Intellectual Property Office

BL O/047/14

24 January 2014

PATENTS ACT 1977

APPLICANT Mr Christopher Lee

ISSUE Whether patent application number GB 1209113.8 complies with section 14(3) of the Act

HEARING OFFICER A Bartlett

DECISION

Introduction

1 This decision concerns the issue of whether the specification of UK patent application GB1209113.8 discloses the invention clearly and completely enough for the invention to be performed by a person skilled in the art as required by section 14(3) of the Act. In short it addresses the question "is the specification sufficient for a patent to be granted?".

2 The application, entitled "Drive shaft turbine", was filed in the name of Christopher John Lee on 22 May 2012. The application was published as GB 2502322 A, and also GB2502322 A9, on 27 November 2013.

3 Throughout the course of substantive examination the examiner has reported that the specification is not sufficient and also that the invention claimed is not novel or inventive over certain pieces of prior art. Since the examiner and the applicant failed to resolve these issues, a hearing was appointed to help me decide the matter. That hearing took place on 14 October 2013. Mr Christopher Lee, the applicant, was present with a Hearing Assistant, Mr Andy Hole, also attending.

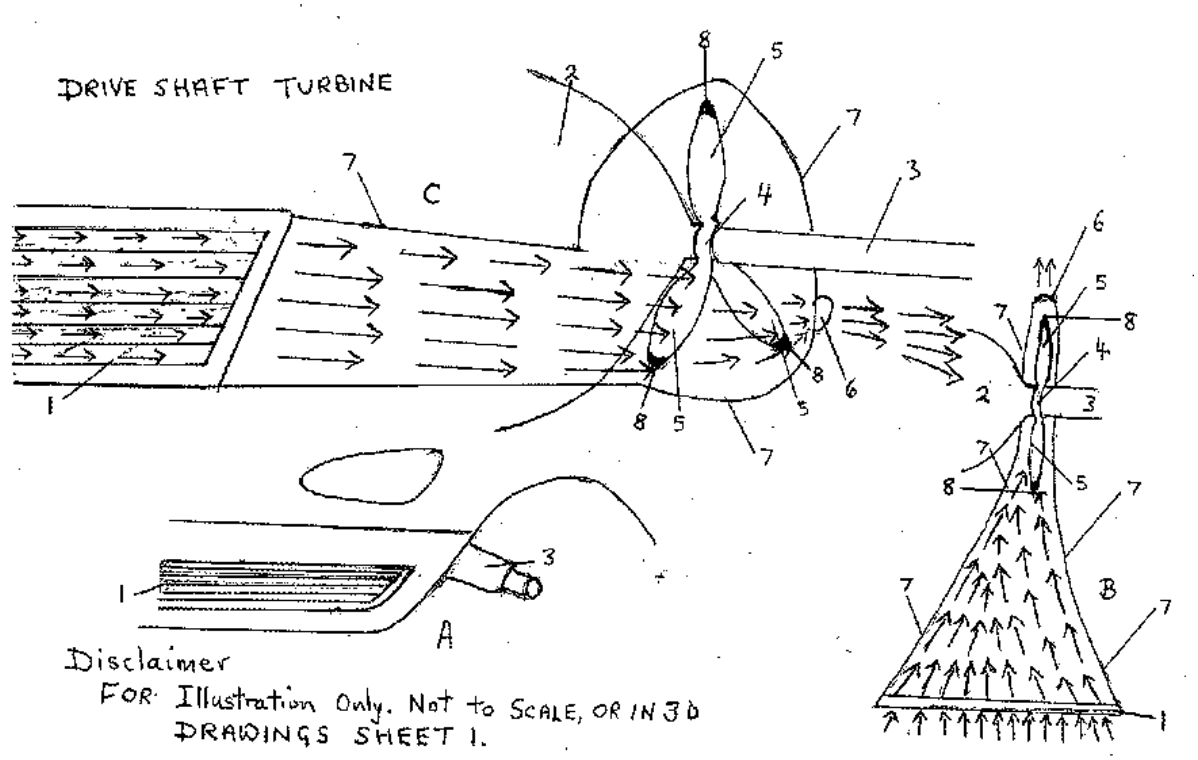
4 I am extremely grateful to Mr Lee for the skeleton arguments he filed on 2 October 2013 and for the submissions he made during the hearing. I confirm that I have taken these (and all the arguments put forward in the correspondence) into account in reaching my decision.

5 I agreed with Mr Lee that I would focus my attention on the sufficiency issue at the hearing and in this decision since a finding against the applicant on this issue would probably be fatal to the application. Consequently, should I find in favour of the applicant I will need to remit the application to the examiner for further consideration, especially in relation to sections 1(1)(a) and 1(1)(b), and also to have the search updated in due course.

The application

6 The invention of the present application relates to a turbine which is mounted via a geared bearing to the drive shaft of an electric vehicle and which is used to assist in charging the batteries of the vehicle. I emphasise "assists" since the application acknowledges that it is not feasible for all the battery charge to be provided in this way and will still require mains charging. As well as rotating with the drive shaft, the turbine is also exposed to an air flow when the vehicle is in motion, through the provision of air vents on the front of the vehicle which lead to a chamber in which the turbine is housed.

7 The chamber housing the turbine has a pressure jet outlet which can open to release air pressure and heat from the chamber which is said to build up when the air pressure jet is closed. The tips of the turbine blades are weighted which according to the specification assists rotation of the turbine. The drawings from the application are shown below.



8 In the drawing, the turbine has a number of blades 5 with weighted tips 8 and is attached to the drive shaft 3 via the free-wheeling geared bearing 4. Air is introduced to the turbine through vents 1 via the air chamber 7. The pressure jet 6 is at the rear of the chamber.

The claims

9 The claims considered at the hearing were filed with the Applicant's letter of 18 August 2013. There are twenty six claims in total, only one of which is a fully independent claim. Independent claim 1 reads as follows:

1. Drive shaft turbine, characterized by Point A: the turbine mechanism is rotated by the drive shaft, and Point B: the air flow through the vents with a air jet which opens and closes creating a vacuum of air, removal of heat, and Point C: the turbine blades/rotors having a geared bearing which rotates in one direction and weighted tips on the blades of the turbine mechanism.

The Law

10 Section 14(3) of the Patents Act 1977 reads:

> *Section 14(3)*
> *The specification of an application shall disclose the invention in a manner which is clear enough and complete enough for the invention to be performed by a person skilled in the art.*

11 Section 14(3) is one of the provisions which is intended to have, as nearly as practicable, the same effect as the corresponding provisions of the EPC, PCT and CPC. A.83 EPC and a.5 PCT require the invention to be disclosed "in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art".

12 It is established practice that this provision of the Act means the applicant must ensure that, at the time of filing, the disclosure of his or her invention is clear and complete with respect of the invention defined in the claims. This means that the specification must disclose the essential features of the invention in sufficient detail for the skilled person to be able to put the invention into practice.

13 If the disclosure of the invention claimed is not clear and complete, then either the application must be refused or the claims restricted to matter that is adequately disclosed. Any deficiencies in the specification cannot be rectified by adding technical matter after filing as this would contravene section 76 of the Act.

Assessment

14 At the hearing Mr Lee put a great deal of effort into trying to explain to me how the invention works. I am extremely grateful to him for that. He explained that the drive shaft, driven by the electric motor via the gearbox, would rotate under the normal operation of the electric vehicle. This would cause the turbine/rotor to rotate due to the mounting of the turbine/rotor to the drive shaft, via a geared bearing which only permits rotation in one direction.

15 Mr Lee also explained that the vehicle has air vents at its front. These vents lead to ducts and the surroundings of the turbine/rotor in order to introduce an air flow to the turbine/rotor when the vehicle is moving. Mr Lee stated that both the rotation of the drive shaft and the flow of the air around the turbine/rotor assist in rotating the turbine/rotor, which rotation can be used to charge the vehicle's batteries.

16 That was helpful in so far as it went but beyond that I am afraid I remain in the dark as to how the invention is alleged to work, despite Mr Lee's best efforts. In particular there are a number of aspects of the invention upon which Mr Lee was unable to satisfy me that the specification is sufficient.

17 The first mode of operation described is where the turbine is driven by the drive shaft between the gearbox and the wheels. According to the description, when the vehicle brakes, or changes speed, “the bladed rotor will try to rotate in the opposite direction, because of the gearing on the bearing this cannot happen and causes the bearing to stop suddenly, the stopping energy produced will rotate the bladed rotor fast in the only direction possible”.

18 I am afraid Mr Lee is misplaced in his belief that the turbine shaft will behave in this way. As I see it, when the brakes are applied with the drive shaft and turbine rotating, the inertia of the turbine will mean it will attempt to keep moving in its original direction of travel. It will not try to move in the opposite direction, stop and then rotate in the original direction. At best (with a frictionless bearing) the turbine will continue moving at the angular velocity (and with the angular momentum) it had immediately before the brakes were applied. Thus it is simply not possible for the invention to function as described in the specification. It will certainly not rotate faster than it was rotating prior to braking and the fact that the tips of the turbine are weighted will make no difference to this.

19 In fact, and as discussed at the hearing, when driven by the drive shaft the turbine seems to be acting as a flywheel with the turbine/rotor continuing to rotate as it had prior to the brakes being applied.

20 Of course the drive shaft is not the only source of rotation of the turbine disclosed in the application and claimed in claim 1; it can also be rotated by air entering the vents at the front of the vehicle when it is moving. Once again however, the specification is severely lacking in detail as to how this effect is achieved. In particular, the airflow mode of operation seems to depend on an air jetting effect at the rear of the turbine housing resulting from a vacuum created in the housing as an opening at its rear is opened and closed. But the specification contains no detail as to how the vacuum is created or what its effect is or the conditions under which energy can be extracted from the turbine to charge the battery. Does this come into play when the vehicle is braking, freewheeling, going downhill? The specification simply does not provide that information.

21 When questioned on these issues at the hearing, Mr Lee acknowledged that the application was conceptual and that further experimentation would be needed to build a working prototype. He was however adamant that it provided enough information to allow the skilled person to put it into effect without exercising any inventive ingenuity. In particular he repeatedly sought to rely upon known geared bearing technology as the solution to the issues around switching between various modes of operation (where the turbine was powered by the drive shaft and/or the air flow) and known vacuum pump technology for the air jetting effect.

22 I do not agree. In my view the application is entirely speculative and does not provide sufficient information to allow the skilled person to put it into practice. In particular there is inadequate information on how and under what conditions the turbine is driven by the drive shaft and/or the air flow such that energy can be extracted from the turbine to charge the battery. Indeed there is not even any disclosure of the sort of factors that would be taken into account in deciding whether it is the drive shaft or the air flow that will prevail in driving the turbine or the conditions under which it will switch from one to the other (for example when

stopping or going downhill). This is a crucial aspect of the purported invention for which there is no enabling disclosure.

23 In addition to the importance he placed on the turbine having weighted tips, the role of the geared bearing and the vacuum chamber, Mr Lee also stressed how efficient modern turbines are as a result of the lightweight materials from which they can now be manufactured. That may be, but it is of no help in the present situation – the application specifying that efficient, lightweight materials are employed does not overcome the other inadequacies of disclosure.

Conclusion

24 Having carefully considered all the information available to me I find that the invention is not described in a manner that is clear and complete enough to allow a skilled person to perform it, and so fails to comply with section 14(3) of the Act.

25 I can see no possible amendment that would allow a valid patent to be granted based on the specification: the disclosure is simply too speculative.

26 In light of the above it is not necessary for me to consider the novelty and inventive step issues raised by the examiner.

27 I therefore refuse the application under section 18(3) for failure to comply with section 14(3) of the Act.

Appeal

28 Any appeal must be lodged within 28 days

A BARTLETT

Deputy Director acting for the Comptroller.