BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

A		B	X	C	

File Number: T 0883/90 - 3.2.4

Application No.: 85 900 952.4

Publication No.: 0 205 432

Title of invention: PROPULSION APPARATUS

Classification: F03G 7/10

D E C I S I O N
of 1 April 1993

Applicant: BOLESTA, Dymtro

Headword: Propulsion Apparatus/BOLESTA

EPC Articles 71(2), 83, 117(1)(a) and 133(2)

Keyword: "Insufficient disclosure of the invention"
"Oral proceedings and taking of evidence without the duly informed professional representative"
"Taking of evidence by hearing the party"

Catchwords

"Taking of evidence by hearing the party is possible without the presence of the duly informed professional representative";

"A person as specified in Article 133(2) EPC cannot himself act as a professional representative during oral proceedings before the Board";

"The knowledge of a person skilled in the art in the technical field of physics and thermodynamics is at least based on the generally accepted laws of thermodynamics".

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number : T 0883/90 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 1 April 1993

Appellant : BOLESTA, Dmytro
9 Jessie Street
Sunshine, VIC 3020 (AU)

Representative : Carpmael, John William Maurice
CARPMAELS & RANSFORD
43 Bloomsbury Square
London, WC1A 2RA (GB)

Decision under appeal : **Decision of the Examining Division of the European Patent Office dispatched on 4 July 1990 refusing European patent application No. 85 900 952.4 pursuant to Article 97(1) EPC.**

Composition of the Board :

Chairman : C.A.J. Andries
Members : P. Petti
J.-P.B. Seitz
M.G. Hatherly
J.C.M. De Preter

Summary of Facts and Submissions

I. European patent application No. 85 900 952.4, filed on 14 February 1985 as PCT/AU 85/00025 and published under the publication number WO 85/03743, was refused by a decision of the first instance dispatched on 4 July 1990. The decision was based on Claims 1 to 19 filed with letter of 5 July 1989.

II. The reason given for the refusal was lack of clarity (Articles 84 and 83 EPC) since the proof of correct functioning of the claimed apparatus and method which violate the well established second law of thermodynamics (correctly called to be a postulate) could not be effected. The invalidation of such a postulate must be based on reproducible tests and not on theoretical assertions.

III. An appeal was lodged against this decision on 3 September 1990. The appeal fee was paid on the same day. The Statement of Grounds of Appeal was submitted on 5 November 1990.

In the Statement of Grounds the Appellant argues that the rejection of the application is based on the incorrect assertion that the claimed method is clearly contrary to well established physical laws. The Second Law of Thermodynamics has never been proved to be correct. The invention is based on a newly discovered law of nature (physics) for converting heat into mechanical energy. The law of preservation of momentum applies to a closed system, whereas the invention is concerned not with a closed system but one in which energy is extracted from an external medium and cooled fluid is exhausted into that medium. There is an

exchange of matter. According to the Appellant, it is not suggested in the application that the invention can cause a craft to move without any energy input (a perpetual motion machine). When the specific description, drawings and claims are read together, it is perfectly clear to an expert how to build the apparatus. Therefore, the decision of the Technical Board of Appeal T 5/86 cannot be applied to the present case since according to this decision the application was refused because the invention was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art and in every embodiment the requirements of Article 83 EPC were not met.

IV. In responses to a communication of the Board the Appellant filed via his Representative a main request based on Claims 1 to 19 filed with letter dated 5 July 1989 and further auxiliary requests.

Claim 1 of the main request reads as follows:

"A propulsion apparatus characterised by the special force herein defined as RAF which propels the apparatus and this propulsion apparatus comprises: a divergent duct, having one of its two ends larger than the other, into which fluid enters through the narrower end when apparatus is in motion and rams fluid; a convergent duct, having also one of its two ends larger than the other, which is arranged so that: its wider end is in more forward position than its narrower end, when relating to the direction in which the apparatus is propelled; its wider end connects to the side of said divergent duct so that fluid issuing from said divergent duct deflects sideward, from the direction of propulsion, and enters the said wider end of convergent

duct; its longitudinal sides are obliquely located in relation to the direction of propulsion, so that one longitudinal side constitutes the leading side and its opposite the trailing side; fluid flowing along the convergent duct changes its momentum, due to the increasing velocity of fluid caused by the convergence of the duct and the propelling speed of apparatus, and transmits here this change of momentum as a force, acting in the direction of propulsion, to the said leading longitudinal side of the duct and this force together with other forces formed by fluid pressure acting upon the walls of propulsion apparatus form the said RAF which propels the propulsion apparatus."

Claim 2 of the main request reads as follows:

"The method of converting molecular energy, commonly also known as heat energy into work characterised in that the said heat energy is extracted from a fluid and directly converted into mechanical energy which is then converted into propulsion work and said method in general involves the formation of a special force herein defined as RAF and facilitating it to perform work and in detail this method comprises: ramming a fluid so that it enters the moving system, which rams the fluid, in which fluid increases its pressure and acquires absolute velocity in the same direction in which the system moves, like by passing fluid through a divergent duct, thus forming in said system a fluid stream, flowing in the same direction in which the system moves but slower than the ramming speed of the system, the energy of which is provided by the molecular energy of the same fluid so that fluid is here cooled by this amount; facilitating the momentum of said fluid stream to act on said moving system as a force by directing the said fluid stream sideward, from the direction of motion, and

increasing the velocity of fluid by passing it through a converging duct in which said increased pressure is converted into velocity so that flowing fluid changes its momentum along its path, due to the increased velocity of fluid and the ramming speed of the system, and transmits this change of momentum as a force which is RAF and for this reason it is able to convert molecular energy of fluid directly into propulsion work without involving the thermal cyclic process."

Claim 1 of the first subsidiary request filed with letter dated 19 March 1993, reads as follows:

"A propulsion apparatus characterised in that it is propelled by the heat energy extracted from fluid in which it operates, atmosphere or water, and said propulsion apparatus comprises: a diverging duct arranged so that said fluid enters it through its narrower end when said propulsion apparatus is in motion and rams fluid whereby fluid flowing along said duct increases its pressure and acquires a forwardly directed velocity, due to said motion of duct and the divergence of duct, whereby said fluid converts its own heat along the duct into kinetic energy contained by said velocity and into the energy contained by said increased pressure, both said energies constituting mechanical energy acquired by the fluid in said duct, so that fluid issues from said duct correspondingly cooled possessing the said me- chanical energy and a forwardly directed momentum, which is the product of said velocity and the mass of fluid passing the duct in unit time; at least one converging duct connected and communicating at its wider end with the wider end of said diverging duct to extend rearwardly thereof so that the wider end of said converging duct is in more forward position than its narrower end, when relating to the direction of

propulsion, and so that the longitudinal axis of said converging duct subtends an obtuse angle with the longitudinal axis of said diverging duct from which fluid enters into the wider end of said converging duct in which fluid, when it flows along, converts said increased pressure into fluid velocity which in combination with the forward speed of said propulsion apparatus transmits a portion of said forwardly directed momentum of fluid, which is here already cooled by the formation of said mechanical energy in the diverging duct, to the walls of said converging duct transforming it into thrust which propels said propulsion apparatus and said mechanical energy performs propulsion work; a deflector, being an optional addition, which converts the remaining portion of said forwardly directed momentum into thrust by deflecting the stream of fluid issuing from said converging duct into the rearward direction."

V. The following requests have been made by the Appellant via his professional Representative: To set aside the impugned decision and to grant a patent on the basis of the following documents:

Main request (R/I):

Claims: 1 to 19, filed with the letter of 5 July 1989;

Description: pages 1 to 11, filed with the letter of 5 July 1989; typing errors on pages 1, 4, and 5 should be amended (letter dated 19 March 1993);

Drawings: sheets 1/2 and 2/2, as originally filed.

First auxiliary request (R/II):

To replace Claims 1 to 19 of the main request by Claims 1 to 12 filed with the letter dated 19 March 1993.

Second auxiliary request (R/III):

In the event that some of the dependent claims are considered as unallowable, a patent should be granted on the basis of Claim 1 of the first auxiliary request together with the allowable dependent claims.

The Appellant further requested the following:

(R/IV): to remit the case to the first instance if the application could be allowed on the basis of a form allowable to the Board;

(R/V): to give the professional Representative the opportunity to act on behalf of the Appellant if during the oral proceedings matters are discussed or decided where the Appellant is unable to act;

(R/VI): to consider all submissions by the Applicant at the oral proceedings.

(R/VII): The reimbursement of the appeal fee in the event that the appeal is successful.

VI. At the oral proceedings which took place on 1 April 1993, the professional Representative although duly informed was not present. He had informed the Board by letter dated 19 March 1993 that he would not attend the

oral proceedings. In order to make possible the hearing of the Appellant (who has neither a residence nor his principal place of business in one of the Contracting States of the EPC), in accordance with Article 117(1)(a) EPC (Taking of evidence), the Representative communicated in his letter of 19 March 1993 that the formalities provided for in Rule 72 and Article 117(4) EPC were renounced.

During the taking of evidence by hearing the party, in accordance with Article 117(1)(a) EPC, the Appellant only answered questions put forward by the Board.

VII. After deliberation by the Board, the Chairman gave the decision that the appeal was dismissed.

Grounds for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC; it is admissible.

2. Disclosure of the Invention

2.1 The European patent application must disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 83 EPC).

2.2 The relevant person skilled in the art is a person having ordinary skill and knowledge. This ordinary knowledge is at least the common general knowledge in the technical field involved, as presented in standard reference textbooks of this technical field.

2.3 Technical problem disclosed in the application

The technical problem which can be understood from page 2, lines 26 to 34 of the present description is to perform propulsion work, by extracting heat from the employed fluid, atmosphere or water, and convert it into useful propulsion work, thus facilitating the utilisation of the vast energy stored as heat in the environmental fluid as an energy source.

2.4 According to the explanation given in the "Supplementary statement from Applicant", page 4, filed with the Appellant's Statement of Grounds of Appeal, dated 2 November 1990, the process can take place only when a diverging duct is in motion. When a stationary fluid is rammed by the apparatus, fluid moving along the duct reduces its velocity relative to duct, due to the divergence of the duct. Because this reduction of relative velocity takes place in a moving duct, the reduction of relative velocity causes that fluid to acquire an absolute velocity in the forward direction. The reduction of relative velocity in the diverging duct causes the increase of pressure. The formation of absolute velocity causes the formation of kinetic energy of fluid. Since no heat is added to the fluid, the kinetic energy can only be covered by the heat extracted from the fluid itself. The increase of pressure requires also energy which can only be supplied by the heat contained by the fluid itself since no any energy or heat has been added to the fluid from an external source. The formation of energies, kinetic and pressure, is here effected by direct conversion of heat, contained by the fluid, into mechanical energy which consists of kinetic energy and increased pressure.

This explanation covers the basic idea of Claims 1 and 2 of the main request (R/I) and of Claim 1 of the first subsidiary request (R/II).

It is clear from the application taken as a whole (e.g. page 2, lines 1 to 4; page 8, lines 36 to 40 and page 11, lines 3 to 9), and it was furthermore confirmed by the Appellant during the taking of evidence, that the present propulsion apparatus according to Claim 1 of both the main and first auxiliary requests, and the method of converting molecular energy into work according to Claim 2 of the main request are all intended to convert continuously and directly heat extracted from the surrounding fluid into power or work. External energy is only used to start the apparatus, that means to move the apparatus with a certain speed, so that after reaching that certain speed, the apparatus is propelled only by a force which the Appellant calls "reactionless appearing force" (RAF) (see description, pages 1 and 2, paragraphs headed "The background art of the invention"). The argument brought forward by the Representative in the Statement of Grounds that no perpetual motion machine is disclosed in the application cannot be accepted by the Board, since it does not comply with the clear and unequivocal statements in the description stating the contrary.

2.5 The relevant technical field in the present case therefore is the field of physics and thermodynamics, so that the knowledge of the relevant person skilled in the art is therefore based on laws of this field which are generally accepted.

2.6 One of these laws is the Second Law of Thermodynamics, which in fact is a postulate, and according to which heat can never transfer spontaneously from a body of

lower temperature to a body of higher temperature. According to this Second Law it is necessary to have two different energy levels in order to be able to transform or convert energy or heat into work during a process changing the state of the system (fluid). In other words a temperature difference, which is needed to perform work, can never appear spontaneously in a body originally at a uniform temperature.

2.7 The Appellant agrees that the Second Law of Thermodynamics is valid for cyclic processes. He is however, of the opinion that the thermal cyclic process is not involved in the generator, the method and the generation of power of the present application.

The Appellant argued that the propulsion apparatuses of the application are not propelled by the reaction of an issued jet, like in conventional jet propulsion apparatuses, but by the so called reactionless appearing force (RAF). He explained such force by making reference to a balloon. The force propelling the balloon in vertical direction (formed by the static pressure acting on the balloon) is formed so that its reaction is not externally perceivable or noticeable. Such force is defined as the Archimedean force and it is also RAF. RAF possesses the ability to extract heat from the surrounding fluid, air or water and convert it into work and RAF performs this work so when the balloon is being lifted. Unlike the Archimedean force which can propel in the vertical direction only, the force generated in the apparatus of the application can propel in any direction. According to the Appellant both forces are similar in their nature having this typical characteristic that their reaction is externally not noticeable (see description pages 1 and 2, paragraphs headed "The background art of the Invention").

2.8 Notwithstanding the consideration of a process as an open or a cyclic process, energy only can be transformed into work during a process changing the state of a system by the use of a high energy source **and** a low energy source, according to the Second Law of Thermodynamics. Without a difference in the energy levels of the energy sources no work can be performed therefrom. An engine therefore is only capable of performing work when the system is in an unbalanced state. This principle, for instance, is applicable for the water of a river which can perform work when it flows from a higher to a lower altitude (two different energy levels). This principle also finds its application, contrary to the Appellant's opinion, in the rising movement of a balloon lifting an object and it also must be taken into account in the claimed generator, method and generation of power.

2.9 Indeed, before a balloon connected to an object can rise in the air, it has to be inflated to such a point that the Archimedean Force (buoyancy) overcomes the weight of the entity "balloon-rope-object" (gravity). Inflating the balloon entails adding energy to the balloon, so that the initial (before inflation) balanced state (equilibrium) of the balloon is disturbed. That the inflated balloon is in an unbalanced state is shown by the fact that the entity has to be held down, otherwise it would rise (buoyancy greater than gravity). Due to the state of unbalance, i.e. due to the different energy level with respect to the surroundings it is possible that after the entity is released that it rises towards a new state of equilibrium and thereby performs work. The ability of the entity to perform work is exhausted once it arrives at the new state of equilibrium and no further additional work can be extracted from that system. Only by adding new external energy can a state

of imbalance once again be created and work again be performed. If the balloon falls after deflation the process again can be carried out as a part of a cycle wherein the necessity of two energy levels again must be taken into account. A balloon floating at a certain altitude in a state of equilibrium can also rise if the sun shines upon it causing the fluid in the balloon to be warmer than the temperature around the balloon so that the balloon further inflates and rises until it reaches a new state of equilibrium, the heat required for the inflation is here provided not from the fluid surrounding the balloon but from the sun.

The phenomena taking place during the rising of the balloon can therefore be explained without difficulty on the basis of the generally accepted laws of physics and thermodynamics. The Appellant's statement that nature itself violates the postulate of the Second Law of Thermodynamics, e.g. that a balloon can lift a weight by the heat extracted from atmosphere, which is directly converted into work, and without any addition of external energy, can therefore not be accepted by the Board. The process of the rising balloon in fact does not contravene the existing, commonly accepted physical and thermodynamic laws but on the contrary is fully within their framework.

2.10 The Second Law of Thermodynamics also applies to the claimed apparatus and methods. As the Appellant stated, the apparatus must be brought up to a certain speed. This means that energy is added to the system bringing the system up to in a state of a energy level higher than that of the surroundings. The apparatus will stop when this energy is exhausted.

The Board cannot accept the argument of the Appellant that a continuous movement of the apparatus will be created solely by the so called reactionless appearing force (RAF), which is an unperceivable force going beyond the commonly accepted force which lifts the balloon. The explanation given in the "Supplementary Statement from Applicant", page 4, filed with the Statement of Grounds, and in the description, page 4, lines 8 to 21, completely ignores the fact that external energy (starting energy) has been provided, necessary for propelling the apparatus at the start and bringing the apparatus up to the necessary speed. Therefore, it cannot be accepted that an energy comparison (balance) is made only with those parameters which are the result of the energy put into the system without taking into account the initial input.

The Appellant considers the absolute velocity which is the difference between the forward speed of the apparatus and the relative velocity of the fluid passing the divergence part of the duct and concludes that a special process takes place in which the relative velocity is converted into an absolute velocity, forwardly directed, without any additional external heat. He is of the opinion that the temperature of fluid must drop to cover the formation of mechanical energy and that heat not only has been extracted from the fluid in exact required quantity, but is also directly converted into mechanical energy.

The Appellant however arrives at this conclusion only because the starting energy needed to bring the apparatus to a certain speed is wrongly not taken into account in the energy balance of the whole system. The argumentation in "Supplementary Statement from Applicant" (page 9) that nature itself violates the

postulate of the Second Law of Thermodynamics therefore cannot be accepted by the Board.

2.11 Having a logical explanation for the lifting of a balloon, which is based on common physical and thermodynamical laws, it is not possible for the skilled person to understand the reactionless appearing force (RAF) explained in the description of the application by means of an imperceptible force lifting the balloon. The skilled person would come to the conclusion that adding of energy is not only necessary for starting the apparatus but also to keep it moving. It would not be possible for him to understand how the claimed continuous conversion of environmental energy into work which is contrary to the well established Second Law of Thermodynamics, can be carried out, particularly since it is obvious that the explanation given in the "Supplementary Statement from Applicant" (page 4) and in the description (page 4,lines 8 to 21) cannot be correct, due to a wrong energy balance which is used to come to the conclusion that heat is extracted from atmosphere and directly converted into work.

Therefore, the person skilled in the art is unable to understand the apparatus and method of the application and, on the basis of the information given in the application, he is unable to carry out the invention in order to arrive at a solution of the technical problem posed (Article 83 EPC).

The argument of the Appellant that the invention can be carried out with the disclosed information (e.g. a specific construction of the apparatus) and that therefore Article 83 EPC is not contravened, is unacceptable since the proposed apparatus and method cannot be regarded as being able to overcome the Second

Law of Thermodynamics and therefore to be able to solve the technical problem posed.

3. In view of the fact that the application does not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art, the main request (R/I), the first (R/II) and second (R/III) auxiliary requests, as well as request (R/IV), which all relate to the invention as disclosed in the description and drawings, have to be rejected.

The Appellant was informed by a communication of the Board that the Board intended to take a decision at the end of the oral proceedings. Since during the taking of evidence by hearing the party no new facts or arguments appeared, which could have led the Board to intend a possible grant, needing the action of a professional Representative, there was no need to consider request (R/V). There was also no need to consider request (R/VI) since the Appellant only answered the questions put by the Board.

Since the appeal is not allowable a reimbursement of the appeal fee according to Rule 67 EPC cannot be considered in the present case, and therefore request (R/VII) has to be rejected.

4. The Appellant was informed of the Board's provisional opinion in a communication that the disclosure of the invention in the present application was not in accordance with Article 83 EPC and that the Board intended to take a decision at the end of the oral proceedings. During the taking of evidence by hearing the party no new facts appeared, so that the Board was indeed able to take a decision at the end of the oral

proceedings, on the basis of the same opinion as expressed before.

5. Procedural matters

5.1 Article 133(2) EPC stipulates that natural or legal persons not having either a residence or their principal place of business within the territory of one of the Contracting States must be represented by a professional representative and act through him in all proceedings established by this Convention, other than in filing the European patent application; the Implementing Regulations may permit other exceptions.

5.2 The Appellant, being an Australian citizen having neither a residence nor his principal place of business within the territory of one of the Contracting States must therefore be represented by a professional representative in order to be able to **act** before the Board during oral proceedings, and cannot himself act like a professional representative, e.g. to file new requests.

5.3 Due to the present specific case, wherein a propulsion apparatus and a propulsion method were disclosed which seemed to operate in a manner clearly contrary to well-established physical laws, the Board decided to proceed to take evidence by hearing the Party (Appellant) in accordance with Article 117(1)(a) EPC in order to give the Appellant the opportunity to reply to questions put forward by the Board. Such a taking of evidence by hearing the party is possible without the presence of the duly informed professional representative.

Order

For the above reasons, it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

S. Fabiani C. Andries