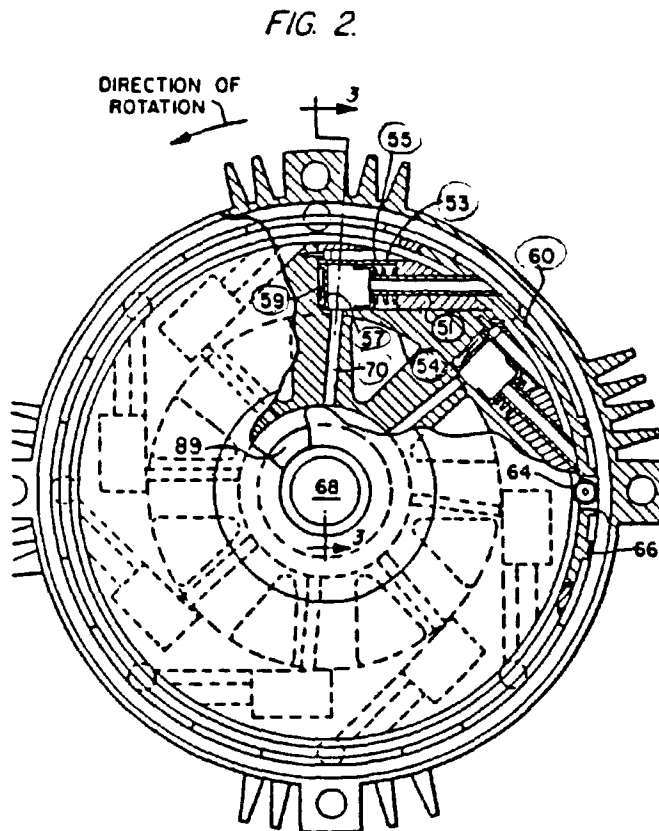


COMMISSIONER'S DECISION

S2, Utility. The specification and arguments failed to provide sufficient description of the invention to determine utility, and no operational data was advanced persuasive of reduction to a practical form. Rejection affirmed.

This decision deals with the Applicant's request for review by the Commissioner of Patents of the Final Action on application 474,156 (Cl. 171-85) filed February 13, 1985. It is entitled Pressure Cushion Motor Turbine and the inventor is Eugene Niderost. The Examiner in charge issued a Final Action on February 7, 1989 refusing to allow the application.

The invention relates to a rotary engine in which air and fuel are ignited and the exhaust gases are said to push a spring against a rotor element to cause motion. Figure 2 reproduced below shows the device:



The exhaust gases are fed through a distribution chamber that is part of the shaft 68 and via a radial passage 70 to a radially spaced chamber 53 having a movable wall 54 with a spring 55, and an opposite movable wall 57 with a spring 59. The gases pass via the passage in rod 51 into pressure segment 60.

In taking the Final Action the Examiner refused the application as being inoperative. That action stated (in part):

...

The essence of Applicant's device is a chamber or a series of chambers in a rotor. Each chamber is filled in turn by a highly pressurized mixture of gases which are the result of the combustion of compressed air and a fuel which are ignited by a spark plug. When the chamber is pressurized a "pressure wall 57" is moved compressing a "reaction spring 59". The pressure is held in the chamber, the spring 59 reasserts itself and since it cannot push against the pressurized gases, pushes against the rotor which causes the rotor to rotate.

If this is, in fact, the basis of Applicant's device, Applicant must be aware of Charles' Law which is generally expressed

$$\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$$

where P_1 = a first pressure; P_2 = a second pressure
 V_1 = a first volume; V_2 = a second volume and
 T_1 = a first temperature; T_2 = a second temperature:

in this case it can be assumed that temperature will remain constant.

When the "pressure chamber" has been filled with the ignited air-fuel mixture the pressure from this mixture acts equally in all directions, not only against "pressure wall, 57" but also against "backup wall, 54" which form the two moveable components in the "pressure chamber".

Behind each of the two walls, 57 and 54, is a spring; "spring 55" behind "backup wall, 54" and "reaction spring, 59" behind "pressure wall, 57". The two walls, 57 and 54 exert a force against the springs, which if the gas pressure acting on the walls is great enough, forces the springs to contract. The springs will contract until the gas pressure acting against the two walls, 57 and 54, equals the force of the two springs, 55 and 59. Once these forces are equal an equilibrium state is reached no further compression or expansion of the springs can occur nor can any movement of the walls 57 and 54 occur.

If the "reaction spring 59" attempts to push against the rotor to cause the rotor to rotate it must expand and if the "spring 59" expands then the "pressure wall 57" must remain in the same position relative to the "main shaft 68" while the rotor rotates. In other words the area behind the "pressure wall, 57" must increase in volume as the "spring 59" pushes against the rotor.

...

Clearly since any expansion of the spring results in an immediate counter-force on the "pressure wall 57" there can be no expansion of the spring if the pressure

of the gas remains constant. However, the gas bleeds from the chamber through the hole in "connecting rod, 51" to "pressure segment, 60".

...

Since the gas is bled off without stopping, the "reaction spring, 59" as well as the "spring, 55" should return smoothly to their at rest positions.

Furthermore Applicant has shown in figure 2 "backup wall 54" and "spring 55" which are placed in "chamber 53" to absorb excess centripetal force". The method by which this is done is not given as centripetal force as defined by Fundamental Physics Halliday and Resnick, published by John Wiley and Sons Ltd. Toronto, 1970, as forces being directed toward the centre and "back-up wall 54" and "spring 55" are at right angles to the centre of the rotor. However when the "chamber 53" is pressurized and since the pressurizing force will act equally in all directions ... any contraction of "spring 55" would be on the same basis as "reaction spring 59". An argument that the volume could be maintained by "spring 59" expanding and the "spring 55" contracting is again spurious. Once the pressure gases enter the "chamber 53" and equilibrium is reached the only... movement of the "pressure wall 57" or the "reaction spring 59" is by more energy being added to the "reaction spring 59" or the gas pressure decreasing. The latter is what in fact happens. "Connecting rod 51" has a hole through its length which allows gas to escape to "recess 62" which changes the equilibrium state with respect to $P_1V_1 = P_2V_2$ and allows the springs to reassert themselves. ...

...

In the Applicant's response dated April 2, 1988 he states that "your office action (January 4, 1988) contains a statement that a spring is expanding, in no way, is anywhere in the application written that a spring is expanding, in contrary only a compression of a spring makes a rotation possible." This is in agreement with page 8 lines 11 to 18 where applicant states that the compression of the "reaction spring, 59" is the condition required to cause rotation of the rotor. This appears to be the basis of the device that the applicant has built.

...

In responding to the Final Action, the Applicant submitted a first letter, and a second letter, both dated June 6, 1989. In the first letter of response the applicant stated, in part:

...

The applicant has found that the examiner does not understand the application at all. One has to be skilled in the art to understand, basic physics is here the pre requisite, dealth is here not with something from gardener or a pastry baker, dealth is here with the findings of an expert, the applicant hates to brag, but it is so. Who ever wrote this response got lost in the jungle of technological details. There are professors in Ottawa to be consulted in case of doubts,

the applicant did the same thing. The applicant is still convinced that this application is perfect in every detail.

Alone our atmosphere could pump water for millions of years, all one has to do, make use of the nature laws. The applicant suggest strongly to enter this application.

...

In the second letter dated June 6, 1989, the Applicant argued as follows, in part:

...

The applicant is mailing a letter of commendation of the faculty he has graduated in 1988, he also would like to suggest that he is the expert in the functional matter of this application.

As the next step the applicant would like to define the word

AMBIGUOUS

Ambiguous is something, that is hard to accomplish, like for example, sitting on a chair and trying to move that chair by pushing on the chair one is sitting on. Double functioning machinery is well known such as: Electric motors becoming generators by switching. Turbo charged engines being partly driven by exhaust. Over 30 years ago, diesel engines of Brown Boveri have been charged 150% of the original fuel power. So this Motor Turbine is also of double function and falls under this category, and is not AMBIGUOUS.

The applicant has once more taken the time to make a sheet of sketches of a single pressure cushion, to show that expansion is only possible in the direction shown on the cross-section on the sketch (1)
A1 is the adiabatic due to explosion pressure. A2 is the equivalent of the cross-section of the inside of the Motor, to be filled with burned gas or air. A3 is the adiabatic of one segment in the air pump.
The formula of your response $P_1 \times V_1 \div T_1 = P_2 \times V_2 \div T_2$ does not apply on this engine. The compression is accomplished by the rotary air pump and must therefore be calculated as an ideal gas compression which is the adiabatic. The isentropic is also not required since compressed air and the injected fuel meet in the rotary combustion chamber to ignite.

...

Since the applicant has designed the first rotary compressor pump to overcome the power requirements for the compression cycle and was granted a degree in Science for it by accredited professors, he would like to present the proper formula to calculate this engine.

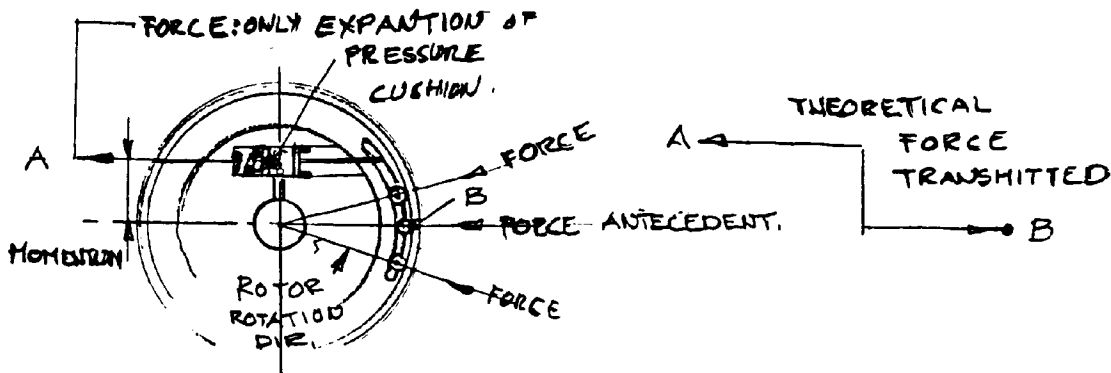
The formula is:
$$\int_{P_1}^{P_2} \left(\frac{12.9 \text{ or } .93}{P_1 - P_2} \right) \times \text{Stroke (1-2)}$$

The diagrams are all given in the SKETCH (1) to demonstrate how they should look like.

The applicant would like to state further that the explosion has the sole purpose to squeeze the expanding gas into the pressure cushion. This is clearly stated in the application starting with page 7 of the disclosure looking at Figs. 3,5,8,10.

To what pressure that will go is not required in the patent and is not claimed. The pressure build-up must be there or the engine is of no use, and this, the applicant is fully aware of.

The applicant knows that such a motor does need a certain degree of engineering physics and for that matter one has to be skilled in the art to understand it. Heat anticipation in this application is of no or at least little consequences and can be negligible, despite that the applicant makes use of a air-pump of common type. The principle of this engine is absolutely sound and 100% perfect as the sketch below will demonstrate. A brief description of the drawings is given as per rule 23 on page 4 of the application.



From the office response on page 4, No2
At third degree position is referred to Fig.4, and is the position 3° before the 0°, used as the air-gas mixture intake.

No3. The connections are clearly shown on Fig. 2 and are shown in Fig.8 as 'B'.

No.4. Static pressure is a pressure not rushing over an object like a turbine fan ect.

No.5 Combustibles can also be burned and that was stated that way in the application.

The applicant states that this is only a principle patent and does not claim any machine elements, nor their names. The Wankel engine has, besides the principle patent, 120 sub-patents.

For example the response states on page one, for Claim 1, that the applicant used wrong terminology. There can be as many different connecting rods as there are machines on this earth. One can patent the different rods, but not the name. How many different diesels are on this earth?

This response would force the applicant to write a dissertation, he may do this later on, certainly not in the patent office.

The issue before the Board is whether or not the disclosure sets forth an invention that is operative and useful as required by Section 2 of the Patent Act. Claim 1 reads:

A new and improved motor comprising:

- a) a stator structure and a rotor structure,
- b) a rotor with at least one so named pressure cushion wherein the cushion is the vollumena of the pressure chamber enclosed by side walls, backup wall and pressure wall, wherein the pressure wall is the moving part capable to compress compression springs between pressure wall and rotor,
- c) a rotor with at least one backup wall connecting-rod pressure-segment assembly, opposing the pressure wall in (b) wherein the pressure-segment has rollers pressed against the neutral housing so as by forced increase of the pressure in the chamber the expansion of the cushion is only possible by way of the pressure wall,
- d) a backup wall connecting-rod pressure-segment assembly has pressure segments with rollers and the rollers are located in the pressure segments having a recess with seals for counter pressurization to relieve the rollers of excessive pressure for longer life, and furthermore the seals close off the recess of carbon monoxide.
- e) a backup wall connecting-rod pressure-segment assembly with the backup wall located in the rotor with the connecting rod protruding through the periphery of the rotor to enable the above named assembly being backed to the permanent housing wall as repellor, so the contact of pressure centre will be forcefully pulled along at 360° maintaining the free force at all times.

A careful review of the prosecution of this application has been made. The Applicant revoked the appointment of agent as of July 7, 1987 and has responded to the Examiners' actions since that time.

In the United States Patent 4,347,698 to Nelson, referred to in this application, a rotary engine is described that shows in its Figure 1 reproduced below, that exhaust gases 33 from an ignited air/fuel mixture are led from a radially spaced chamber 3 via exhaust duct 6 to discharge port 24. The Board notes that the Applicant's device operates in a manner similar to the Nelson device, i.e., by making use of exhaust gases.

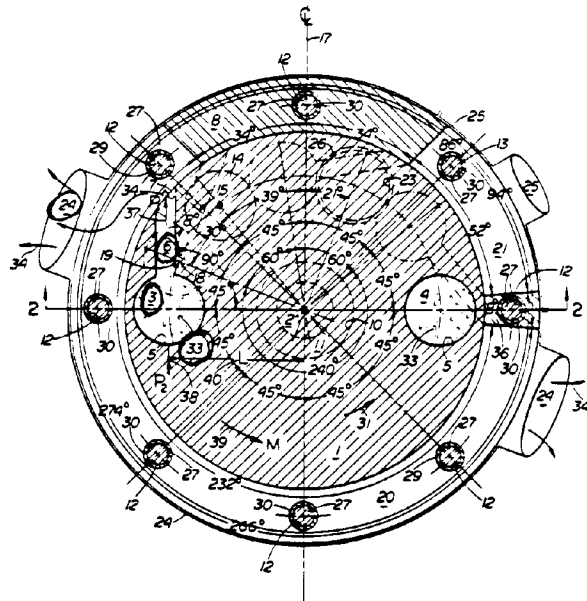


FIG 1

The Nelson Patent attributes the driving torque to the reactive power of the exhaust gases leaving chamber 3. Here, the Applicant believes the reaction of the spring 59 pushing against the rotor creates the driving force, not the exhaust gases entering chamber 53 and exiting through the passage in rod 51 and hitting the wall of the pressure segment. For his part, the Examiner has discussed in the Final Action the equal reaction of the gases on both the walls and their springs when the gases enter the space between the walls. The Applicant does not refute the arguments presented in the Final Action with regard to walls 54 and 57, and springs 55 and 59, but he submits additional hypothesis on the working of his device. He adds the Examiner does not understand the application and suggests consultation with professors.

The Examiner has presented detailed rejection with respect to all the claims in the application. However, the Applicant has not discussed the rejection of the claims in any of his responses. The Board believes the Examiner's rejection has merit and since

the Applicant has not responded, the Board thinks that all the claims fail on the grounds of indefiniteness and ambiguity, and that they do not comply with Section 34(2) (formerly Section 36(2)), of the Patent Act.

More importantly, the Applicant must satisfy the requirements of Section 2 of the Patent Act by satisfactorily showing how his invention exhibits utility. Section 2 states:

"invention" means any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter;

A main concern of the Board at this juncture is the operation or use, i.e., the utility, of the invention as contemplated by the inventor. The disclosure of the application has promised a result due to the action of the spring 59, and this promised result must be attainable by a person skilled in the art. There are numerous court cases that have dealt with the requirement that the specifications of an application shall set forth a correct and full account of the manner of operation. In this regard, the Board is guided by the rationale provided by the Courts.

In the Exchequer Court decision in Minerals Separation v. Noranda Mines, Ltd., (1947), Ex. C.R. 306, Thorson P. stated at page 316:

Two things must be described in the disclosures of a specification, one being the invention, and the other the operation or use of the invention as contemplated by the inventor, and with respect to each the description must be correct and full. The purpose underlying this requirement is that when the period of monopoly has expired the public will be able, having only the specifications, to make the same successful use of the invention as the inventor could at the time of his application. The description must be correct; this means that it must be both clear and accurate.

And at page 317 he stated:

When it is said that a specification should be so written that after the period of monopoly has expired the public will be able, with only the specification to put the invention to the same successful use as the inventor himself could do,

it must be remembered that the public means persons skilled in the art to which the invention relates, for a patent specification is addressed to such persons.

The issue of utility was dealt with in Northern Electric v. Brown's Theatre, (1940), Ex. C.R. 36 at 56, in the following passage:

An invention to be patentable must confer on the public a benefit. Utility as predicated of inventions means industrial value. No patent can be granted for a worthless art or arrangement. Here there is described and claimed something that lacks utility because it is inoperable for the purpose for which it was designed.

Relevant too, is the passage from Raleigh Cycle v. Miller, (1946) 63 R.P.C. 113 at 140 which reads:

In other words, protection is purchased by the promise of results. It does not, and ought not to survive the proved failure of the promise to produce the results.

In Re Le Rasoir Appolo, (1932) 49 R.P.C. 1, the Court found that where the theory forming the basis of a patent is erroneous, there is no subject matter, and hence no utility is provided.

In Wandscheer v. Secard, (1946) Ex. C.R. 112, and (1948) S.C.R. 1, it was held that:

The test of utility of an invention is that it should do what it is intended to do and that it be practically useful at the time when the patent is issued for the purpose indicated by the patentee.

In the recent Supreme Court of Canada decision in Pioneer Hi-Bred v. the Commissioner of Patents, given June 22, 1989, Mr. Justice Lamer, in refusing to grant a patent, pronounced there is no ambiguity in the Patent Act that an invention must be described completely in order that it may be used by a person skilled in the art. In Mr. Justice Lamer's words: "the inventor must describe not only how the invention can be used but also how a third party can make it". In view of the Court's direction, the inventor's comment that all that is needed is consultation with professors to enable an understanding of the application,

does not satisfy a basic requirement of the Act, namely, that the invention shall be sufficiently described in the application.

In the response of June 6, 1989 to the Final action, arguing the Examiner does not understand the invention, the Applicant comments "there are professors in Ottawa to be consulted in case of doubts, the Applicant did the same thing." The Applicant, however, does not say what response he received as a result of the consultation, nor is there supplied any corroboration in the form of data from a recognized source that explains the subject matter of the application.

In particular there is no explanation, in the Board's opinion, that sufficiently identifies how or why the pressure reacts only on the area of the wall 57 and not equally on the area opposite it that is made up of the wall 54 and the passage 51, nor is there any satisfactory description of the effect the gas discharge via passage 51 has on the expansion of the gas in chamber 53. In the Sketch(1) which includes Figure 2 of the application, the passage 51 is shown as spaced from the housing. The application on page 8 describes the flow of the gases as

"going through the hole of the connecting rod 51 (to fill) all the inside of the housing 12 and 13. This will equally pressurize all the pressure cushions from the surrounding space around the rotor....

This static pressure forces the pressure wall 57 to expand...and by doing so forces the compression springs to be compressed and these springs in turn force a tangential force... upon the rotor... and so rotation has to start."

The term "static pressure" is not understandable from the above passage in the application, for there is a flow of gases under

pressure into the chamber 53, and as they expand they act on all surfaces therein with dynamic fluctuating pressure, not static pressure. This flow of dynamic fluid pressure is the condition that appears to be in the Nelson Patent.

In the Board's view, it appears that the Applicant's device is in effect operating by the action of gases such as may occur in the Nelson device, and that the term "static pressure" does not accurately describe the condition in the chambers. Further, while there is mention of equal pressure in the pressure cushions, there is no account nor realization of the equal pressure on all surfaces of the chambers, which equalization would mean, as the Examiner has reasoned, that both walls in the chambers should move. Assuming, as in the Nelson Patent, that there are no springs in the chambers, it would appear to the Board that the gases would act on all surfaces equally. The insertion of springs in the chambers does not negate the action of the gases. Thus, it is not evident to the Board that it is the action of the spring that causes the rotor to move, as the Applicant believes. The Applicant argues that his device operates on a new principle, whereas the Board does not find in the application and the arguments that there is sufficient description or reasoning for the Board to agree with the Applicant.

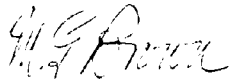
The Board is not persuaded by the Applicant's arguments. In the Board's opinion, no satisfactory response has been made to the Examiner's objections. Accordingly, the Board sees no reason to differ with the reasons advanced by the Examiner.

The Board is not prepared, therefore, to accept the Applicant's specifications that present a theory that has not been satisfactorily explained in view of existing, accepted principles, or that relies on an unspecified or unsubstantiated

source of technical information. The applicant maintains that "heat anticipation in this application is of no or at least little consequence and can be negligible", and that he presents the "proper formula to calculate his engine", saying he is the expert in the functional matter of this application. In the absence of any operational data of the alleged invention from a recognized authority in the scientific field, the Board is of the opinion that the theory advanced in the application has not been reduced to a practical form, or may be impossible to reduce to a practical form.

The Board is satisfied that the application does not describe a practical energy producing engine, and that the arguments do not demonstrate the operability of the device.

The Board recommends affirmation of the refusal of the application for failing to describe a useful device.



M.G. Brown
Acting Chairman
Patent Appeal Board

I concur with the findings and the recommendation of the Patent Appeal Board. Accordingly, I refuse to grant a patent on this application. The Applicant has six months within which to appeal my decision under the provisions of Section 42, formerly Section 44, of the Patent Act.



J.H.A. Gariépy
Commissioner of Patents

dated at Hull, Quebec
this 13 day of August , 1990

Eugene Niderost
66 Madison Avenue
Toronto, Ontario
M5R 2S4