

20th March 2008

PATENTS ACT 1977

APPLICANT JOE SPITERI-SARGENT

ISSUE Whether patent application
GB 0710779.0 complies with
sections 1(1)(c) and 14(3)

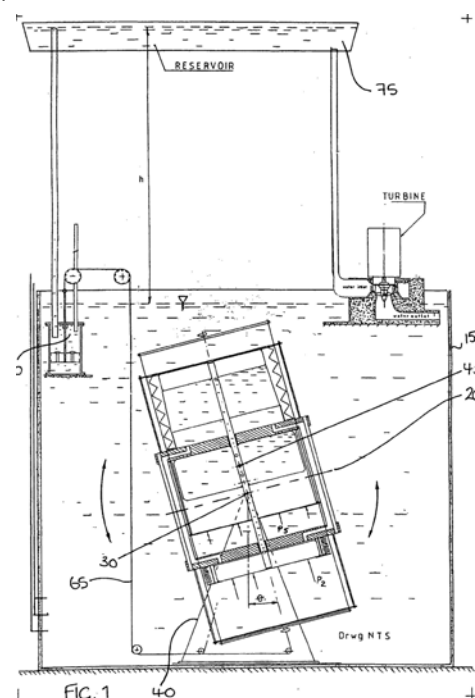
HEARING OFFICER Stephen Probert

DECISION

- 1 Mr Spiteri-Sargent's UK patent application concerns an apparatus for converting what he calls "hydraulic energy" into kinetic energy. It has not been published yet, although a PCT application (WO 2007/141653A1) based on the same priority document has been published. The examiner has reported that Mr Spiteri-Sargent's invention, as described and as claimed, purports to create energy from nothing, and is therefore contrary to the law of conservation of energy.
- 2 Consequently, the examiner reports that the application should be refused because it is not capable of industrial application (as required by section 1(1)(c) of the Act), and/or because it is not disclosed in a manner that is clear enough and complete enough to be performed by a person skilled in the art (as required by section 14(3) of the Act).

The Invention

- 3 The apparatus of the invention comprises a reciprocating member that is submerged in a tank of fluid - eg. water. The reciprocating member is supported by a frame pivot at its centre, and contains a buoyant (air-filled) member that is able to move upwards within the reciprocating member.
- 4 The apparatus may be provided with a constraining means to prevent rotation of the reciprocating member while the buoyant member is rising, and a releasable locking means to prevent [linear] movement of the buoyant member while the reciprocating member is rotating between either of two



'rest' positions. At both of these two 'rest' positions, the reciprocating member is inclined at 15° to the vertical. In fact, the movement of the reciprocating member is such that it is never closer than 15° to the vertical.

- 5 As described in the application, the buoyant member itself contains a "ballast member" which is filled with liquid, and is in "fluid communication" with a pair of air tanks — one at either end of the reciprocating member. The ballast member is allowed to move up and down within the buoyant member, except when it is locked in position within the buoyant member during certain stages of operation. What makes this fluid-filled ballast member rise upwards within the buoyant member is something of a mystery. The application says that it will slide upwards "under the force created by the hydrostatic differential of pressure P_2 and pressure P_1 where pressure P_2 is greater." (P_2 is the hydrostatic pressure near the bottom of the apparatus, and P_1 is the hydrostatic pressure near the top of the apparatus.)
- 6 As far as I can tell, the idea behind the invention is that when the tank containing the reciprocating member is filled with water, and the buoyant member is released, it rises upwards within the frame of the reciprocating member due to the force of buoyancy. When it reaches the top of its travel, its position within the reciprocating member will have moved its centre of gravity to a position above the frame pivot point. Incidentally, as the buoyant member rises within the frame of the reciprocating member, it pulls a cable which, after passing over several pulleys, operates a pump that lifts water to an upper reservoir. This far I can follow the explanation.
- 7 Then, because of what the application calls "the differential pressure acting on the ballast member", it also rises until its centre of gravity moves from a position below the frame pivot point to a new position above the frame pivot point. This, according to the application, renders the whole apparatus unstable.
- 8 With the buoyant member now locked in position at the 'top' of the reciprocating member, and the ballast member similarly locked in position within the buoyant member, the reciprocating member is released and (according to the application) the new position of the combined centre of gravity forces the whole apparatus to rotate about the frame pivot until it reaches the other rest position in which the buoyant member and the ballast member are once again at the 'bottom' of their respective vertical range of travel.
- 9 The motion of the reciprocating member can now be reversed by allowing the buoyant member to float upwards (again), and the ballast member to rise within it until the combination of these two movements returns the centre of gravity of the apparatus to the other side of the pivot.
- 10 According to the application, these two reciprocating phases of motion continue indefinitely, powered by the so-called "hydraulic energy" of the water in the tank. As the application also describes it:

"The apparatus exploits the 'hidden' energy available in the form of the hydrostatic pressure exerted on a submerged body to generate a series of

forces and movements which are managed and controlled in such a way that the system generates a net amount of useable energy.”

- 11 As I have stated above, the apparatus makes use of the repeated upwards movements of the buoyant member to operate a pump (via a cable and pulley arrangement) that lifts water up to a second reservoir. The water in the second reservoir is then used to generate electricity by means of a conventional hydro-electric generator.
- 12 The application contains one independent claim, which is reproduced at annex A of this decision.
- 13 In response to the examiner’s report, the applicant requested a hearing. At the hearing, which took place on Tuesday 18th March 2008, the applicant was represented by his patent attorney, Dr Gillian Whitfield of Astrum-IP. At the end of the hearing, I said that I would refuse the application in its current form; however, I did allow an opportunity to amend the application in a specific way to overcome the objections. As required by rule 80(6), I hereby give my reasons for this decision.

The Law

- 14 Section 1(1)(c) of the Act reads as follows:

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) ...

(b) ...

(c) it is capable of industrial application;

(d) ...

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

- 15 Section 4(1) expands on this by saying

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.

- 16 It is, however, settled law that machines alleged to operate in a manner which is clearly contrary to well-established laws of physics are regarded as not having industrial application.

- 17 The other section of the Act that is particularly significant in this decision is section 14(3). It reads:

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.”

The Issues

- 18 There are several passages within the application that attempt to address the anticipated criticism that it purports to create energy from nothing and/or that it is a perpetual motion machine. For example, it is said that:

“... the invention exploits and converts the hydrostatic pressure exerted on a submerged body into a more useable form of energy, kinetic (mechanical) energy.

In the process, energy is not created; it is merely transferred from one form to another in accordance with the established laws of thermodynamics.”

- 19 The application rejects the allegation of perpetual motion on the basis that the reciprocating member comes to rest at both ends of the reciprocating motion, and would never move again unless the various locking means are released to permit another cycle. I will simply observe that this is not what I think most people understand by the term — “perpetual motion”.
- 20 It seems to me that the nature of the apparatus in this specific case is such that if it could ever complete a full cycle, without some energy input from outside the system, it would be a perpetual motion machine. This is because if it could complete one full cycle (without energy input from outside the system), then in theory there is no limit on the number of cycles that it could complete — because the system is (allegedly) returned to exactly the same (starting) condition at the end of each cycle. But perhaps the application is suggesting that the system does not return to exactly the same state. For example, is some of the ‘hidden’ energy or hydraulic energy removed with each full cycle?

Energy transfer?

- 21 The application stresses in several places that the invention is about energy transfer. Indeed, the claims seek to define an “*apparatus for conversion of hydraulic energy into kinetic energy*”. So if kinetic energy is produced, where does the energy come from? Does the temperature of the water in the tank reduce over time? Does the relative height (potential energy) of the water in the tank drop over a period of one or more cycles? Does the water in the tank slow down in any sense (ie. reduce its own kinetic energy)? The answer to each question appears to be “No”.
- 22 The application says the energy is ‘hidden’ energy available in the form of the hydrostatic pressure exerted on a submerged body. So how long would it take to exhaust this so-called ‘hidden’ energy and bring the system to a standstill? Again, the application simply says that the invention uses “a renewable energy source”.
- 23 Nothing that Dr Whitfield said at the hearing altered my *prima facie* view that the invention described in the application is another example of the much sought-after, yet elusive, perpetual motion machine. The invention is alleged to operate in a manner that is clearly contrary to the law of conservation of energy, and is therefore not capable of industrial application (ie. it won’t work as described in the application). Moreover, the application as it stands does not disclose an apparatus (or a method) for converting “hydraulic energy” into

kinetic energy in a manner which is clear enough and complete enough for the invention to be performed by a person skilled in the art.

- 24 Dr Whitfield argued that even if I did not accept that the apparatus of the invention was capable of continuous operation, that should not prevent her from amending the application to protect the apparatus *per se* — eg. in an embodiment that converts energy from one form to another within a partial cycle of operation. Dr Whitfield submitted that such an amendment would overcome the objection concerning capability of industrial application, and in consequence would also overcome the sufficiency objection.
- 25 I accepted this submission, and said that I would allow the applicant one month (from the date of this decision) in which to amend the application to remove any suggestion of continuous operation. What this means in practice is that element ‘f’ (at least) must be deleted from claim 1 since I have concluded that the apparatus, as described, could not possibly become unstable and rotate. It follows that the description (and other parts of the claims) must be amended to remove any suggestion that the operation of the apparatus would continue beyond the first phase — ie. when the buoyant member rises within the frame of the apparatus.
- 26 As the apparatus appears to be capable of operating to this limited extent - that is to say, the buoyant member would rise once - the invention can conceivably be claimed as an apparatus for converting energy from one form into another.
- 27 I note here that what the application calls “hydraulic energy” is really potential energy. It is converted (when water in the tank moves down to fill the position originally occupied by the buoyant member), into another instance of potential energy in the upper reservoir. This, in turn, is converted into kinetic energy as the water descends from the upper reservoir into the turbine, where it is converted into electrical energy. As I commented at the hearing, it is hard to imagine a more convoluted and inefficient means of converting energy from one form to another¹; but that is not an objection that arises under patent law.
- 28 If the application is amended (without offending section 76 - “added matter”) to overcome the objections concerning industrial capability and sufficiency, I will return the file to the examiner for a search to be conducted, and for the application to be published. Substantive examination will follow in the usual way, upon filing of form 10/77. (The examination reports that have issued so far have been produced even though no request for substantive examination has been filed, and regardless of whether the other requirements of section 18(1) were met - see *Rohde and Schwarz’s Application* [1980] RPC 155.)

Conclusion

- 29 I have found that the invention described in this application in its current form does not comply with sections 1(1)(c) and 14(3) of the Act. However, I have allowed one month from the date of this decision in which the applicant may

¹ What some might call “a Rube Goldberg machine”.

file amendments to the description and claims, to make them comply with those sections of the Act. If the application is not amended to my satisfaction within the stated period, it will be refused under section 18(3) of the Act with the consequence (under section 16(1)) that it will not be published.

Appeal

- 30 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal against this decision must be lodged within 28 days.

S J PROBERT
Deputy Director acting for the Comptroller

Annex A

Claim 1.

Apparatus for conversion of hydraulic energy into kinetic energy, the apparatus comprising:

- a. a housing containing a fluid;
- b. a pump motor submerged within the fluid, the pump motor pivotable within the housing about a fixed pivot point;
- c. a buoyant member contained within the pump motor;
- d. A ballast member contained within the pump motor, the ballast member containing a ballast tank;
- e. transfer means coupled to the buoyant member to transfer the upward movement of the buoyant member within the pump motor;
and
- f. pressure differential means operable to move the ballast tank upwards within the pump motor, thereby causing rotational movement of the pump motor about the pivot point.