Patent Practice[7] provide some useful guidance on this point. Though I am not bound by this guidance, it puts into plain terms principles from judicial precedent which are binding on me. Portions of this guidance read:

> "*While it is generally necessary, for a finding of lack of novelty, for all the features of the claim under consideration to have been explicitly disclosed, the teaching implicit in a document may also be taken into account. If a person skilled in the art would conclude that an earlier invention would, as a matter of normal practice, necessarily be performed in a way which would fall within the scope of the claim under consideration, then the matter defined by the claim is not new. For example the disclosure of a control arrangement for the cooling system of an internal combustion engine might not refer to the presence of a radiator or other heat exchanger in the system, but it is common knowledge that there would necessarily be one and so its presence is implied."*
>
> *"On the other hand, while it may be a common practice for there to be a radiator mounted in front of the engine, this is not necessarily the case and cannot be inferred; if the claim under consideration specifies a radiator so located and the cited document is silent on this point, the question is one of obviousness rather than lack of novelty."*
>
> *"Therefore, a disclosure which is capable of being carried out in a manner which falls within the claim, but is also capable of being carried out in a different manner, does not anticipate - although it may form the basis of an obviousness attack."*

50 Mr Rajan explained at the hearing that the concept communicated by the poster does not use a pump. He further explained that the pump was a missing feature in early implementations of his idea and that his invention cannot work as claimed without it. This raises a question of enablement, which I will put aside for a moment. It seems to me, in the absence of evidence to the contrary, that circulation with and without a pump constitute alternative ways to implement the concept disclosed by the prior art poster. It is certainly conceivable that the refrigerator or heat pump disclosed in the poster might at least assist with such circulation by convection. I therefore cannot say that it is certain that the scheme in the poster necessarily requires a circulatory pump. Even if it were required, I am in no doubt that the poster fails to render any substantial pressurization of the working fluid as being necessary.

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[7] https://www.gov.uk/guidance/manual-of-patent-practice-mopp/section-2-novelty

51 It follows that although I am unable to clearly determine all features required by claim 1, at least one of its required features fails to be explicitly or implicitly disclosed by the prior art document. Therefore claim 1 is novel over the sole prior art document which has been put before me. There is nothing to suggest that claim 2 fails to include each of the features of claim 1 and so it follows that claim 2 is also novel. I cannot form a view as to whether the claims are novel over all the prior art, because the search is incomplete as I mentioned earlier.

52 I can now return to the point I put aside for a moment. Since there is not full disclosure of all essential features that I understand claim 1 to require, I do not need to give any further consideration to whether such disclosure is enabling.

Inventive step

53 The examiner raised an objection to inventive step in the most recent examination report of 2 November 2023. I will adopt the established test used in the courts.

Identify the notional "person skilled in the art" and identify the common general knowledge of that person

54 The examiner has identified the person skilled in the art as being a designer or manufacturer of heat exchange systems, stating that their relevant common general knowledge would include fluid pumps in closed circulation systems. The examiner further comments that circulatory pumps are conventionally used in such systems to pressurize the fluid and to overcome pipe friction.

55 Here, I will go further. The relationships between pressure, temperature, heat flow and work, including within various engine and thermodynamic cycles, are widely known in the field. As Mr Rajan pointed out in his previous correspondence, it is also well known that the pressure of the fluid is an essential consideration in a closed system, in various contexts. I am certain that these points fall within the common general knowledge of the skilled reader and see no reason to depart from the examiner's assessment on the other points.

Identify the inventive concept of the claim in question or if that cannot readily be done, construe it

56 The analysis of the independent claim while considering clarity was extensive. If the inventive concept can be firmly identified, then I am clear that this cannot be done readily. Instead, I will construe claim 1 as I did earlier.

Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed

57 The matter cited as forming part of the "state of the art" is the applicant's poster. The examiner identifies the difference as being that the poster does not disclose a pump for the working fluid.

58 Here, I will again depart slightly from the examiner's analysis. As I concluded above, the poster does not disclose a pump for the working fluid and neither does it disclose a pump which pressurizes the working fluid. In this regard, I am clear that there is an additional difference to the one which the examiner has identified.

Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

59 While I am in no doubt that the skilled person's common general knowledge includes pumps and pressurization, the question is whether they would find it obvious to apply this to the poster, without knowledge of the claimed invention.

60 The examiner has alleged that incorporation of a pump would be nothing more than a routine workshop modification. Since the scheme in the poster might conceivably operate without a pump, I am not sure what motivation there would be for the skilled person to make such a modification. Moreover, if the external heat pump were removed and a circulatory pump used in place of it, then this would result in other differences from the claim as I have construed it.

61 It is clear to me that Mr Rajan thought of including the pump before filing his patent application. He explained that this thought occurred after publishing the poster and was a brain wave resulting from wider reading in the field. If anything, this suggests that common general knowledge in the art rendered the thought obvious to Mr Rajan. However, this shines little light on whether it would have been obvious to the notional person skilled in the art, who has the attributes given to them by precedent case law.

62 Having considered the matter afresh, I am convinced that fluid pressure would be in the forefront of the skilled person's mind when considering Mr Rajan's poster, even though the poster is silent on pressure considerations. It would quite simply be necessary to decide upon an appropriate fluid pressure at the point of heating, when seeking to implement the disclosed device. Achieving a suitable pressure using a pump within the cycle is an entirely conventional choice from a limited number of options.

63 Taking this all into balance, I must conclude that that the inclusion of a pump to pressurize the working fluid would have been obvious to the person skilled in the art. Independent claim 1 therefore lacks an inventive step over the cited matter, in light of the common general knowledge of the skilled person. No further amendment is possible and I do not need to consider claim 2.

Conclusion

64 I therefore conclude that the claims do not clearly define an invention for which the applicant seeks protection. Insofar as I can interpret the claim requirements, the invention is novel over the document cited, but lacks an inventive step over the matter representing the state of the art.

65 The issue of added matter which I mentioned earlier has not been put before me. The potential added matter has not affected my other conclusions and I do not need to come to a decision on it.

66 I have not been asked to consider whether the invention is capable of industrial application, as required by section 1(1)(c) of the Act. I have also not been asked whether the specification discloses the invention in a manner which is clear and

complete enough for it to be performed by a person skilled in the art, as required by section 14(3) of the Act. However, it appears to me *prima facie* that neither of these requirements of the Act is satisfied. Mr Rajan explained at the hearing that he has not yet put the invention as claimed into practice but has been working on individual parts of it using water. It appears to me that it would place an undue burden on the skilled reader seeking to implement the teachings of the specification.

67 The compliance period expired on 9 October 2023 and there is no opportunity to amend the application further.

68 Taking into account my reasoning above I therefore refuse the application under section 18(3) for failing to comply with section 14(5)(b). As I have reason to refuse the application for failing to comply with section 14(5)(b), I reserve any final decision about the inventiveness of the invention as the lack of clarity precludes a full consideration beyond the prima facie construction of the claims I arrived at above.

Appeal

69 Any appeal must be lodged within 28 days after the date of this decision.

Peter Mason

Deputy Director, acting for the Comptroller