Intellectual Property Office

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24 January 2014

PATENTS ACT 1977

APPLICANT Tecniq's Ltd.

ISSUE Whether patent application number GB 1120935.0 complies with section 1(1)(c)

HEARING OFFICER A Bartlett

DECISION

Introduction

1 This decision concerns the issue of whether the invention in UK patent application GB 1120935.0 is capable of industrial application as required by section 1(1)(c) of the Patents Act 1977 (the Act).

2 The application, entitled "Marine Technology", was filed in the name of Tecniq's Limited on 6 December 2011. In an official letter dated 13 December 2011 the applicants were informed that the invention appeared to relate to a perpetual motion machine and thus did not seem capable of industrial application. A refund of the search and examination fees was offered. However, the applicants declined that offer and decided to proceed with the application. It was subsequently published as GB 2486334 A on 13 June 2012.

3 During the course of substantive examination the applicant has been unable to convince the examiner that the application complies with section 1(1)(c) of the Act, with the examiner maintaining throughout that the invention is not capable of industrial application since it relates to a perpetual motion machine, the invention therefore being contrary to the first and third laws of thermodynamics. The examiner also reported that the invention was not novel under section 1(1)(a) of the Act.

4 The applicants disagreed and a hearing was appointed to help me decide the matter. That hearing took place on 14 October 2013 where Mr Christopher Lee, the inventor, attended for the applicants. Mr Andy Hole attended as a Hearing Assistant.

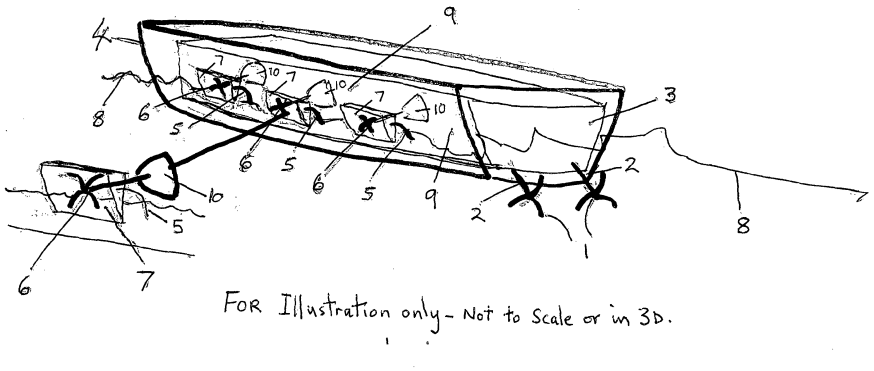
5 I am extremely grateful to Mr Lee for the skeleton arguments he filed on 2 October 2013 and for the submissions he made during the hearing. I confirm that I have taken these (and all the arguments put forward in the correspondence) into account in reaching my decision.

6 In the build up to the hearing there was some discussion as to whether the application had been withdrawn and thus whether a decision on it was necessary. This resulted for a misunderstanding on Mr Lee's part as to the allowability of a priority claim on a later application. Having resolved this misunderstanding, Mr Lee indicated that he wished for a decision to be made on the above issues.

The application

7 The invention of the present application relates to a vessel propulsion system in which propellers or water jets act to move the vessel through the water. The propellers or water jets are powered by electric motors which are energised from batteries within the vessel. These batteries are recharged by power generated from a series of turbines housed within casings having open fronts attached to the hull of the vessel, the turbines generating power from the flow of water created as the vessel moves through the water. A further means of propulsion for the vessel is said to be water jets formed as water escapes from an aperture in the rear of the turbine casings, the water within the casing being pressurised by the turbine.

8 The figure from the specification is reproduced below.



9 As shown in the drawing, the propellers 1 are connected to the shafts 2 which terminate inside of a sealed container 3 inside of the hull 4. The turbines 6 are encapsulated within a casing 7 with a water jet 5 formed at the rear of the casing.

10 Thus the specification outlines two processes that are said to be taking place: i) the batteries which power the electric motors that drive the propellers or water jets are recharged by turbines which are caused to rotate by the forward motion of the vessel and ii) the rotation of the turbines resulting from the forward motion of the vessel causes water to be ejected from the rear of the turbine casing which itself also propels the vessel forward.

The claims

The claims as last amended (and considered at the hearing) were filed on 29 January 2013. There are nine claims in total, only one of which is a fully independent claim. Independent claim 1 reads as follows:

> *1. Marine technology, utilising a number of water turbines with blades to create electricity; the blades are encapsulated in a casing with an opening to the front, allowing the flow of the water to come into the casing to rotate the turbine blades and a water jet at the back of the casing, allowing the water to escape under pressure through the water jet.*

Issue to be decided

11 Whilst lack of novelty had also been reported by the examiner I agreed with Mr Lee that I would only hear submissions on section 1(1)(c) since a finding against the applicant on this issue would be fatal to the application. Consequently, should I find in favour of the applicant I will need to remit this application to the examiner for further consideration, especially in relation to section 1(1)(a), and also to have the search updated.

The law and its interpretation

12 Section 1 of the Patents Act 1977 sets out a number of requirements that an invention must satisfy if a patent is to be granted. The relevant parts of it read as follows:

> *Section 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) **it is capable of industrial application;***
> *(d) the grant of a patent for it is not excluded by subsections (2) and (3)or section 4A below;*
> *and references in this Act to a patentable invention shall be construed accordingly.*

13 Section 4(1) of the Patents Act 1977 defines “capable of industrial application”:

> *Section 4(1)*
>
> *An invention shall be taken to be capable of industrial application if it can be made or used in any kind of industry, including agriculture.*

14 Processes or articles alleged to operate in a manner which is clearly contrary to well-established physical laws, such as perpetual motion machines, are regarded as not being capable of industrial application.

Assessment

15 At the hearing, Mr Lee accepted that perpetual motion machines were not possible due to the energy losses inherent in any system and could not be subject of patent

protection as a result of this. However, he sought to convince me that his invention was not a perpetual motion machine and would indeed work.

16 Firstly Mr Lee has submitted during prosecution of his application that the water turbines could extract energy from water flow generated by tidal streams when the vessel is static. Unfortunately, while this might indeed be possible, there is no mention in the specification of the batteries being charged when the vessel is not moving; the specification consistently refers to the generation of energy by the turbines occurring when the vessel is moving. Section 76 precludes the possibility of introducing this variation into the specification.

17 Mr Lee also submitted that the invention used two forms of propulsion: the propeller or water jet which is driven by the electric motor and also the water jets that are formed at the rear of the casings which surround the water turbines. Mr Lee said he had sought advice regarding his invention and he had been assured that once the vessel was moving with a relative speed of about 15 knots with respect to the water, then a water jet would form at the rear of the turbine casing which would provide a motive force to the vessel.

18 I consider Mr Lee to be misplaced in his belief that his invention would function as described in his application. First, the only source of energy disclosed for powering the movement of the vessel is the batteries. Since no system can be 100% efficient it is simply not possible for the batteries to be recharged by the forward motion of the vessel through the water powered by those batteries. Tidal energy ie the energy possessed by the water flowing past the vessel cannot help; the motors will have to perform additional work against that tidal movement to force water through the turbines against the tide. Once again, in a system with less than 100% efficiency, that must expend more energy than can be recovered to charge the batteries.

19 As regards the jetting effect from the turbines, in my view Mr Lee is misplaced in thinking that the water ejected from the turbine casing will be under pressure as a consequence of the rotation of the turbine or the small size of the exit aperture and would propel the vessel forward. The turbines will remove energy from the water flowing past them so as to charge the batteries. The turbines cannot both extract energy from the water flow and at the same time impart energy to that water so that it can provide a propulsive jetting effect. To provide that jetting effect the turbines would actually need to be powered impellors forcing water out of the rear of the casing, which they are not. It is simply not feasible for a forward propulsive force to be provided merely by the shape of the casing aperture as illustrated by the example I discussed with Mr Lee at the hearing - a funnel held in a flow of water would not experience a forward propulsive effect against the flow of water simply due to its shape.

20 As regards Mr Lee's discussions with a member of the boating industry it is my belief that he and his correspondent were at cross-purposes and were mixing discussions of impellers, which would be driven by a motor to create a pressure of water which could be used to form a jet, and turbines, which extract energy from a flow of water.

21 Given the energy losses that are inherent in any system such as this, I can see no possible way in which the vessel will function in the manner described. The energy required to propel the vessel, together with the turbines and associated casings,

through the water will be greater than the energy that can be extracted by the turbines from the relative flow of the water around the vessel. The batteries will never be charged. Even if the batteries were initially fully charged, which is not a requirement of the invention as claimed or is even mentioned in the description as filed, they would eventually be drained, leaving the vessel without a source of power. Indeed they will be discharged faster in the proposed system than if they were simply used to propel the vessel.

22 In short it is impossible for the system to function in the way described in the application. Consequently the invention is not patentable since it is not capable of industrial application contrary to section 1(1)(c) of the Act. Having read the specification in its entirety I have not been able to identify any allowable amendment to overcome that issue.

23 I do not propose to consider the novelty issue raised by the examiner given that the application can never satisfy section 1(1)(c) of the Act.

Conclusion

24 I have found that the invention is not capable of industrial application and I therefore refuse the application under section 18(3) as it does not comply with section 1(1)(c) of the Act.

Appeal

25 Any appeal must be lodged within 28 days

A BARTLETT

Deputy Director acting for the Comptroller.