

New Energy Technologies

Magazine

Scientific news on advanced propulsion systems for aerospace industry and new energy technologies

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Renewable energy

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Today the necessity of using new methods of generating heat and electric energy is becoming the barest. There is power shortage that is rather natural when so many country-houses are being built around. It becomes more and more difficult to cope with irregularity of load, surges and peaks of current even if you have up-to-date control and discretization systems. That is why power supply to country-houses is often restricted to 5-6 kW whereas it is necessary to have about 25-30 kW for the heating and hot water systems and other household appliances to operate properly.

So, the demands for electric energy cannot be met by the capabilities of power industry. In many countries there are regulations reading that an owner of autonomous energy sources is exempt from taxes and that capital outlays are compensated partially for mini-producers of power. In the USA power producing companies are obliged to buy electric power from owners for favorable prices. The UK government has also made a decision to repay part of taxes to owners of power mini-stations. In the FRG there is a law about privileges for owners of local power plants; besides, centralized electricity supply networks buy surplus of electric power from mini-producers for beneficial prices.

In Russia the federal law "On energy-saving" (of 03.04.1996, #28-Φ3) has been passed. This law passed the State Duma on the 13-th of March 1996 and was ratified by the Federation Council on the 20-th of March 1996. There is a similar governmental regulation of the 15-th of June, 1998, #588. These laws and regulations describe virtually all the possible measures for energy-saving including international collaboration in this field. In the law #28 (chapter IV, item 14) privileges for consumers and producers of electric energy are clearly described. Furthermore, for electric power

plants that use renewable energy sources and are constructed according to the programs for energy-saving the prices of electric energy should ensure payback of capital investment in building of these plants in time agreed with a regional Energy Commission. And what is more, building and running of energy plants using certified equipment and having the efficiency of heat energy up to 300 kW or electric power up to 100 kW can be performed without a license. The Ministry of Power Engineering of the Republic of Belarus passed the Regulation reading that rates for heating and hot water supply by vortex heat-generators running on water should be equal to rates for residential lighting.

Thus we can see that many countries have passed laws on energy-saving and promotion of environmentally friendly renewable energy sources.

The development of new energetic infrastructure basing on small autonomous energy plants seems to influence positively the state's economics and should help consumers to solve the problem of power shortage.

According to mass media, in the USA more than 100 public companies are going to use autonomous gas-turbine power mini-stations with the capacity between 30 and 60 kW. Many enterprises in Russia are going to use new autonomous energy sources too. That is why the decision was made to activate research and development activity on gas-turbine power stations with molecular engines in Russia.

Vortex heat-generators with a molecular engine for heating and hot water supply purposes should get further development (Fig.1). According to our calculations, a molecular engine as a drive for a vortex heat-generator can increase tenfold the efficiency of an autonomous heating system.

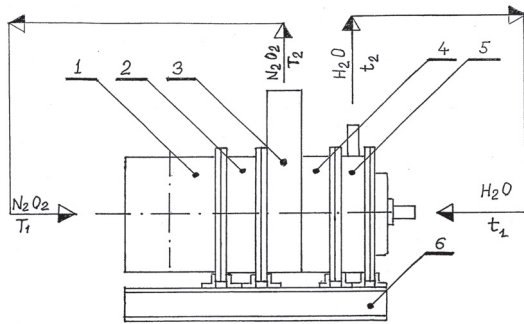


Fig.1.

- 1 – vortex chamber
- 2 – molecular engine
- 3 – exhaust
- 4 – reducer
- 5 – vortex heat-generator
- 6 – mounting

For purposes of autonomous power supply for vortex generators it is now possible to use power mini-stations based on a molecular engine with the efficiency between 37 and 100 kW (Fig.2).

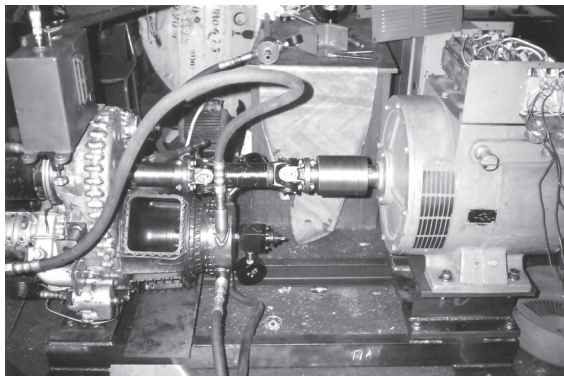


Fig.2. An autonomous power plant (37 kW) under testing

This power plant Fig.2 consists of an electric generator, mechanical reducer, a molecular engine and air compressor (pump). Another modification of the vortex heat-generator drive is usable (Fig.3). In this case the molecular engine operates like a closed cycle and the vortex generator is mounted on the same axis. The new modification of a vortex generator is still under testing, with the electric motor of 11 kW so far (Fig.3).

One more way of utilizing renewable energy from a molecular engine is the development of a wind-powered station using approach wind flow. Such stations are independent from the

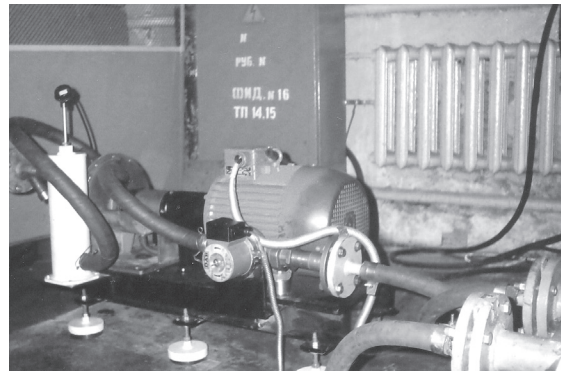


Fig.3.

wind speed and can operate continuously in a preset mode (Fig.4).

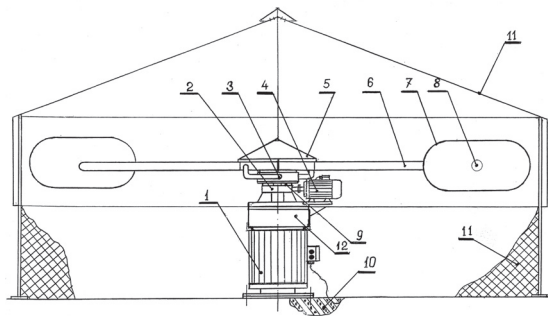


Fig.4.

- 1 – electric generator
- 2 – reducer
- 3 – vortex turbine
- 4 – electric motor
- 5 - cover
- 6 – blast
- 7 and 8 – air intake
- 9 – reducer
- 10 - basement
- 11 – grid and protective case
- 12 – vortex heat-generator

That is why the perspective of renewable energy in Russia can be considered as satisfactory.

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Kondrashov's fuel-less motor

In a given article it has been demonstrated that the pulse mode of the air jet creates conditions for using the environmental energy that permits to obtain high efficiency of the motors which can operate without any fuel. Full version of the article is on the following web-site:

www.eprussia.ru/tech/articles/1.htm

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Non-uniform heating of gases having been compressed due to the gravitation results in pressure changes in the atmosphere and it infringes its equilibrium condition. When restoring it the air potential and thermal energy are being converted into kinetic energy of the air flows accessible for usage. The action of the wind motors which perform mechanical operation without oxygen consumption neither combustion products generation is based on this principle. However such motors have their faults: low energy density per unit of working surface and uncontrollability of the process.

However it is also possible to disturb the equilibrium condition of the atmosphere in order to convert the potential energy of the air masses into kinetic one at the expense of controllable effects. For example it is possible to perform it in ejector devices. When affecting by pulsating active jet the rarefaction is being created in the ejector nozzle periodically at which the air is accelerated after each pulse of active jet due to unbalanced force of the barometric pressure. O.O. Kudrin who is one of the authors of the invention "Phenomenon of abnormally high

propulsion increase in gas ejection process with pulsating active jet" patented in 1951, conducted experimental researches demonstrating the effectiveness of this process. Unfortunately the invention is not in wide use. Probably because initially the purpose of the researches was to obtain jet propulsion (additionally to the propulsion of the aircraft piston engines propellers).

The periodical disturbing of the equilibrium condition of the atmosphere in ejector nozzle by affecting with pulsating active jet creates the pressure potential difference with specified frequency in it and it provides, if the equilibrium condition is restored, the acceleration of air masses being added and increasing of the active jet velocity.

As a result the joint mass influences on the turbine blades with the increased (comparing with kinetic energy of the active jet) kinetic energy, increasing the torque on its shaft.

The conducted experiments have demonstrated that the optimal value of the active jet velocity of combustion products which is required for increasing kinetic energy of the joint mass during joining process is within range of velocities which can be obtained without using additional heating (fuel combustion) before its expansion in the jet nozzle. Hence the combustion products can be substituted with the compressed air and the combustion chamber –with pneumatic accumulator (air storage tank). Also in this case the kinetic energy of the joint mass will be more than the kinetic energy of active jet minimum by 2.4 times and in accordance with the law of conservation of energy - more than potential energy required for obtaining working medium – the compressed air forming this pulsating active jet when expanding. It is absolutely evident, that such energy

balance permits to compress the atmospheric air in the compressor at the expense of the power obtained as a result of the atmosphere energy conversion processes during the previous periods, i.e. use the reverse Carnot cycle (machine cycle), driving compressor at the expense of atmosphere energy conversion.

The total process power consumption and losses during the process of conversions in the turbine and air compression in the compressor do not exceed 25% from the kinetic energy of the combined reactive mass. In general the value of these values depends on turbine efficiency and can be 15 – 20%: as for the share of losses in the compressor it is insignificant. The temperature of the high-potential work medium as well as of the low potential air when expanding and carrying out operation is being decreased. Controlling the quantity of the atmosphere and cold used air being returned to ejector nozzles as added masses of the subsequent periods it is possible to obtain the used air mass at the required temperature – for example for usage in air conditioning systems.

If the air used in one joining device or in ejector nozzle is being directed to another device or next nozzle apparatus as the masses being added, it can be cooled down to extremely low temperatures which are used in cryogenic equipment.

The given fuel-less method of the atmosphere energy conversion differ from the method of its conversion in traditional wind motors by controllability of the process of creating air jet which acts on the blades (vanes) and high energy density per unit of the working area. The arrangements for implementing this method are the atmospheric fuel-less jet motors.

If at the expense of the power obtained as a result of environmental low potential energy conversions we generate electric power for accelerating active jet and simultaneously for external usage we will get the universal electric power source with non-limited field of application. The principal advantage of such method – the simplicity of construction, reliability and high power-to-weight ratio of motors.

New Tilley car

From <Adrianakau@aol.com>
To: <office@faraday.ru>

Dear Sir,
I thought you might be interested in knowing that Carl Tilley has built another car despite the fact that none of his originally confiscated equipment/vehicles was given back by the state of Tennessee. Adrian

Preliminary Test Completed
Despite Government Attempts to Suppress and Disrupt Tilley Electric Vehicle Project. "Another electric car built and is being tested outside Tennessee to protect the technology from being suppressed or seized," Carl Tilley, Inventor. Despite rumors, false statements, threats and Government attempts to suppress and disrupt the Tilley Foundation, Inc in its quest to offer an all electric vehicle and a alternative power source to homes for public use, the Tilley Foundation continued on at a highly accelerated pace. The state of Tennessee with some 20 to 25 armed

people seized all the inventions, paperwork and bank accounts, over a year ago (March 28, 2003) and has yet to return the seized items and have not filed any charges. "It has now been almost a year and a half and the State of Tennessee still has not returned the items," said Carl Tilley, President and CEO of the Tilley Foundation. Less than a week after the state seized the items Tilley was in the process of building another electric car and two home power units out of the state to protect the technology. Preliminary testing of the new electric vehicle prototype has been completed and results are listed below. This information was verified by several engineers connected with interested concerns for the rights to the technology. Test results focused around the amount of DC amps being produced by the Tilley Device. Unlike the 1981 DeLorean Electric car, that the government seized, the converted 1991 Geo Storm 5 speed required only one charging unit to maintain battery condition of the 144volt system. The DeLorean required two Tilley charging units because of weight and powering the Automatic Transmission.

THE BEST CASE FOR MECHANICAL PERPETUAL MOTION

THE ORFFYREAN WHEELS

Source: R.A.Ford, "The Perpetual Motion Mystery", 1987, USA

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Experiments and natural phenomena suggest that there may be a counter-gravitational or buoyant action in nature. The possibility of maintaining a state of disequilibrium in a dynamic, mechanical system through the principle illustrated by Cook's cycle is worthy of exploration. The nature of gravity, centrifugal and centripetal force, buoyancy, impact and impulsive force are important to a discussion of the Orffyrean Wheel developed in Germany during the 1700's. The following account of the wheels of Orffyreus, the only carefully documented case of mechanical perpetual motion, is compiled from five main sources:

1. Perpetuum Mobile (second series 1870) by Henry Dircks.
2. Strangest of All 1962 by Frank Edwards
3. Oddities, A Book of Unexplained Facts (1965) by Rupert Gould.
4. Physics for Entertainment (1975) by Ya Perelman.
5. Nature Engine (1971) by Dipankar R.Dutta.

The inventor, Johann Ernest Elias Bessler, was born in the German town of Zittau in the Kingdom of Saxony in the year 1660. (There is a discrepancy here in that some sources mention Zittan, Franch. The inventor's writings only mention his origin as being from Saxony).

We know little about his early life except that he was considered a trouble maker, stirring up the people, being banished from a number of towns because of his abrasiveness and boasting. He especially upset clergymen, apparently because of his unconventional theological

views. It is said he was studying theology, but also had an interest in medicine and painting.

As a young man he acquired an expertise in clockworks and soon was considered a mechanical genius. Because of his boasting and the enemies he created, he found it difficult to find employment. He took to the road, travelling at times as an unkempt beggar.

The first known exhibition of a "self moving" wheel was at Gera, in the province of Reuss in the year 1712. This wheel, 3 feet in diameter and 4 inches wide, turned on a horizontal axle and would accelerate to a fixed maximum speed of 60 revolutions per minute, and could lift a weight of several pounds.

Young Bessler derived no benefit either in reputation or money from this wheel at Gera. But Bessler had a unenviable knack for making enemies. Because his wheel's inner construction was concealed and because people could only view it from outside through a window, witnesses accused him of fraud. Some felt that the wheel was turned by a hidden cord passing through a hollow bearing support and over the axle. Others said that an animal or clock spring in the wheel was the power source.

Next, the inventor moved on to Draschwitz near Leipzig and there in 1713 exhibited a new wheel 5 feet in diameter and 6 inches wide. This model accelerated to a self-limiting speed of 50 revolutions per minute and was able to raise a weight of 40 lbs. It should be stated that the raising of weights was accomplished by the use of pulleys and a rope

wrapped around the wheel's horizontal axle.

On the move again, Bessler soon reached Merseburg, Germany about 1715. In that year, he constructed a third and still larger machine. The new wheel measured 6 feet in diameter, 12 inches wide, and turned at a natural speed of 42 revolutions per minute. Its inner mechanism was concealed as before. Little information is available on any tests performed on these first three self moving wheels but the news of the wheels had spread throughout much of Germany. Bessler was increasingly becoming a target for his detractors. He was accused of being a fraud both orally and in print.

Attempts at staging more revealing demonstrations generally brought only more ridicule. In an effort to silence his opponents, Bessler invited a committee of eleven noblemen and professors to examine his invention on October 31, 1715. On December 4th, a certificate was signed by the committee stating that these men considered it a true perpetual motion, having the ability to turn in either direction, easily started but requiring great effort to stop its motion and generating enough power to raise a 70 pound box of stones to a height of 8 ells.

This report brought fresh ridicule not only to the poor inventor but to those who signed the report as well. Clearly, the climate of public opinion was not in his favour.

Before the year 1715 was out, for reasons unexplained, Bessler assumed a new name Orffyreus. It was said he arrived at this name by first arranging the letters of the alphabet in a circle. He then picked out the letter diametrically across to those of B-E-S-S-L-E-R. In this way, the letters O-R-F-F-Y-R-E were obtained and when Latinized gave Orffyreus. Was this symbolic of how he imagined his wheel to move? Did it have a theological significance?

The change of name obviously was beneficial to the inventor. In 1716, C. Steinbrück published a pamphlet in which he made Orffyreus an offer of 1000 thalers to demonstrate that his device could really run for a month continuously, or raise 70 pounds as claimed. A Leipzig mathematician, C. Wagner,

issued a pamphlet in which he claimed the wheel was an offense against nature's laws, and that the inventor was punishable for his experiments. Less charitable was the lampoon published in a treatise in Leipzig by J. G. Borlach:

Considering the times and the attempts at the assassination of his character, Orffyreus showed remarkable perseverance and commitment to his idea. But his bitterness due to rejection would later show itself.

Moving on, the despised drifter settled in late 1716 in Hesse Cassel, a semi independent state within Germany. Here, events were to turn for the better in the help Orffyreus was to receive. By this time, news of the self moving wheels had not only reached influential members of the German aristocracy, but had also spread throughout Europe as far east as Russia. In fact, much of the accurate historical records of Orffyreus' discovery were preserved by Russian historians.

At Cassel, the circulating stories attracted the attention of Karl, the reigning Landgrave [Prince] of Hesse Cassel. Not being able to find work, the mechanic was soon arrested for a disturbance and found himself in the prison at the Ft. Weissenstein of Prince Karl. Today this is a part of the Castle Wilhelmshöhe in the city of Kassel.

Perhaps this was just a ploy by which Prince Karl could meet with the well known inventor. The Landgrave proved to be a kind man with an open mind who was willing to consider the possibility of perpetual motion. After releasing of the inventor, the Prince and the inventor discussed at length the possibilities. The result was a joint venture. Orffyreus was made a guest, provided with food, clothing, shelter, and given employment as "town councillor", an important post at that time. Best of all, he was supplied with materials, tools and a gardener's shed in which to fashion what was to be his largest and last wheel. Orffyreus underwent a considerable improvement in his appearance and attained his first taste of stability and dignity.

In addition to the help already provided, Prince Karl informed many scientists and scientific institutions throughout Europe about the project. Something of Karl's influence can be realized when it is noted that the historian

Eugene Schuyler in his work on Peter the Great mentions that the Landgrave of Hesse Cassel in June 1716 served as an envoy carrying messages of peace from the Swedish government to the Tsar of Russia. Russian historians record 1715 to 1716 as the time in which the Tsar became aware of the invention of Orffyreus, and who, some years later, would be interested in purchasing its secret.

DOCUMENTED EXAMINATIONS

Early in 1717, the new wheel was completed in the small shed on the castle grounds. Because of the previous accusations that power was supplied in some concealed manner, Prince Karl had the mechanic in late October transfer the large, bulky wheel to a large hall in the middle of the Castle Weissenstein. This hall, having been designed for defense, had walls four feet thick and only one entry door, making it easy to seal up and guard while extended tests were conducted.

In November, 1717, Karl and invited officials began their tests on the wheel. In the dark room, their lanterns revealed a huge drum 12 feet in diameter and 14 inches wide. The wheel was lightly constructed of oak wood and estimated to weigh at least 200 lbs. The end of the drum was covered with an oil cloth tightly stretched to hide the mechanism. The wheel rested on two wooden posts set on the floor in the centre of the room, well away from any wall. A one inch horizontal iron axle turned on brass plates set in the posts.

At each end of the axle was found a crank, lever and pendulum. The purpose of the two pendulums, the designer explained, was to keep the motion of the wheel from being erratic and to limit the speed of the wheel.

Here we get a glimpse of the clever and yet simple mechanical devices employed by the inventor. The natural period of the pendulums coincided with the maximum operating speed of his wheel and since the two pendulums opposed each other, they did not greatly impede the starting of the wheel.

Two distinguished examiners accompanying the Prince were Baron Fischer, the court architect of the Austrian Emperor and Professor W. J. Gravesande of the University of Holland at

Leyden – a close friend of Isaac Newton. They could detect no evidence of trickery. They asked that the wheel be started. Orffyreus gave the big wheel a gentle push. It began to accelerate. In only two or three revolutions, it reached its maximum natural, self limiting speed of 26 revolutions per minute. At each revolution, the witnesses heard about eight weights falling gently against the descending side of the wheel. The professor placed his ear against the support posts and could not hear any sounds such as a spring drive might make. Two days were taken to examine the machine. The wheel and framework were pushed to different places in the room and the plates on which the axle rested were carefully examined.

On November 12th, the wheel was put into motion after which the hall was locked and officially sealed with wax. Two guards were posted outside the entrance. On November 26th, the seals were broken and upon entering the room, the examiners found the wheel still spinning at 26 revolutions per minute. It was stopped inspected and restarted; the room was again locked and sealed and guarded. On January 4th, 1718, those conducting the tests suddenly requested entry to the room. The seal showed no signs of tampering. On entering the room, the group found the huge wheel spinning. By Baron Fischer's watch, they found its speed to be 26 revolutions per minute.

Baron Fischer and Professor Gravesande were stumped. They asked how much would be required in payment to reveal the secret. Prince Charles, who was authorized by the inventor to be negotiator, said that twenty thousand pounds was the price. It was stipulated clearly that no money need be paid if fraud could be discovered.

The Professor asked Orffyreus if the inner mechanism was very complex. Orffyreus quickly replied that the mechanism was so simple that any carpenter would be able to make one if he could study it for five minutes. The Professor said he would write a letter to Newton to try and arouse his interest in the discovery. He finally wrote: ". . . The inventor has a turn for mechanics, but is far from being a profound mathematician, and yet his machine hath something in it prodigiously astonishing, even though it should be an imposition. The following is a description of the external parts

of the machine, the inside of which the inventor will not permit to be seen, lest anyone should rob him of his secret.

"It is an hollow wheel, or kind of drum, about 14 inches thick and 12 feet diameter; being very light, as it consists of several cross pieces of wood framed together; the whole of which is covered over with canvas, to prevent the inside from being seen. Through the centre of this wheel or drum runs an axis of about 6 inches diameter, terminated at both ends by iron axes of about three quarters of an inch diameter upon which the machine turns. I have examined these axes, and am firmly persuaded that nothing from without the wheel in the least contributes to its motion.* When I turned it but gently, it always stood still as soon as I took away my hand; but when I gave it any tolerable degree of velocity, I was always obliged to stop it again by force; for when I let it go, it acquired in two or three turns its greatest velocity, after which it revolved twenty five or twenty-six times in a minute." (Source: "Perpetuum Mobile" by Dircks)

In addition to this letter from Gravesande to Newton, there was a descriptive letter from Baron Fischer to his friend Dr. J. T. Desaguliers: "I do myself the honour of writing the present letter to mark my esteem for you, and also to give you news of the Perpetual Motion at Cassel, which has been so much recommended to me since I have been in London. Although I am very incredulous about things which I do not understand, yet I must assure you that I am quite persuaded that there exists no reason why this machine should not have the name of Perpetual Motion given to it; and I have good reasons to believe that it is one, according to the experiments which I have been allowed to make by permission of His Serene Highness, who is the most amiable and gracious of princes that I have known in my life; and who had the patience to be present at the trials which I made during two hours. "It is a wheel which is 12 feet in diameter, covered with oil cloth.* At every turn of the wheel can be heard about eight weights, which fall gently on the side towards which the wheel turns. This wheel turns with astonishing rapidity, making twenty six turns in a minute when moving freely. Having tied a cord to the axle, to turn an Archimedean screw for raising water, the wheel then made twenty

turns in a minute. This I noted several times by my watch, and I always found the same regularity. "I then stopped the wheel with much difficulty, holding on to the circumference with both hands. An attempt to stop it suddenly would raise a man from the ground. "Having stopped it in this manner, it remained stationary; and (here, Sir, is the greatest proof of it being a Perpetual Motion) I restarted it very gently, to see if it would of itself regain its former rapidity – which I doubted, believing, as they had said in London, that it only preserved for a long time the impetus of the impulse first communicated. But, to my great astonishment, I observed that the rapidity of the wheel augmented little by little until it had made two turns, and then it regained its former speed, until I observed by my watch that it made the same twenty six turns a minute as before, when acting freely; and twenty turns when it was attached to the screw to raise water. "This experiment, Sir, showing the speed of the wheel to augment, from the very slow movement that I gave it, to an extraordinary rapid one, convinces me more than if I had only seen the wheel moving a whole year, which would not have persuaded me that it was perpetual motion, because it might have diminished little by little until it ceased altogether; but to gain speed instead of losing it, and to increase that speed to a certain degree in spite of the resistance of the air and the friction of the axles, makes me unable to see how anyone can deny the truth of so describing it.

"I also turned it in a contrary way, when the wheel performed as before. I carefully examined the axles of the wheel, to see if there was any hidden artifice; but I was unable to see anything more than the two small axles on which the wheel was suspended at its centre."

"I said to His Highness that I had no doubt a company might be formed in London to purchase the secret. The Prince would be exceedingly happy if such a company would consign into his or other hands 20,000 in favour of the Inventor – then the machine should be examined and the secret communicated. If the movement were found to be a perpetual one, the 20,000 would be given up to the inventor; and, if not, the money would be returned. This would be stipulated by proper legal documents.

"I told His Serene Highness that no one could institute such a company better than yourself, for you are always working for the instruction of the public. Consider under what obligation you would lay the most enlightened nation in Europe, if you procured for it the knowledge of the principle of this perpetual motion....

"As I shall not long remain here, I must beg of you to correspond with Mr. Roman, Superintendent of Works to His Highness. He will show all your letters to the Prince, and will come to an understanding with you touching this matter, which well merits your highest consideration, as it is not well to leave this treasure buried. Will you also communicate with your friend Mr. Newton, and tell him my opinion of the machine? I hope that you will soon hear from our friend M. 's Gravesande, of Leyden, who is soon expected here by His Highness..."

*Not the modern "linoleum", but thin cloth oiled or waxed to give it a smooth surface, like glued calico. (Source: "Perpetuum Mobile" by Dircks)

If Newton ever replied to Gravesande, no letter was ever publically disclosed.

The day following the tests, Orffyreus was afraid that he might still be branded a fraud and that the secret might be stolen because of the publicity. Disappointment over the silent response to his asking price turned into a fit of rage during which he smashed the wheel to pieces.

On May 27, 1718, the Landgrave Karl gave Orffyreus a parchment to certify that his "perpetual motion machine did 26 revolutions per minute, could lift 16 kilograms to a height of 1.5 meters and could also work a grinder and bellows."

His fame spread quickly, reaching the palace of Peter the Great. The Tsar was very interested in mechanical innovations, especially from Western Europe. He had earlier requested his diplomat A. I. Ostermann to gather what information he could on the self moving wheel. From the years 1715 to 1722, a considerable amount of correspondence on the wheel was accumulated by Peter's librarian, Mr. Schumacher, along with other rare and odd treasures picked up in Western Europe.

Orffyreus' price to the Tsar for his secret was fixed at 100,000 rubles. In January 1725, Peter the Great decided to go again to Germany, this time to see "perpetual motion" himself, but being in poor health, he died at the end of the month in Russia.

Little is known of the inventor's activities at this point. A letter from Roman, an official in service to Prince Charles of Hesse Cassel, written to W. J.'s Gravesande dated May 18, 1727 claimed that Orffyreus was engaged in building a new wheel. There is no further record of any public exhibit. Orffyreus died a bitter wanderer in November, 1745, generally regarded by historians as a swindler.

Before Orffyreus and Prince Karl parted ways, by some means the Prince was able to induce the suspicious mechanic to let him see the inner mechanism of one wheel. Karl was the only person besides Orffyreus ever to see inside one of these enigmatic wheels. After this disclosure, Karl quickly returned to his quarters and wrote an account of what he saw. He wrote that the mechanism was so simple, a "carpenter's boy" could make it. We can reasonably conclude that it was made largely of wood. He saw no evidence of fraud in the mechanism.

The source for the next piece of the puzzle cannot be traced, being mentioned only in Frank Edward's book (see the bibliography). When the oil cloth was removed from the wheel, Prince Karl found himself staring at a simple arrangement of levers and weights. Orffyreus explained that he had conceived a system whereby weights on one side of the wheel were farther from the axle than weights on the opposite side. The continual imbalance resulted in wheel rotation. The secret appeared to lay in the ingenious way by which the weights on the ascending side of the wheel were prevented from following their normal path next to the rim. The Prince wrote that those weights were blocked by small pegs which swung back out of the way as the weights passed over the zenith position.

The only other description is the meager and obscure one provided by the inventor in a small pamphlet published while in Cassel during October 1719. In "Das Triumphirende Perpetuum Mobile Orffyreanum..." the

translation reads in part: (Quote Source: "Perpetuum Mobile" by Dircks) "The internal structure of the machine is of a nature according to the laws of mechanical perpetual motion, so arranged that certain disposed weights, once in rotation, gain force from their own swinging, and must continue this movement as long as their structure does not lose its position and arrangement..." "Unlike all other automata, such as clocks or springs, or other hanging weights which required winding up, or whose duration depends on the chain which attaches them, these weights, on the contrary, are the essential parts, and constitute the perpetual motion itself; since from them is received the universal movement which they must exercise so long as they remain out of the centre of gravity; and when they come to be placed together, and so arranged one against another that they can never obtain equilibrium, or the punctum quietus which they unceasingly seek in their wonderfully speedy flight, one or other of them must apply its weight at right angles to the axis, which in its turn must also move."

As far as the possibility of fraud is concerned, three basic means were suggested.

1. Concealed drive cord in a hollow axle support. This was ruled out because the frame work could be moved about the room and the axle bearing plates themselves were examined.

2. A person was in the wheel. This was ruled out because of the prolonged tests in a sealed room. The examiners could enter suddenly at any time to check on the wheel's speed, which was found to be always constant. This would give too little time to get the wheel up to speed. In addition, the smaller wheels would not have had room inside to hide a human being.

3. Because the inventor had worked with clocks, he used a spring drive in the hub of the wheel itself. First, we have the respected testimony from Prince Karl that he saw no evidence of fraud in the mechanism. Second, although a number of clockmakers boasted that they could duplicate the Orffyrean wheels, no one ever came forward at that time and publically demonstrated their claims. Third, no clockdrive would be capable of accelerating the wheel so quickly to maximum speed and

then be able to sustain that speed for several weeks. The unannounced entry by the examiners would not allow enough time for a stopped wheel to reach top speed.

We are left with Orffyreus' explanation that the wheels were powered by "swinging weights" which might be interpreted as a harmonious blend between gravity, centripetal and centrifugal forces. As referred to early in our discussion, there is evidence suggesting that Newtonian mechanics offers an incomplete description of natural forces, specifically gravity and the relation between action and reaction events.

Here we pose some tests for interested students of physics, tests which we have not seen described in physics literature.

The most interesting experiments performed by Charles F. Brush during the years 1914 to 1929 show a relation between rate off-all and the diamagnetic (or dielectric) properties of materials.

Bearing in mind what has been said about kinetic theories of gravity, one set of experiments should compare periods for pendulums (in a vacuum chamber) which have bobs in the form of long running, pivoting gyroscopic rotors – each rotor tested being cast from different diamagnetic elements or dielectric compounds. In addition, pendulums constructed with bobs shaped as tuning forks, vibrating or not, cast of different elements should be compared.

The natural phenomenon of slow falling ball suggests experiments be performed in which spheres of different elements, cast according to methods described by Brush in 1925, are dropped in a vacuum chamber and caused to bounce once on a step before continuing the fall. The initial rate of fall for each should be compared with the rate after the bounce, the purpose being to see if molecular disturbance affects the rate of-fall.

And, of course, more devices like the Cook and Bull inventions should test Newton's third law. The Cook discovery shows that it is possible to keep a seemingly "closed" system in a condition of disequilibrium, which would be required for self moving wheels. For experimenters wanting to try their hand

with the mechanical wheels, we offer the following guide lines and free speculation. This is not a trivial pursuit, since many a perpetual motionist has come to a better understanding of dynamic systems and occasionally made important discoveries both mechanically and mathematically.

SYNTHESIS OF THE WHEEL'S CHARACTERISTICS

First, it is important to assemble the relevant construction details and operating characteristics of an Orffyrean wheel in tabular form.

1. The wheel was made mostly of wood; oak specifically mentioned. We allow the use of metal pins for pivots in the mechanism.
2. The mechanism was so simple a carpenter's apprentice could make it. State-of-art 18th Century technology!
3. Wheels were designed to turn either one way only or both directions.
4. The wheel was powered by "swinging weights" continually maintained in a state of equilibrium.
5. Wheel motion was smoothed out and top speed was limited by two opposed, triple-bob pendulums (see photo elsewhere).
6. There was a relationship between wheel size and natural speed.
7. The mechanism was such that a certain minimum impetus was needed to cause the swinging weights to begin to act.
8. The mechanism was such that the wheel acquired in two or three turns its maximum, free wheeling speed.
9. When running, about eight weights were heard to fall gently on the descending side of the wheel.
10. The mechanism was of such a design that, if the speed became too great, disorder resulted, causing a loss of power thus the need

for a speed governor.

11. Small pegs were used to prevent "swinging weights" on the ascending side of the wheel from taking their normal path next to the rim. These pegs swung out of the way after the zenith position was reached.

12. When running, no discernible sounds were noticed from the ascending side of the wheel. One challenge is to design the peg and "swinging weight" system (Item #11) so that no cams, cranks, or levers are needed to operate the pegs, i.e., no power is extracted from the axle.

DEDUCING A SYSTEM

Reasoning from these tabulated characteristics, assuming item #11 is authentic, I speculate on a possible design in the form of a sketch: (Note: Speed control pendulums are left out for clarity).

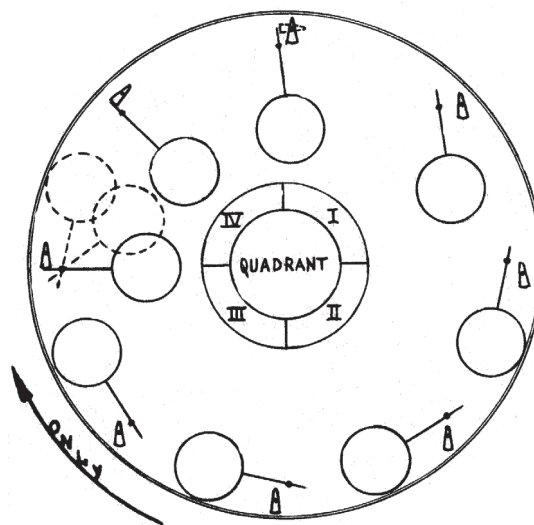


Fig.1

Eight pendulums are shown, an arbitrary choice. The eight wedge shaped pegs are free to swing 360 degrees around their pivots. Between quadrants I and II, each pendulum bob will lightly contact the wheel rim, as required by item #9 in the table. At the zenith position, each peg will be again free to swing out of the way. Should the speed of the wheel become excessive, centrifugal force will cause pegs entering

quadrant #4 to lose their proper position and fail to obstruct their pendulum's fall; thus the need for a speed governor. In action, swinging weights entering quadrant #4 are caused by gravity to move centripetally toward axle. This movement is arrested at its inner most position.

Item #12 presents an interesting mechanical puzzle. Why was there no sound from the impact between the pendulum lever and its restraining peg at the quadrant #4 position?

Burgi's cross beat escapement in diagrammatic form. The dotted vertical lines indicate the mean position of the arms about to cross. Position 1: the pallet on the shaded arm engages with the tooth of the escape wheel, while swinging in the direction of the arrow. Position 2: the pallet is liberated and the arms swing freely until at Position 3 the pallet of the other arm engages and causes a check. Because of the flexibility of the arms, there is no jarring impact. The restoration of the flexed arm to its normal shape provides an impulse for the return in the opposite direction. In the figure this flexure has been exaggerated for clarity. (Source: *A History of Technology*, Vol. III by Singer 1957).

I offer three possible explanations:

1. A lever contacts its peg at a fairly low speed.
2. The sound was masked by the sound on the descending side of the wheel.
3. The pendulum levers may be flexible. This may or may not be a requirement. But, the historical development of clock pendulums and escapements can offer some intriguing design concepts such as the ingenious solutions developed by the Swiss instrument maker Jobst Burgi (1552–1632) who developed about 1585 an improved escapement for clocks used for astronomical purposes.

Amazingly, Burgi began his career at Hesse Cassel! It is therefore possible that young Bessler, in looking for a mechanical innovation to help him in his design work, knew about this peculiar use of elasticity to assist a mechanical movement. It is sometimes noted by historians that almost

no perpetual motion devices make use of elasticity, but these pendulum levers may be in the form of thin, resilient wood slats.

Why would they be needed? Besides reducing wear, a flexible lever would permit the swinging weights to impact and rebound upward while in quadrant #4. This might momentarily change the centre of gravity for the wheel, resulting in dis equilibrium. A flexible pendulum lever would not produce a sharp sound on impacting its peg.

CONCLUSIONS AND INSIGHTS

Please note that I make no claims for this particular design, one worthy of investigation. Experimenters are advised to make wooden models of sufficient size and of such design so that the number, placement and size of all parts can easily be changed. It would be wise to treat the subject of perpetual motion as a hobby rather than as an obsession. Creativity is necessary for innovation in this wide open frontier. Fresh approaches are needed.

Books documenting the history of the Orffyrean wheel occasionally pose a most interesting question about the inventor and his peculiar discovery. How is it that a simple, unschooled vagabond who showed a scorn for mathematical reasoning and formal education in general, could have discovered such a fundamental principle which has so far completely escaped the sagacity of many a scientific authority?

First, Orffyreus was completely obsessed with the subject of perpetual motion, having spent twenty of his last 32 years in his quest. What drove him on in such persistent activity? Apparently, he was inspired by the claims of another famous student of perpetual motion, the English inventor, the Second Marquis of Worcester (Edward Sommerset) whose book "Century of Inventions" (1663) described a self moving wheel. In fact, the two inventor's wheels were similar in concept and outer appearance.

Second, as many scientists of that day were inclined to do, Orffyreus had hope his life would demonstrate the workings of Divine Providence. His booklet, written in both German and Latin begins with a dedication to God, to the public, to men of learning, and to himself as discoverer. In

other words, his work had great theological significance, personally speaking.

Even though all who knew him considered his social behaviour foolish and whimsical, we still see evidence that he sincerely believed in his discovery. Besides the peculiar character of the man himself, orthodox scientific thinking must also be re examined.

We need to begin reviewing classical mechanics, the bedrock on which much of today's physics rests. Are the laws of mechanics truly universal for all forms of motion? The foundation of classical mechanics, because of the detailed collective experience as well as the immense social prestige which society places on its accumulated scientific knowledge, is assumed to be complete. This assumption expresses the attitude of Omniscience, that is, that all the basic knowledge we have is all there is to be had. This position is further complicated by the claim of infallibility. Yet the real pioneering work that opens up new vistas must begin by a careful re examination of subtle foundational assumptions. In this case, no real progress can

be made on the problem of mechanical perpetual motion without first reviewing the subjects of gravity, centripetal and centrifugal motion and Newton's third law.

What caused Newton's Principia to win out over many other competing explanations of the day? Most observations confirmed it, and the use of mathematical reasoning fascinated the scientific community. What lost out to these new ways of technical thinking was the use of intuition and the ability to visualize abstract phenomena.

Today, the spiraling pace of technology toward ever increasing levels of complexity and fragmentation as well as the inherent ravaging of the earth's resources and the growing apprehension over toxic wastes should force us to reconsider our fossilized, homogenized and sterile modes of thinking. Assuming that Orffyreus' wheel involved a genuine fundamental discovery, it appears that the real "high frontier" is still very much on earth rather than space in the form of a challenge: to rethink and reexamine the laws of science.

Water as an energy source to replace oil

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Summary

In this article a new method of power generation is suggested which is several tens times more effective than the controlled nuclear fusion. The basis for this method is a new physical effect, namely, the induced proton decay. The induced proton decay can turn water into an inexhaustible and the most effective energy carrier and clears the way to solving the energy problem. Water can become the most effective fuel capable to replace oil, coal, natural gas and uranium. Many substances traditionally which were not considered as being energy carriers can become most effective ones.

Introduction

Oil, coal and natural gas are the main energy carriers now and no substitute for them has been found so far. All of them are produced by the Sun that has been effecting the Earth for millions years. Burning these energy carriers for power generation is the main factor of the environment pollution. Resources of carbonic energy carriers whose formation took some millions years are depleting swiftly. In this connection, as the energy demand of the human society increases the problem of energy supply is becoming more and more sharp. The existing methods for both thermal and electrical power generation basing on burning natural energy

carriers are destructive for the Earth's biosphere. As for nuclear-power engineering, it has not solved the problem of dangerous waste disposal. The hopes for successful realization of the controlled nuclear synthesis program are waning. The terms for the solution of this task were postponed many times and today scientists expect it not to be solved before 2050. The practice of the sun light accumulation has not received wide application. That is why it cannot be considered as an alternative to burning natural energy carriers.

So, it is evident that environmentally friendly energy sources have not been found yet although vast sums of money have been spent to reach the purpose. The reason is that search is being carried out in conventional directions within prevalent approaches which could give just slight improvement of existing practices and are unable to make a breakthrough. A breakthrough solution should be able to find an inexhaustible source of energy to replace oil, coal and natural gas which (unlike all of these) wouldn't pollute the environment. Swift depletion of natural energy carriers brings to the fore the problem of inventing fundamentally new methods of power generation.

While analyzing the most effective practices of power generation used nowadays one can see a definite mechanism the essence of which is the following. For all existing power generation methods, at the end of the chain of energy transformations a new substance appears and this substance is, as a rule, more dangerous for the biosphere than the initial energy carrier. This is the general feature of the existing power generation methods. This is true both for burning natural fuels and for nuclear power generation as well as for nuclear fusion. The world got used to the idea that we should act upon a substance to generate power and at the end of that process get another substance as an inevitable evil. Furthermore, such approach is considered actually to be the only possible one. But is it true? The task is to find a new energy carrier and quite new methods of power generation beyond the conventional scheme that is "a substance in the beginning of transformation = power + a new substance at the end". It is evident that the alternative to

existing methods of power generation can be only those methods within which there would be no dangerous substance or no substance as such at the end of the process. The task like this some scientists have already set for themselves. The National Aeronautic and Space Administration of the USA shows special interest in this problem. NASA sets tasks that could seem fantastic at first sight. In 1997 a working group meeting was held which discussed new approaches to reach breakthrough in space exploration basing on producing engines that do not require fuel stock on board. New methods of power generation were considered including the energy of physical vacuum that could provide breakthrough in the field of rocket engines basing on new principles (14, 15).

1. Comparative efficiency of existing methods of power generation

The main existing methods of power generation are based on chemical or nuclear reactions. Table 1 represents approximate values of the specific power efficiency for various methods of power generation.

Table 1. Specific power efficiency for various methods of power generation

1. Burning carbonic energy carriers
 $C + O_2 \rightarrow 0.0046 \text{ MeV} + CO_2$
2. Nuclear decay
 $U^{235} \rightarrow 0.85 \text{ MeV} + \text{nuclear waste}$
3. Nuclear fusion
 $D + T \rightarrow {}^4\text{He} + 17.6 \text{ MeV}$

Methods basing on burning fuels are the less effective. Nuclear-power engineering rates are several orders of magnitude greater. Nuclear fusion is considered to be the most effective method nowadays. In all these methods, power generation process is accompanied by generation of substances rather dangerous for the biosphere. Initial chemical elements do not disappear but are transformed into other chemical or nuclear compounds emitted to the atmosphere or stored as waste. So we can see that the most common method basing on burning energy carriers has very low power efficiency and, moreover, it pollutes the environment very much. The other methods are

far from ideal also. The solution of environmental safety problem seems to be reached through use of hydrogen as an energy carrier. Hydrogen seems helpful because when burned it is transformed into quite a safe substance as water. Hydrogen is considered to be beyond comparison for its environmental safety. But realization of this task is suppressed by the fact that very high power inputs are required to obtain hydrogen from water. When oil, natural gas and coal are ready for use, there is no hydrogen just as it is on the Earth. Hydrogen can be produced from water but the process would take much power that should be generated by burning the same conventional energy carriers. That is why to be able to use environmentally friendly hydrogen we should first generate power by the harmful methods.

Fig.1 represents the diagram of power conversion when producing and burning hydrogen.

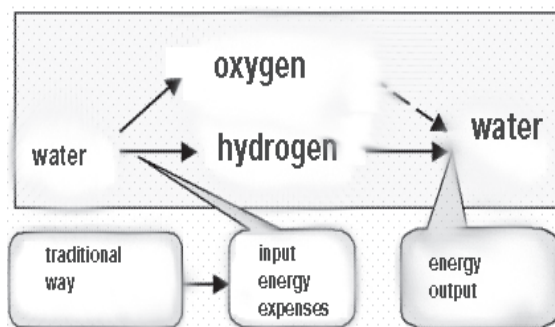


Fig.1. The diagram of power conversion when producing and burning hydrogen

For successful realization of hydrogen power engineering it is necessary that the energy generated by burning hydrogen would be much bigger than the energy consumed for producing hydrogen. This task hasn't been solved so far.

So we can see that all conventional methods of power generation agree with the above-mentioned scheme, that is "a substance in the beginning of transformation = power + another substance at the end". "Another substance" is a serious problem because of the environment pollution. The hydrogen technology is no ideal in this respect either. Taking into account that

the specific power efficiency of processes based on chemical reactions is extremely small it is rather clear that we should search for the energy problem solution in other directions. The task is to find new ways of power generation without any shortcomings typical for the conventional methods.

2. The internal structure of the proton

In the latter half of the XX-th century theoretical physics came to conclusion that proton decay is possible (2, 3). Proton decay seems very attractive in the view of environmentally appropriate power generation.

The proton was discovered in the early 1920s in the experiments with alpha particles. The experiments on scattering of electrons and gamma-ray photons from protons proved that protons have the internal structure. In 1970 specialists of Stanford linear accelerator center managed to gain direct proof that protons do have the internal structure (1).

However, there is no clear understanding so far what are the principles of this structure formation. That is why protons still have so many secrets. The origin of the proton is obscure, the cause of its stability is unknown. It is not clear why its mass equals to 1836.1526675(39) electron mass. The proton is the only long-lived particle of all heavy ones. This particle is the basis of all complicated real transformations in the Universe. The world owes its existence to the proton. There are strong grounds to believe that if we discover the proton internal structure it will open access to new methods of power generation. Mastering of the proton energy can become the most important thing in solving energy problems.

The theory of the internal proton structure is presented in (6, 8, 10). It is shown there that the proton structure is a fractal construction. Fractal revealed in the proton internal structure proves that the proton formation is a deterministic process.

The discovery of fractal type of the proton formation made it possible to calculate very important characteristics of elementary particles. In (6, 8, 10) fractal structures for various elementary particles are given and

mathematical description of the proton fractal is represented.

The stages and the rule of the proton formation are represented in Fig.2. The complete proton structure formation consists of ten steps. This is shown in the "fractal triangle" (10).

$$\begin{aligned}
 P_1 &= 1+1 \\
 P_2 &= (2+1) \\
 P_3 &= 2(2+1)+1 \\
 P_4 &= 2(2(2+1)+1)+1 \\
 P_5 &= 2(2(2(2+1)+1)+1)+1 \\
 P_6 &= 2(2(2(2(2+1)+1)+1)+1)+1 \\
 P_7 &= 2(2(2(2(2(2+1)+1)+1)+1)+1)+1 \\
 P_8 &= 2(2(2(2(2(2(2+1)+1)+1)+1)+1)+1)+1 \\
 P_9 &= 2(2(2(2(2(2(2(2+1)+1)+1)+1)+1)+1)+1)+1 \\
 P_{10} &= 2(2(2(2(2(2(2(2(2+1)+1)+1)+1)+1)+1)+1)+1)+1 \\
 P_{11} &= 2(2(2(2(2(2(2(2(2(2+1)+1)+1)+1)+1)+1)+1)+1)+1)+1
 \end{aligned}$$

Fig.2. Ten steps of the proton structure formation

For Fig.2 P_n is the number of fractal branches adequate to charge-conjugate real formations. The proton fractal has some overlapping self-similar structures of various sizes. The complete structure is an interlacing pattern in which the last fragment of a low-order substructure is at the same time the first one of the next, higher-order substructure (Fig.3). It is impossible to separate or to withdraw a seriate self-similar substructure from the complete structure without destroying the whole interlacing pattern (Fig.3). The proton has ten self-similar internal substructures that are scale copies of a primary fractal cell.

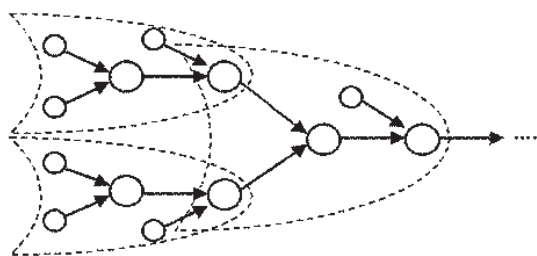


Fig.3. A fragment of the self-similar internal proton structure

The proton internal structure is formed by the system of sequential nestings based on the single algorithm. On each structure level a fractal

substructure is a copy of the previous level fractal. The investigation of the proton fractal has revealed that the proton internal structure of the proton is quantized, spatially ordered and has the hierarchy of the internal configuration. The hierarchy of characteristic frequencies is intrinsic to the internal structure of the proton. Thus, together with the spatial ordering showing itself in the fractal structure of the proton there is also the time ordering showing itself in the characteristic frequencies. The proton fractal made it possible to find out (by calculations) the fundamental constant of the proton, i.e. $m_p/m_e = 1836.1526$. This is consistent with the experiments on the proton internal structure (6, 8, 10). The discovery of patterns of the proton internal structure gives a clue to the reason why the proton is so exceptionally long-lived. It also opens the way to new methods of power generation.

3. The induced proton decay

The theory of the proton internal structure suggests the possibility of the induced proton decay. There are conditions under which the proton loses its stability. If an external energy impact exceeds the internal proton energy (causing the proton stability) then destruction of the proton becomes possible. This process to be realized it is necessary that the proton would be given energy higher than a certain threshold (8).

The proton fractal shows that the proton energy consists of two parts. The first component is the total self-energy of the real formations included into the proton structure. The second component is a set of addends that set the energy value determining the proton stability. The fractal nature of the proton internal structure made it possible to discover a new dimensionless physical constant (P) characterizing the proton internal structure (6, 11, 13).

This constant of the proton fractal structure shows a degree of the proton stability. It equals to $P=210.8473325(39)$. P is a ten-component sequence of discrete numbers. The sequence of discrete proton internal energy values corresponds to P. This energy determines the degree of the proton stability. The energy equals to 107.7427553(65) MeV that is about 11.5% of the self-energy of this article (6, 8, 11).

Investigations have shown that this energy is a sequence of discrete levels and consists of ten components : $E = 54.9 + 20.35 + 13.35 + 8.23 + 4.84 + 2.84 + 1.62 + 0.87 + 0.48 + 0.26$ (MeV) = 107.74 MeV This is the most important characteristic of the proton that gives a clue to realization of the new method of power generation. If the proton is supplied with additional energy (108 MeV) it will become unstable and decay into some light particles having very small lifetime. This will result in the complete conversion of the proton into energy. An important feature of the induced proton decay caused by its fractal structure should be mentioned. If the proton is directly supplied with energy of 107.74 MeV (for example, if it is accelerated) it won't decay because for this takes place the additional energy should be structured according to the fractal pattern of the proton internal configuration. The proton structure includes charge-conjugate particles (4,8,10). The process of the proton decay also conforms to the recursive algorithm. As follows from the proton fractal, during the proton destruction some charge-conjugate particles will appear as a result of decay of intermediary particles. Fig.4 represents the "inverted fractal triangle".

The decay takes ten steps and follows the fractal algorithm. All intermediary real formations whose mass falls in the range between electron mass and proton mass are unstable and are characterized with limited lifetime.

$$\begin{aligned}
 P_1 &= 2(2(2(2(2(2(2(2(2+1)+1)+1)+1)+1)+1)+1)+1)+1 \\
 P_2 &= 2(2(2(2(2(2(2(2+1)+1)+1)+1)+1)+1)+1)+1 \\
 P_3 &= 2(2(2(2(2(2(2(2+1)+1)+1)+1)+1)+1)+1)+1 \\
 P_4 &= 2(2(2(2(2(2(2+1)+1)+1)+1)+1)+1)+1 \\
 P_5 &= 2(2(2(2(2(2+1)+1)+1)+1)+1)+1 \\
 P_6 &= 2(2(2(2(2+1)+1)+1)+1)+1 \\
 P_7 &= 2(2(2(2+1)+1)+1)+1 \\
 P_8 &= 2(2(2+1)+1)+1 \\
 P_9 &= 2(2+1)+1 \\
 P_{10} &= (2+1) \\
 P_{11} &= 2
 \end{aligned}$$

Fig.4. The inverted fractal triangle showing the order of the induced proton decay

The proton experiences the process of destruction through the ten-step transformation chain producing intermediary

real formations until charge-conjugate particles of minimum structural complexity appear. After that the complete conversion of substance into energy is finished (6, 8, 12).

The scheme of the induced proton decay can be represented as (Fig.5):

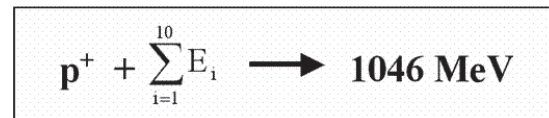


Fig.5

The induced proton decay is a new physical effect closely connected with the physical constant of the proton fractal structure, i.e. P. In the induced proton decay there is no substance dangerous for the biosphere at the end of energy conversion.

In this conversion scheme there is no fusion reactions. Instead, the substance destruction occurs by the induced proton decay. As a result, the energy enclosed in the proton is released.

This energy is enormous! Conversion of substance into energy makes it possible to obtain extremely high energy values and by the environmentally friendly method. The new scheme of energy transformation is as follows: "substance at the beginning of transformation – energy at the end of it".

4. Chain reaction of the induced proton decay

As mentioned earlier, the portion of energy giving the proton its stability is about 11.5% of its self-energy. The calculations show that the energy of just one decaying proton is enough to start decay of 8 more protons. Under certain conditions the chain reaction of the induced proton decay is possible to happen which can be supported and developed at the cost of substance destruction.

As this takes place, charge-conjugate particles whose mass is less than that of the proton will be produced. The necessary condition for the chain reaction of the proton decay to start is that there should be supplied 107.74 MeV for a proton.

All intermediary charge-conjugate particles are unstable. If the quantity of charge-conjugate couples is big enough the total recombination energy for them can exceed 107.74 MeV that is enough to trigger another proton decay. As this takes place, self-sustaining reaction of the induced proton decay becomes possible. Fig.6 represents the scheme of the chain reaction of the induced proton decay.

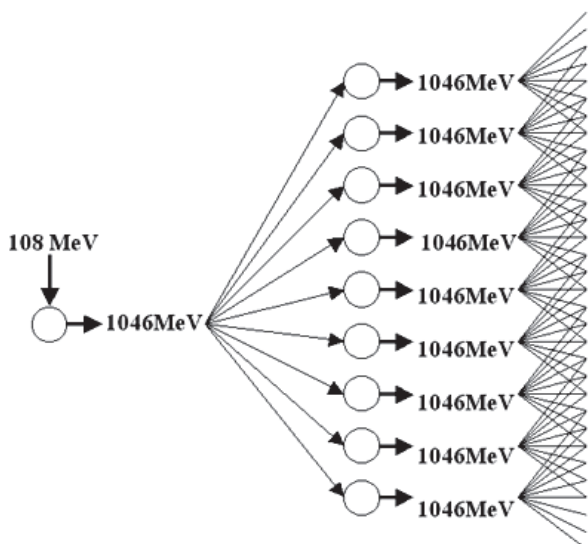


Fig.6. The scheme of the chain reaction of the induced proton decay

The chain reaction of the induced proton decay can be realized in hydrogenous medium. The ideal medium for this purpose is water. Fig.7 represents the scheme of energy conversion if power is generated by the induced proton decay. Oxygen will be released as a residual substance.

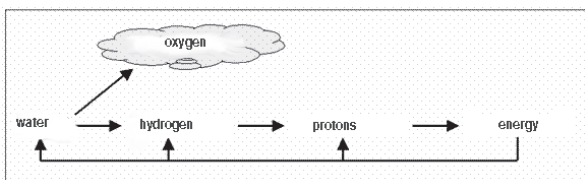


Fig.7. The diagram of power transformation in the method of power generation by the induced proton decay

5. A new energy concept

In fission and fusion nuclear reactions from 0.1 to 0.5 % of the substance is converted into heat and radiation. For chemical reactions this portion is just 10^{-7} (5). During decay each proton emits about 938 MeV. Besides, in this case protons are converted into energy completely and no residual substance is formed.

Table 2 represents approximate values of power generation efficiency for various methods, with respect to chemical methods.

Table 2

Method of power generation	Efficiency	Excess ratio
The induced proton decay	$P^+ \rightarrow 938\text{MeV}$	10^5
Thermonuclear fusion	$D+T \rightarrow 17.6\text{MeV}$	10^3
Nuclear decay	$U^{235} \rightarrow 0.85\text{MeV}$	10^2
Burning energy carriers $C+O_2$	$\rightarrow 0.0046\text{MeV}$	1

Efficiency of power generation by the induced proton decay is about 2 orders of magnitude higher than thermonuclear fusion and 5 orders (!) higher than the conventional method of fuel burning. Because burning 1 kg of oil products gives off 39-44 MJ of energy and 1 kg of hydrogen can give off 1027 MeV in decay it means that 1 kg of water is as energetic effective as 105 t of oil. As a result, water can become the cheapest and inexhaustible energy carrier.

1 kg of water equals to 100000 t of oil

Fig.8. Water is the most effective energy carrier

Such unprecedented possibilities of the new energy carrier allow us to define a new energy concept in which water shows itself as a substitute for conventional energy carriers. The new method of power generation is based on the induced decay of protons of hydrogen atoms contained in water. Fig.9 shows the diagram for the method of power generation from water based on the induced decay of hydrogen protons. In the new method of power generation the induced proton decay is realized instead of fusion reactions. Hydrogen protons are effected by quantized energy. This impact corresponds to the 10-step structure of energy levels. Protons decay to form elementary particles that are unstable. So, this scheme doesn't result in dangerous substance formation at the final stage of energy transformation.

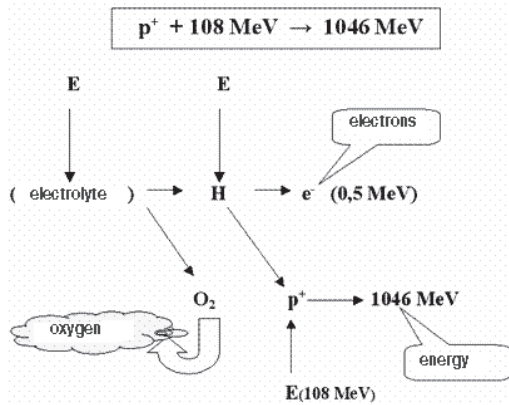


Fig.9. The method of power generation from water based on the induced decay of hydrogen protons

The residual substance is just oxygen. Thus we can say that this method is environmentally friendly. Another advantage of the new method is its extremely high efficiency. Its specific efficiency by more than 1000 times exceeds the rate of atomic power engineering and several tens times exceeds that of nuclear fusion. This method makes possible heat and electric energy generation. Water is an energy carrier and a consumed substance at the same time.

6. The concept of a power generator based on the induced proton decay

Realization of the above-mentioned energy conversion scheme is fulfilled by the proper construction of a reactor of the generator and proper electronic impact on an electro-conductive liquid. The induced proton decay creates conditions to obtain more energy at the output than the amount spent by the primary energy source to initiate the proton decay. Extra energy does not come from nowhere, it is the internal energy of hydrogen protons that is released. As discussed above, this energy is enormous. The necessary condition for the proton decay is creating a very high energy density in a particular area so that 107.74 MeV of energy would correspond to a proton. The sufficient condition is the impact to be in conformity with the 10-step energy diagram. To generate electric power, the division of charge-conjugate particles in energy-saturated particular zone of the reactor is made. Both the necessary and the sufficient conditions

are provided by the proper design of the generator's reactor and the electronic control unit.

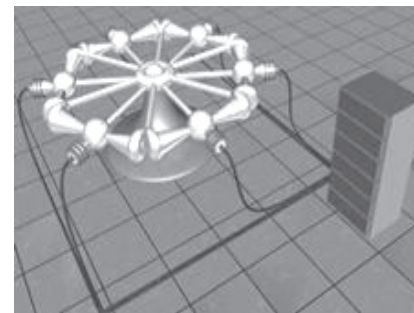
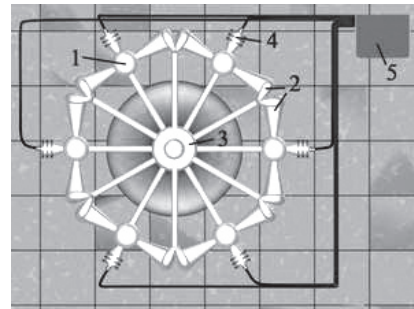


Fig.10. The diagram of the power generator based on the induced proton decay

- 1 – reactor
- 2 – accelerating cones
- 3 – mixer
- 4 – electronic assembly unit
- 5 – control unit

To create necessary energy density the reactor of the spherical shape has been chosen. High energy density required for proton decay is realized in the center of the sphere. A water-base electro-conductive liquid is used in the generator. The liquid serves two functions.

The liquid is at the same time an energy carrier and a medium where hydrogen protons are impacted in order to release energy stored in them. The new method solves both the problem of generation of extremely big energy amounts and that of making the power generation process environmentally friendly.

The diagram of the generator is represented in Fig. 10. The generator constitutes an electronic-mechanical system whose units through their embodiment create conditions for the induced proton decay.

The power engineering of tomorrow will not direct its efforts toward building energy giants consuming minerals and polluting the biosphere. Oil, natural gas, coal and uranium will be over. Then autonomous and compact power generators which can be installed in immediate proximity to a consumer and use water as a fuel will make it possible to obtain energy required and ensure that the power generation is environmentally friendly.

Resume

- 1. A new method of power generation is suggested which is several tens times more effective than the controlled nuclear fusion.**
- 2. The basis for this method is a new physical effect, i.e. the induced proton decay.**
- 3. The method basing on the induced proton decay makes water an inexhaustible and the most effective energy carrier and opens up the way to solving the energy problem.**
- 4. Water can become the most effective fuel capable to replace oil, coal, natural gas and uranium.**
- 5. Many substances that were traditionally considered not to be energy carriers can theoretically become most effective ones.**

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THE NATURE OF TIME

by Lew Paxton Price

From the theory developed by Lew Price and Mart Gibson

Owners and editors of scientific publications are increasingly publishing new theories that may challenge older ones. The owners and editors of New Energy Technologies have been foremost among these. We thank them for their open-minded attitude and for their courage in disseminating new ideas.

Time is a word depicting concepts which are not seen as easily as are objects in our three dimensions of space. It connotes a mystery that is known to have intrigued and entertained us for hundreds of generations. Stories have been written of time travel. Many years ago, when I was flying to different parts of the globe, I found that time travel is a reality. My time machine was the airplane which invariably deposited me into the future of each place I had previously visited - but never into the past.

Yet, "time" is a word that can have many meanings. Often, when two people are discussing time they fail to realize that one person is thinking of a particular type of time, while the other person is thinking of another type of time. Furthermore, the passage of time may vary from one place to another. Physicists may think of time as a passage of events which are occurring more slowly under some conditions than under other conditions. This effect is usually called "Time Dilation" and was originally part of Einstein's theory of relativity. What follows is my own understanding of time types and how they affect us.

"Time Type One" may be called "Duration" because it is necessary if the universe is to exist or endure. Duration is the eternal "NOW".

Duration is measured by using relative motion. The earth rotates one time relative to the sun in twenty-four hours. The moon orbits the earth in approximately one month. The earth orbits the sun in one year. We use pendulums, wheels with springs, or crystal wafers in motion to cause our clocks or our wrist watches to keep proper "time". When the hour hand moves around once, twelve hours have passed. When the minute hand moves around once, one hour has passed. When the second hand moves around once, one minute has passed. These are all examples of the way we measure time with one motion relative to another motion.

To measure time with relative motion, there must be change from one moment to the next. This indicates that there must be some means of allowing change to occur. A motion picture camera records events that are frozen on a celluloid film strip. On this strip, the first photo "freezes" an event as it has been seen at a particular point in time. In a subsequent fraction of a second, this event is frozen on the same film strip as it appears at a later point in time. This process continues with successive photos of the event at different points in time. There is a passage of time between each consecutive frozen scene. If too much time passes between these consecutive scenes, the movie that results shows "jerky" motion. Smoother motion results when less time passes between consecutive photos of events.

The above paragraph is analogous to what might be termed our "flow" of time. Just as the film strip must pass through a motion picture projector to allow the illusion of motion, we must have flow of time for motion to occur in this universe. If the time

between each photo in the film strip were reduced until it had become infinitely small, it would more closely resemble our smooth flow of time. Another analogy is that of our universe of three spatial dimensions moving along a time line. As our universe moves along this time line, movement within the three spatial dimensions is possible. If there were no movement along this time line, then all motion within our universe would be frozen just as if it were only a single photo in the strip of motion picture film. This movement along a time line creates something that may be called "Time Type Two", "Sequential Time", because events happen in a linear or sequential manner with cause preceding effect. Sequential Time differs from the measured flow because it is merely a way to relate one event to another without any thought of the rate of time passage.

"Time Type Three" may be called "Real Time" because it is the dimension which is perpendicular to our three spatial dimensions and the dimension that we see only in memory and in projections of possible futures. It is the fourth dimension into which nether (dynamic ether) may flow to create subatomic entities - into the past to create matter, and into the future to create anti-matter (see the article on the electron in Issue N2(17)2004 of this magazine).

Without the motion of our universe along the time line, there would be no time of any kind because there would be no motion of any kind within our three spatial dimensions. The relative motions we use to measure time are what provide us with the illusion of our senses that we call "existence". This may be called "Time Type Four".

The passage of time is measured by rates of motion within our universe of three spatial dimensions - and, to us, it actually is the passage of time. Nuclear reactions, chemical reactions, biological processes, sociological processes, and all other processes in our universe of three dimensions are consequences of motion and depend upon "Time Type Five" which may

be called "Submicroscopic Time". If the passage of time within our local vicinity of the universe is slowed, then the motion within this vicinity is slowed. Likewise, if the motion within our local vicinity of the universe is slowed, then the passage of time within this vicinity is slowed.

"Time Type Six" is psychological and may be called "Subjective Time". First, the passage of time seems to be greater when one has lived for only a short time and less when one has lived longer - which means that an event that occurs in an hour's time is longer for a child than it is for adult. Second, the passage of time is longer when one dislikes what is happening and shorter when one enjoys an experience. Einstein is credited with saying: "When you sit with a nice girl for two hours, you think it is only a minute. But when you sit on a hot stove for minute you think it is two hours." Einstein obviously understood this time type.

In two previous articles published in this magazine, it was shown how gravity and electromagnetism can be explained when the existence of dynamic ether (which I call "nether") is acknowledged. The speed of light is a consequence of the reactive speed of the dynamic ether. Subatomic entities such as the electron, the proton, and the neutron must "signal" one another using the dynamic ether as the medium for communication. Otherwise, nuclear, chemical, biological, and other processes cannot occur. These processes are possible using forces which operate at speeds which are always proportional to the speed of light. If the speed of light is reduced, then the speeds of these processes are reduced also. These processes are forms of motion. So the passage time is reduced when the speed of light is reduced.

The speed of light relative our environment is reduced whenever we live in an environment in which the nether (dynamic ether) is moving relative to us. Because the speed of light is the highest possible speed within the nether (it is based upon the reactive speed of the nether), when the nether is moving relative to us a portion of the speed of light is used

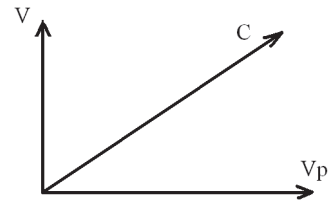
in countering the relative movement of the nether. Thus, to an outside observer the speed of light is reduced and so is the passage of time. But for those of us within the environment where nether has relative movement, our time has been slowed and we do not see any variation in the passage of time or in the speed of light.

Our gravity is caused by nether accelerating from "space" into our planet. The velocity of the nether at the surface of the earth is equal to the escape velocity of a rocket. This relative motion of nether causes light to move more slowly even though we are not able to perceive this slowing of light. This same relative motion also causes the passage of time to slow. The gravity of the planet Jupiter is greater than our own and the velocity of nether moving into the surface of Jupiter is also greater. Therefore, time on Jupiter passes more slowly than it does on earth. On the moon, gravity is less and so is the velocity of the inflowing nether at the lunar surface, so time passes more quickly on the moon than it does on earth. Gravity causes time dilation. This dilation is often very small - almost too small to be measured. Yet it is much larger when one measures the difference in the passages of time between that created by our gravity and that created by the gravity of a black hole. If we were on a spaceship moving through the nether, the relative nether passage would cause the passage of time to slow. The faster we would move through the nether, the greater the effect of time passage being slowed. Motion through the nether causes time dilation.

The rate at which time is slowed can be expressed by a mathematical formula derived by using the Pythagorean Theorem. We can make a diagram showing relative nether velocity ("v"), as a vector pointing upward on our paper, the speed of light ("c") as a vector that is pointing diagonally upward and to the right, and the maximum speed possible perpendicular to our direction of motion ("v" sub "p") as a vector pointing to our right. The first and third of these three vectors create a rectangle in which the sides are of a magnitude "v", and the top and bottom of a magnitude "v" sub "p". The vector labeled "c" is the diagonal across the rectangle or the hypotenuse of a

triangle formed with the sides of the rectangle. (See the accompanying illustration with the title "Time Dilation Using Nether Theory" and its associated math which comes from page 38 of Book Five of the series of books called Behind Light's Illusion by this author.)

Fig.1



Vector v varies with the relative speed of the nether. Vector "c" remains constant. Vector " v sub p" adjusts as "c" rotates to accommodate the length of "v". The final step in the algebra beneath the vectors is the same Lorentz transform for time dilation that Einstein found to apply in his theory of relativity. However, the only relativity used in this derivation is relativity in regard to the nether (dynamic ether) - which shows that time dilation must be a consequence in a universe in which a form of dynamic ether is the substance of space and the medium for light to travel as a wave.

Most of the other conclusions of Einstein's relativity (mass increase and foreshortening particularly) are the result of time dilation. They are also present in a nether universe as a consequence of time dilation.

In summary, (1) there are several types of time and discussions of time should be preceded by defining the type or types being discussed, (2) the existence of a dynamic ether creates time dilation, (3) the foregoing implies that some of the conclusions of Einstein's relativity are correct even if not all of his precepts are correct, and (4) the passage of time varies from one place to another in our universe.

Magnetic Motor

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The invention is to be from the field of machine building and particularly motor building and can be applied in different fields of industry, aerospace technologies and in everyday life. The essence is following: the rotor and stator with the permanent magnets being placed on them. Novelty of the invention is following: the vector of magnetic field strength of the rotor and stator permanent magnets is located at the angle from 25 to 45 degrees depending on the rotor diameter relative to working surface of the magnets.

The permanent magnets in other invention (patent RU2128872) are placed in a such a way that their magnetic poles of the same polarity are along external peripheral surface in the direction of the rotation and the magnetic poles of other polarity are located along internal peripheral surface, with each pair of the corresponding magnetic poles of both polarities being located with some angle to the radial line.

In patent RU2117379 one more magnetic motor containing the permanent magnets being installed rigidly and in series at least in two rows on two non-magnetic elements which are movable relative to each other, is described. The big permanent magnets with vertical magnetization of the first element are faced with their like poles in the direction of the permanent magnets with horizontal magnetization of the second element; the unlike poles of the permanent magnet with horizontal magnetization of the above mentioned second element are located in one row parallel with the row of the like poles of the big permanent magnets with vertical magnetization of the first element being faced to them. The connection of the magnetic fields of the permanent magnets of both elements is performed via air gap with the deformation of the magnetic fields and turning of the neutral sections of the permanent magnets at specified angle being possible.

However in a given construction the discs are being used and it does not permit to obtain high power and efficiency of the motor.

My invention is to simplify design and to increase power and efficiency of the motors.

This task can be achieved by the following: the stator is being used as the first element and the rotor as the second one. Also the vector of the magnetic field strength of the permanent magnets of the first and second elements is directed anti-clockwise and located at angle 25 – 45 degrees depending on the rotor diameter relative to the working surface of the magnets.

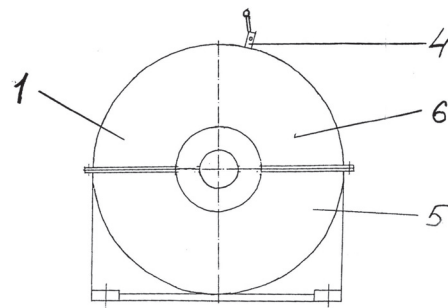


Рис.1

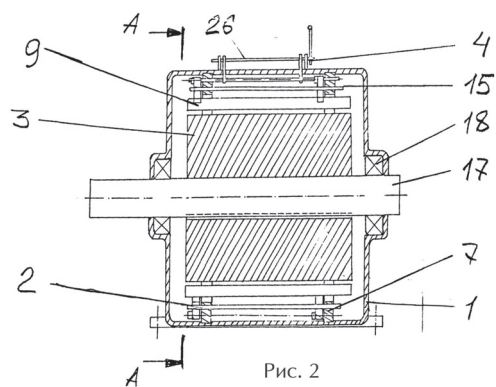


Рис. 2

Fig.1 Magnetic motor (first version), front view.

Fig.2. The same , longitudinal section

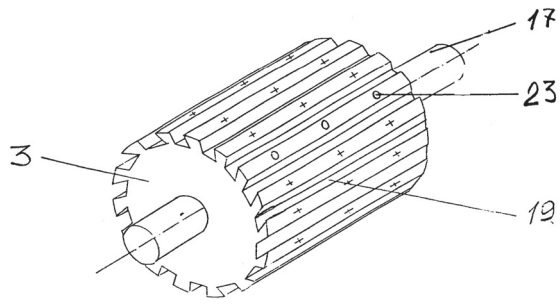


Рис. 3

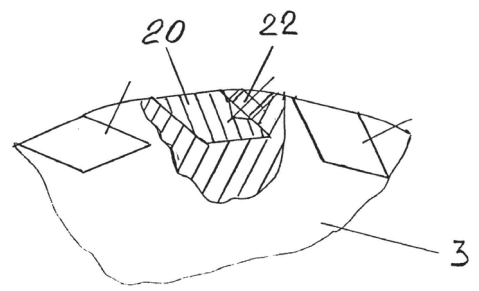


Рис. 7

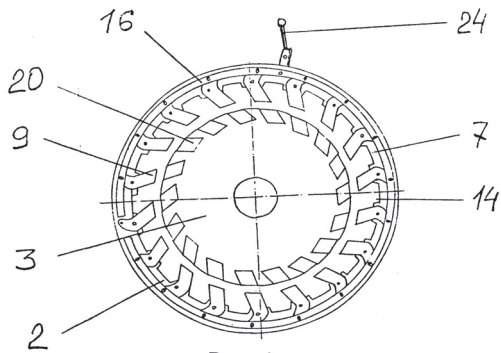


Рис. 4

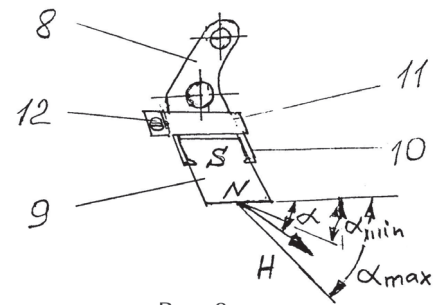


Рис. 8

Fig.3, Fig.4

Fig.7, Fig.8

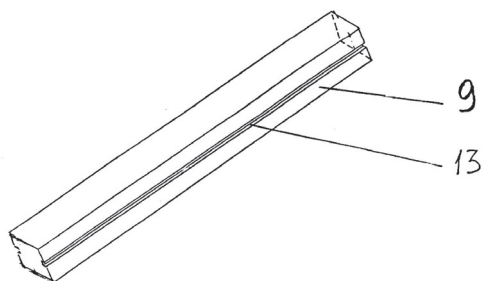


Рис. 5

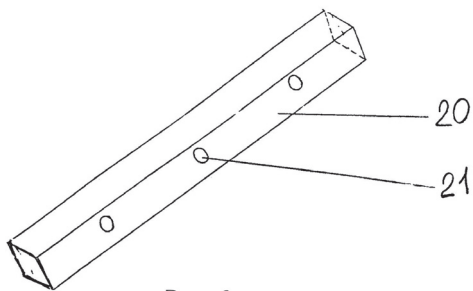


Рис. 6

Fig.5, Fig.6

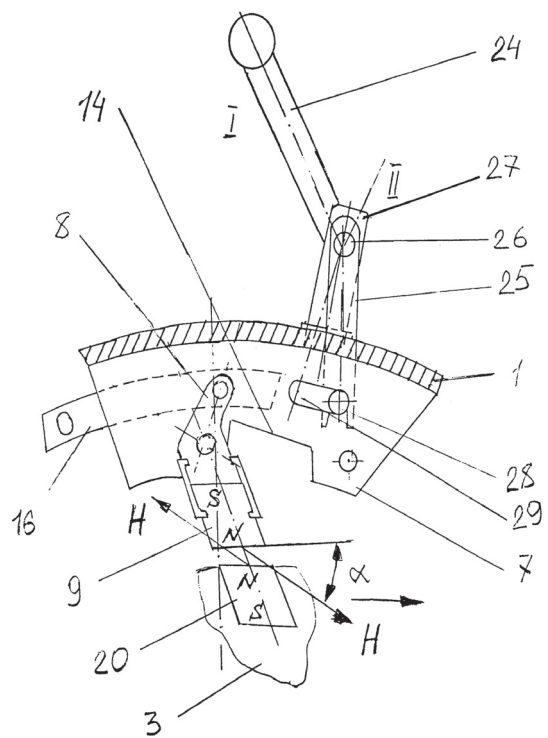


Fig.9

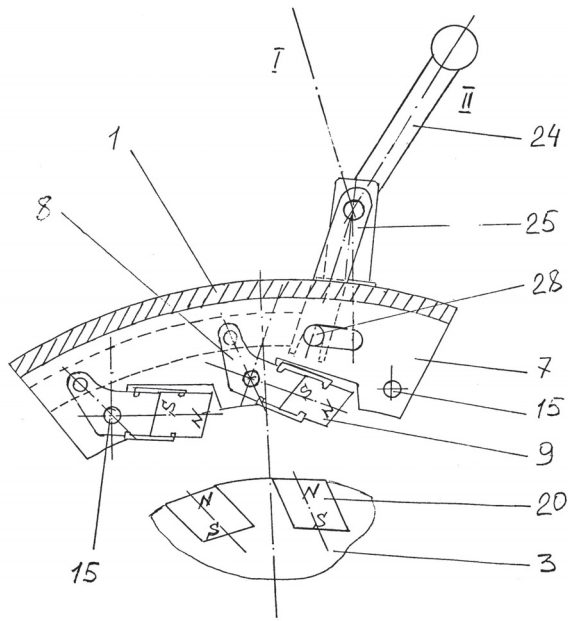


Fig.10

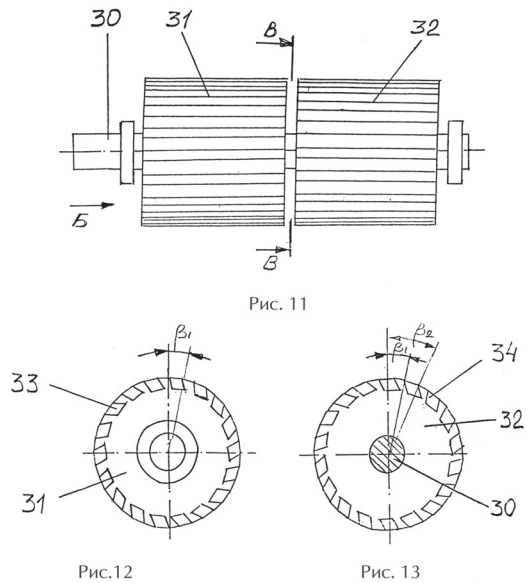


Fig.11, Fig.12, Fig.13

Tomorrow's petrol is a gas

Shell's first US hydrogen station is open now, reports John Vidal. But will we all be filling up soon?
Thursday November 11, 2004, The Guardian

It was billed as the "team of dreams" when in 2003 Shell, the world's second's largest oil company, linked with General Motors (GM), the largest car maker, to invest up to a billion dollars over 10 years to develop the world's "hydrogen economy". Yesterday, in a small ceremony near Washington DC, one of the fruits of the relationship was shown off. In front of US department of energy and industry leaders, Shell opened its first American hydrogen service station. A prototype GM minivan powered by a fuel cell - a device that combines hydrogen and oxygen to make electricity - filled up with hydrogen at a conventional-looking pump and drove off into what some believe will be a cleaner, less oil-dependent future. Car and chemical manufacturers as well as governments are pumping money into hydrogen and fuel cell vehicle research and the infrastructure for a hydrogen economy. New interest in what is

called "tomorrow's petrol" follows President Bush's December 2003 decision to put hydrogen at the centre of US renewable technologies.

Jeremy Bentham, Shell's head of hydrogen, was upbeat. "The opening of this station marks a new phase of development of the infrastructure for the hydrogen economy. In the next few years, perhaps 2010 or 2012, fuel cell vehicles will be commercialisable. By 2050 we believe that hydrogen will be playing a significant role as an energy carrier, increasingly made from non-fossil fuels," he said.

The decision may be linked to September 11, American love of technology or US foreign oil dependency, but, says Bentham, it's also about making money. Shell's Benning Road filling station in Washington is one of some 22 new stations for fuel cell and hydrogen-powered vehicles built in the past year, making about 90

worldwide, but critics say solving problems of producing, distributing and storing the gas will require hundreds of billions of dollars.

But the hydrogen fuel cell route has serious scientific critics. A committee of the US National Academy of Sciences earlier this year said it will not solve energy problems, that fuel cell vehicles only marginally reduce greenhouse gases, and that there are big safety, cost and distribution barriers to overcome. "In the best case scenario, the transition to a hydrogen economy would take many decades, and any reductions in oil imports and carbon dioxide emissions are likely to be minor during the next 25 years," said the authors.

Dr. Joe Romm, assistant energy secretary to Bill Clinton and now director of the Centre for Energy and Climate Solutions, was in charge of the US hydrogen programme for five years. He says the hydrogen economy is being overhyped, and touting it as a clean energy panacea is diverting money from simpler conservation technologies and kidding the public that hydrogen is "green" while the gas will most likely be produced using fossil fuels.

"GM have denigrated and downplayed hybrids [electric/petrol combination cars]. They see hydrogen as terrific PR. It makes them look like they are environmentally [friendly] while they stave off fuel economy regulations. I think it will be seen as a major blunder."

More than \$7bn (3.98bn) is earmarked by US, EU and Japanese governments and industry for hydrogen/fuel cell R&D. The US energy department is putting up \$1.7bn; Japan \$4bn over 15 years with a goal of 5m fuel cell vehicles by 2020. Nissan is committing \$500m and DaimlerChrysler \$1bn. GM says it wants to be the first car company to sell a million hydrogen/fuel cell vehicles while California's governor, Arnold Schwarzenegger, promises a \$100m "hydrogen highway" with more than 200 stations by 2010.

"Pursue it or rue it," said one car industry executive this week. "The momentum is growing," says Bentham. "It's facts, not fiction now. We actually have the nodes of a hydrogen economy. Investment is on a serious

scale". He compares the nascent industry's situation with mobile telephony in the 1980s. "We're in the 'clunky' phase, but we know that this technology is going to be very attractive."

Producing hydrogen and handling large quantities are not the problem, he says. Shell alone produces 7,000 tonnes a day from its refineries and world annual hydrogen output is about 50 million tonnes and growing 10% a year. It is largely used to make nitrogen-based fertilisers and to convert low-grade crude oil into transport fuels.

Hydrogen can be extracted from biomass or even seawater, but the primary source today is natural gas - which is not as environmentally friendly as the car companies want people to think because it breaks down into hydrogen and greenhouse gases. Bentham says that in combination with a fuel cell engine, it is far cleaner than conventional fuel. "The energy content of a kilo of hydrogen is about the same as a gallon of petrol, but the efficiency of the fuel cell is far higher than the internal combustion engine," he says.

What is overlooked, says Romm, is that hydrogen is an energy carrier, not an energy source. "You use a lot of fossil fuels at the front end to get to hydrogen at the back end. It's discouraging for me as a clean energy advocate that people are putting claims out that aren't based on reality." The cost of producing hydrogen from renewable sources, he says, is between \$10 to \$20 a gallon of petrol equivalent. "They tell you that the future is pollution-free but for the next few decades you will have to subsidise research into hydrogen and fuel cells.

"No alternative energy vehicle makes much sense in the US for 20 years at least. Of all of them, the fuel cell car is the least likely and most implausible." Shell says the claim that it's just good PR is too cynical. "There was a lot of hype in the late 1990s. But it is a very realistic view that by 2010-2012 vehicles will be commercialisable," says Bentham. "Whether they will be mass-produced depends on governments and car manufacturers."

METHODS OF CONVERSION

of the permanent magnets energy

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<http://www.ntpo.com/invention/invention2/13.shtml>

In connection with the aggravation of problems in power engineering and fuel appreciation in the world the relevance of alternative power engineering is being increased. Earlier the author has already proposed and researched the effective methods for energy and fuel saving using strong electric fields of low power which can be applied in all without any exception "flame" technologies (6 - 9). Besides the new promising electric field process of electro-osmosis decomposition of water solutions into fuel gases has been proposed and developed {10}. However the extremely cheap and effective direct conversion of the electric and magnetic fields into chip mechanic and electric energy is the most promising and relevant one {1, 2}. Unfortunately nowadays there is no general theory of energy conversion of these fields into different kinds of energy and it represents considerable obstacle for their development and perfection.

In a given article I have made the first attempt to classify and systematize the new proposed operational principles of magnetic motors operation and to lay down the conditions which are required to provide their operability. From this point of view several new types of magnetic energy converters based on permanent magnets (PM) have been proposed and considered.

Permanent magnet – energy pump and concentrator of the air energy flow.

Though the permanent magnets are widely used in engineering, for example in electric machines, the nature of magnetism and power interaction of permanent magnets (PM) has not been discovered fully yet. Let us think a little bit about physical aspect and energy of the permanent magnets operation in magnetic motors (MM) similarly to other natural

phenomena and power plants. Why does the magnet keep at certain conditions its energy as long as you like? The concept of global air has never disappeared from physics and almost all the physicist agree that it exists but it has not detected yet. It is most likely that the energy of PM is being replenished with the air energy and the PM itself represents the energy pump of this air. In order to simplify it one can imagine that the magnet is the analog of the tube into which the certain energy pump is built in. This pump operates in permanent magnet with constant pumpage. The magnet poles assign the direction to the air flow as the input and output. The particles of the air are being pumped in one pole and pumped out from another pole. The flows of air particles being pumped in and pumped out along magnetic lines of force of PM (further in the output of PM) diverge in opposite directions with the distance from poles being increased.

In what way can we use effectively this energy saturated air flow passing through PM?

It would be reasonable to draw a parallel with water – power engineering. If on the way of flow we put the empty tube without any pump (magnetic pipeline), then, passing through empty tube this flow will be concentrated in this tube, closed and will not diverge. More the diameter of this energetic tube and closer the end of this tube to the pole, bigger part of the air flow can be transferred at large distance without losing its intensity. It is quite clear that if we put the tube being inclined upward, the water will not flow in it, it means that the magnetic pipeline should pass along lines of force. If not far from two magnets the third one is available, in this case it will take the part of flow to itself, decreasing interaction force between magnets. How can we make the PM operate, these energetic pumps in favor of

humanity? Here it would be reasonable to draw up parallel with water wheel and water flow. The flow energy benefits if only half a wheel is located under falling water. If the whole wheel is under the water it will be useless. It means that it is necessary to use this principle of water turbine also for creating effective MM. As a matter of fact, the permanent magnets are the effective energetic pumps, converters of the air energy and concentrators of the air flow into their lines of force. This phenomenon of nature resembles the waterfall. If the source of almost free of charge energy is available in PM we should only think out how to use it effectively so that similarly to water wheel only the half a magnetic energetic wheel operates from this one-direction air flow through the system of permanent magnets in MM.

Classification of magnetic energy converters and MM based on permanent magnets into other types of energy.

Earlier the author in article [1] has already proposed and considered some new types and constructions of MM. Let us classify these MM as well the new ones being proposed in a given article according to different features and criteria (kind of movement, MM, type of output energy, operational principles and so on). The examination of the technical solutions proposed by me as well as of the known ones concerning magnetic motors and other magnetic field energy converters with permanent magnets (PM) permits to distinguish the following principal classes:

1. According to kind of MM rotor movement:
 - a) MM with periodical mechanical oscillations (oscillating pendulums, reciprocal, vibration motors) and rotation MM.
 - b) Static magnetic triode-amplifier with commutation of magnetic field by PM.
2. In accordance with kind of the output energy, useful functions and field of application:
 - a) generation of PM movement mechanical energy; converters of PM magnetic field energy into mechanical (kinetic) energy (magnetic motors).
 - b) Generation of electric energy; converters of PM magnetic field energy into electric energy (phenomenon of magneto-dynamic induction), magneto-mechanical generators of electric power.
 - c) Simultaneous generation of mechanical and

electric power – combined and concurrent magneto-mechanical motor-generator plants.

- d) Reduction of PM magnetic field energy into other types of energy (for example, for regulating velocity, force and torque; converters of PM magnetic field energy into force effect (magnetic bearings and magnetic reduction gears of force, torque and rpm on PM), Fig. 1-3 of article [1].
- e) generation of thermal energy from magnetic energy when degaussing PM; converters of PM magnetic field energy into thermal energy (magneto-thermal generators).
- f) Converters and generators of force-velocity of PM movement.

3. In accordance with operational principles and physical effects being used in converters of permanent magnets magnetic field energy in closed cycle into other types of energy:

- a) generation of kinetic energy of PM movement based on the combination and alternate usage of gravitation forces and force interaction of PM magnetic fields in closed cycle of magneto-gravitation motor, i.e. of oscillation and rotation type.

The meaning of magneto-gravitation motor (MGM) operational principle is in alternate usage in closed cycle of gravitation force and magnetic forces of repelling-attraction of PM and repeated alternation of gravitation force which acts on the rotor magnets when shielding the PM magnetic field by blinds-screens of permanent magnets magnetic fields where forces of PM magnetic repelling act on MM rotor when such magnetic shield between PM is absent. These are the magneto-gravitation motors (MGM) (Fig.6 in article [1]).

There is some other method for implementation of this principle: simple MGM with vertical plane of the rotor magnet rotation in closed cycle and sequent alternation of the combination according to acting forces (gravitation forces and forces of magnetic repelling of PM on starting part of trajectory of magnetic rotor with subsequent second breaking semi-cycle of MGM operation), in which the forces of magnetic attraction of the stator and rotor magnets against gravitation force are being used (See Fig.5 in article [1]).

- b) generation of PM movement kinetic energy

based on the combination of the effect of PM repelling-attraction and the effect of simultaneous accumulation of PM movement kinetic energy in mechanical or electromagnetic energy accumulators in this interval and its secondary release in the interval when shielding or when having mutual perpendicularity of the PM of the MM rotor and stator (magneto-accumulating motors (MAM), see Fig.4 in article [1].

c) Generation of PM rotation kinetic energy relative to each other by means of magnetic field force interaction (attraction-repelling) on different sections of trajectory of MM rotor using non-uniformity of the PM magnetic fields and its conversion into PM rotation kinetic energy relative to each other (polar magnetic motors, Fig. 7–9 in article [1].

d) Generation of PM movement kinetic energy in closed cycle by means of mechanical or other commutation of PM magnetic fields for accelerating rotor magnet on different trajectory sections (segmental magnetic motor-generators, Fig.1 of the given article).

e) Direct generation of electric energy from PM magnetic field energy in magnetic converters with initially closed PM magnetic pipeline by means of cyclic mechanical commutation of the magnetic flow in PM, for example, by cyclic breaking of the closed magnetic pipeline itself into segments with simultaneous inducing of electromotive force (emf) in inductive winding placed on this circular PM with cyclic changing of circular PM magnetic flow in it – induced Faraday electromotive force (combination of magneto-mechanical and electromagnetic induction effects). The evolution of this operational principle of the magneto-electric generator is the usage of positive feedback by emf (voltage) to mechanical segmental commutator of PM closed magnetic pipeline and application of the part of electric energy obtained from this inductive winding for a given electromechanical commutator of circular PM magnetic flow.

f) Direct generation of electric energy from PM magnetic field energy in polar MM by means of inducing emf in inductive windings fixed along the trajectory of polar MM magnetic rotor (combination of non-uniform magnetic fields force interaction and electromagnetic induction effects (Fig.1 of the given article).

g) Generation of thermal energy from PM based on the effect of combination of PM

thermal degaussing (Curie effect [5]) and their quick magnetization up to temperature which is below Curie point (effect of Barkhausen magnetic flip-flop [3].

h) Generation of mechanical kinetic energy from PM by means of cyclic intermittent degaussing – magnetization of at least one of two PM in MM.

Generally speaking the method of creating operable MM is to create magnetic field non-uniformity in it and to commutate the magnetic field in time and space. For demonstration of the above mentioned operational principles of magnetic energy magnetic converters let us consider their several new types in more details, for example, for getting chip electric and mechanical energy from PM.

The simplest magneto-mechanical pendulum as an example of implementation of creation principles of different types of MM. The given simplest magneto-gravitational motor (Fig.1) can be constructed using different physical magnetic effects in combination with gravitation effect. In order to compensate losses for friction and creation of continuous oscillations in ordinary gravitational pendulum it is proposed to use additionally the force interaction of two permanent magnets alternately. The behavior pattern of force interaction of magnets 1, 2 is carried out with the help of converter 6. It should provide the attraction of pendulum permanent magnets 1, 2 on trigger swing one-half period of the pendulum and their force repelling after having passed the lower trajectory point of the pendulum. This magnetic converter-pendulum can be constructed based on different principles and physical effects:

- a) using mechanical turning of fixed magnet 1 at 180° when the pendulum passes through the lower point, for example of spring type with a cam.
- b) By means of intermittent reversal of magnetization of fixed magnet 1 in the lower point of magnet 2 (Barkhausen magnetic effect); the electric energy and magnetic field sufficient for magnet 1 reversal of magnetization is being received from inductive winding located on magnet 1 and connected with electric energy accumulator.
- c) Using combination of Barkhausen effect

and Curie thermo-magnetic effect. In this case - in the lower point of magnet trajectory of pendulum1 degaussing magnet1 above Curie point with pulse heating and its pulse reversal of magnetization (Barkhausen magnetic flip-flop effect) when magnet 2 reaches the upper point of trajectory. d) Mechanical magnetic shielding of one of the magnets at certain sections of the pendulum magnet swinging trajectory. e) Electromagnetic control of magnet 1 magnetic field (amplification-attenuation); magneto-electric mechanical pendulum – addition to the inductive winding facility, wound around fixed magnet 1 with capacitor at circuit oscillation frequency which is equal to the mechanical oscillations frequency and oscillation phase being regulated by this oscillatory electric circuit by means of inductance of counter-magnetic field which compensates magnetic field of magnet 1 on breaking sections of trajectory and amplification of its magnetic field on accelerating trajectory of magnet 2 pendulum.

Magneto-mechanical generator of electric energy based on PM.

The phenomenon of electromagnetic induction is well known and widely used in power engineering and it consists in the following: while changing the value of magnetic field through conductor (in time or space) , in the latter one the electromotive force (induction emf) is being induced (further only the abbreviation “emf” will be used [4]). The majority of the electric generators in the world operate based on this principle. [4].

However this electromagnetic principle of electric energy generation is connected with high consumption of mechanical energy since in a given case the power of electromagnetic generator is determined by the mechanical power supplied to its shaft. The new direct magneto-mechanical method of electric energy generation by means of inducing emf induction in inductive winding located on circular or other closed PM with the help of mechanical cyclic commutation of its magnetic flow (completely or partially), for example, by cyclic movement of movable segment of this PM, is proposed.

Since the flow of magnetic induction piercing this inductive winding wound around the PM, will be changing with the time, in a given case at mechanical commutation of PM magnetic flow (complete or partial) in inductive winding located on PM the induction emf will be also induced and it has been confirmed experimentally.

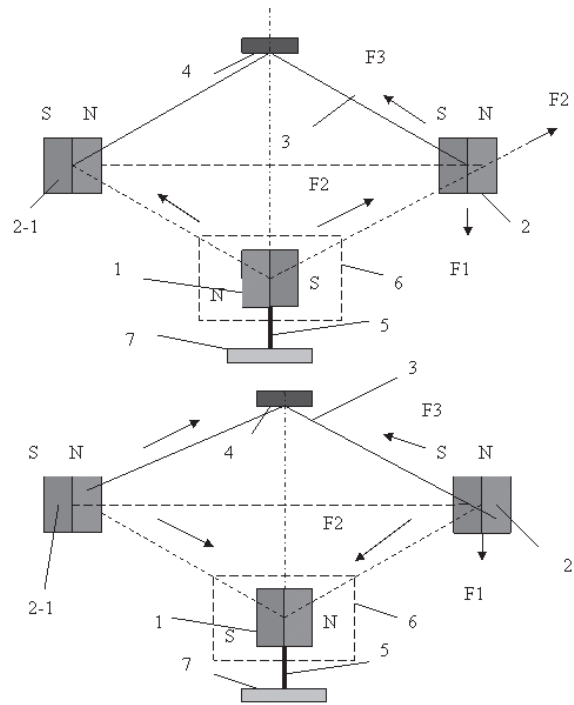


Fig.A

- 1. Lower magnet rotating around the axis
- 2. Pendulum magnet
- 3. Rod of magnet – suspension
- 4. Upper support of pendulum
- 5. Rotation axis
- 6. Magnetic field converter, for example, shield, inductive winding etc.
- 7. Lower rotational platform
- F1 –gravitation force
- F2 – magnet interaction force
- F3 – force of suspension reaction –support 4

As a result it is possible to get the useful electric energy by means of usage and conversion PM energy from the given inductive winding if the electric circuit of the given winding is closed to electrical load. The reserve of PM magnetic energy is considerable and practically inexhaustible because it is being continuously replenished from the air as it has been ascertained in the beginning of this article. The effectiveness of electric energy generation using the proposed method is also provided by the fact that the segmental commutation of PM

magnetic field is extremely low energy consuming, because on this segment, when withdrawing the poles, the polarities which are opposite to the main magnet are formed automatically, and that is why the automatic force of extruding of this segment from circular magnet exists. In a case if such second segment is available it is possible to form magnetic swing for their interrelated opposing movement via kinematics. In this case the introduction of one of the segments of magnet magnetic pipeline is simplified. The frequency of electric energy is determined by the frequency of magnetic flow commutation inside PM. This commutation of PM magnetic field by its segments can be performed both at reciprocal segment movement and by means of rotation of several segments which dimensions are equal ones and fixed on non-magnetic disc in plane which is perpendicular to the plane of permanent circular magnet through this slot in it. As a result the high frequency magneto-mechanical generators can be created. In actual fact in such magnetic generator based on PM, several physical effects and phenomena are being used: phenomenon of magneto-mechanical induction, phenomenon of electromagnetic induction, the effect of spontaneous cyclic ejection of PM segment and some others.

There is different model of implementation of magneto-electric generator (MEG) in non-contact construction: usage of magnetic flip-flop effect (Barkhausen effect) for cyclic reversal of magnetization of this magnetic segment. The operational principle of magneto-mechanical generator of electric energy (MMEG) is clarified on Fig.B. The simplest construction of MMEG consists of circular permanent magnet 1 with radial or axial magnetization with narrow sector slot in it (sector of 2 – 5 degrees is sufficient) and with its movable segment 2 (the quantity of them can be more, for example, two), being moved in slot 3 in PM with as minimal as possible gap, with multi-turn inductive coil 3, placed and wound on circular magnet 1 itself and connected with electric load 5. In the construction of MMEG it is required also to have a drive for cyclic movement of PM segment, which in special case can be made in a form of vibration electromagnetic drive (VEMD) based on solenoid with movable pin 6, stock – pusher 9, rigidly connected with

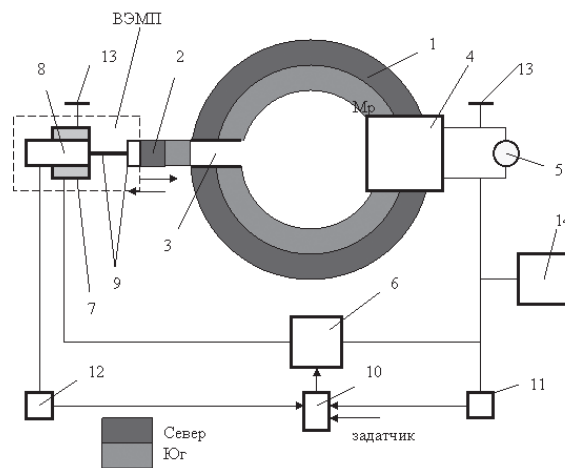


Fig. B. Magnetomechanical generator of electric energy based on permanent magnets.

movable magnetic segment 2. Winding of solenoid 7 is connected to operational inductive winding 2 through regulated voltage converter 6, being controlled from processor 10 with positive coupling via voltage sensor 11 and sensor of frequency and travel stroke 12 of solenoid stock 9. Windings of solenoid and generator are grounded via terminal 13. Initial start of such generator represents primary movement of PM segment 2, for example, from VEMD with electric power from primary source of electric energy 14, for example, from low power storage battery. Further the operation of this simple magneto-mechanical generator plant is fully autonomous.

The regulation of output power of MMEG from output of winding 4 is performed by changing parameters of load 5, as well as value and frequency of PM magnetic flow commutation, frequency and length of movement of magnetic segment 2 and the assigning of operational mode is being monitored by control system 10. The output power of such unusual magneto-electric generator is provided with properties and dimensions of permanent magnet, dimensions and quantity of segments 1 and at high parameters of modern magnets can reach from tens to hundreds kilowatts.

Part 2
Segmental magnetic motors with magnetic flow commutation

For magnetic machines the general principle of reversibility of their operational modes is also true, i.e. any operable magnetic machine is able to operate both in generator (electric energy generation if the inductive winding is available) and in motor modes. Besides, in such segmental magnetic converter-machine the combined motor-generator operational mode is possible and it is their principal difference from known electromagnetic machines. The generator mode of the segmental magnetic converter is described above. As the experiments with ring magnets being cut for segments, show, these segments are being pushed out spontaneously from the ring magnet and as a result the burst (commutation) of magnetic field occurs.

The operational principle of the simplest segmental magnetic motor consists in commutation – interruption of ring magnet magnetic flow by cyclic movement (withdrawing- sliding out) of the movable magnetic segment of the ring (Fig.1).

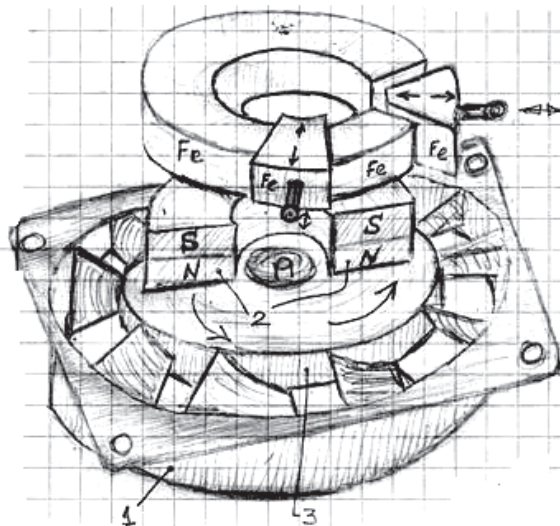


Fig.1

Let us clarify in a simplified way the operational principle of such segmental magnetic motor. In such unusual MM the effect of spontaneous

pushing of magnetic segment out the circular permanent magnet is used. For this purpose we manufacture the ring magnet with one or several segments being cut in advance and place the ring with the same cut segment over it. Since the ring will be magnetized with the magnet we will get the system consisting of two magnets being located one over another one in parallel planes (the ring is indicated) from the first part. Such system, Fig.4 (Fe) has two stable positions B and D and two unstable ones A and C, from which the magnet-rotor tends to turn into position D or B. As it is seen from Fig.3, the iron ring over the magnet is cut into segments. The procedure of magnetic field commutation control in such MM is rather simple one. While rotating magnet from unstable position into stable one , being close to stable position, we extract next segment (if we see in rotation direction) and insert the extracted one back (on Fig.3 such sequence diagram is shown). So the magnet again comes to unstable position and accelerates to come to the next stable point. In order to have continuous rotation of the main magnet this process should be repeated in a cyclic way, i.e. the MM segments are to be commutated alternately (pull out – insert magnet segments) according to rotation direction using special mechanical facilities. Let us explain the construction of this MM in more details.

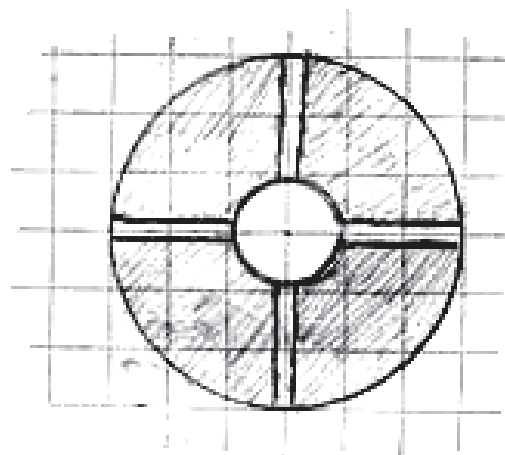


Fig.2

Magnet1 is cut in advance into four equal segments (Fig.2), then the ring assembled from segments is placed above the half-ring magnet.

As a result, besides of mutual attraction of segmented metal ring and permanent half-ring magnet (turning will not occur, because the system is symmetric one; the segments are shifted to each other) we will obtain the second force, because the permanent magnet is faced to the ring by one side and by corresponding polarity and all the segments having magnetized by one polarity will be repelling each from another and , if we let only one segment to become free, it will be pushed out by induced magnetic mono-pole from the circle (Fig.3). The force vectors of mono-pole opposition are conventionally indicated with the arrows. Now, when one segment is pushed out by induced field of half-ring magnet the symmetry of the ring is infringed and it , at the expense of opening the common magnetic line by air gaps A and B (see Fig.3) , is transformed into linear bended magnet which has the maximal field strength on the edges, i. e. in gaps A and B. The minimal field strength is in point C (see Fig.3), i.e. now the system “magnet – cut ring” is non-symmetric one and the magnet on the cooler bearing will be turned up to the point of the system equilibrium, spending its energy. The magnet will be trying to put its sine of field strength of magnet body in cosine of the magnetic field being induced on the cut ring.

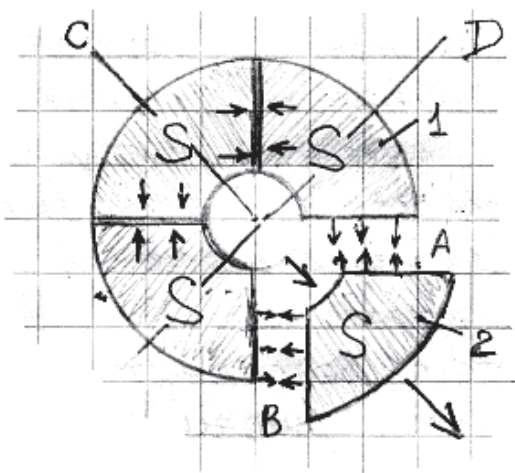


Fig.3

Now let us consider the sequence diagram of force magnetic interactions of these two magnets with segments (Fig.4) during one revolution of magnet1. If we place the metal

half-ring, combined of two 45o segments above magnetic half-ring, four positions of the system equilibrium will arise (Fig.4): two stable positions B and D and two unstable positions (peaks) A and C. Naturally, the system will prefer the stable positions. According to the principle of La-Chatelier any energetic system in Nature with all its forces tend to become stable with minimal energy of state.

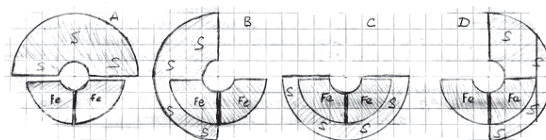


Fig.4

If we give the magnet in position A on Fig.4 a hitch from magnetic hump, it will be trying to come to the position of stable equilibrium and hence doing work, turning , for example, to position B on Fig.4. Manipulating the continuity of metal ring with the help of segments, we make the magnet work when reinstalling it. If the segments on Fig.3, position 1 and 2 are put on the place one by one, pushing each other out, the point of stable angular equilibrium will be changed from C for D (Fig.3) and so on, making the magnet rotating by circle.

Now our task is to minimize our energy consumption, making segments 1 and 2 (Fig.3) come alternately on their place in the ring, making indirectly (via change of positioning of the induced magnetic field of force) cause the work of the magnet in this system.

Let us consider principal motive and counteracting forces in this construction of MM (Fig. 3) in gaps A and B. Thus in total in gaps A and B (Fig.3) the principal induced magnetic field is concentrated, then in order to insert segment 2 in its place (Fig.3) and at the expense of it to push segment 1 out (Fig.3), it is required to consume as much energy as the magnet generates minus losses for friction etc. In this case where is the saving of energy?

The sequence diagram of segment operation is the following one (according to Fig.5). Let us make segments 1 and 2 active ones (Fig.5), then segment 2 with all its forces is being attracted

to the half-ring and segment 1 hangs at a distance of equilibrium of fields forces. As a result we have non-balanced magnetic system (magnetic flip-flop), but if the active segments are being connected with the lever 3 (Fig.5), then in order to have complete balance of the system it is necessary to have a damper-accumulator of pulse in a form , for example, of intermediate spring 4A and 4B (Fig. 5) with non-linear square-low characteristic of compression. We have compensated the non-linear characteristic of magnetic field of gaps by inverse characteristic of compression of springs 4A and 4B (Fig.5), so in total as for energy consumption we have linear balanced and counter-compensated system for controlling segments and in its turn extremely low consumption control of magnetic field of force of the permanent half-ring magnet with the help of, for example, solenoid – setter of output revolutions (position 5 on Fig.5).

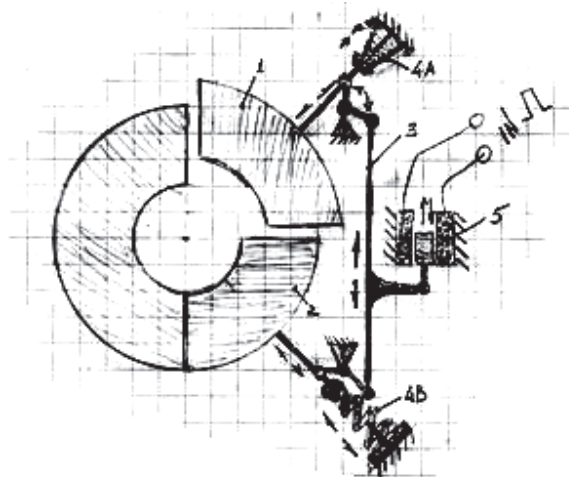


Fig.5

As a result we provide extremely long-term magnet rotation at the expense of its internal potential energy. A simpler method for controlling segments is shown on Figure 6.

Here the side view is shown, where 1 – half-ring magnet, 2 – active segments, 3 – lever made of spring wire, i.e. it performs a role of lever-spring of control pulse accumulator, 4 – thrust coils of controlling solenoid, 5 – supporting axes of lever swing.

It is also possible in a simple way to provide

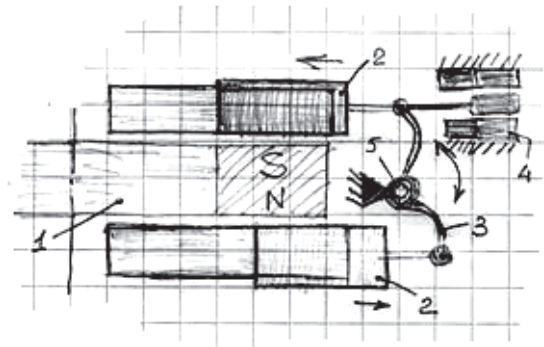


Fig. 6.

control of segments at the expense of crank-connecting rod gear being installed on the principal shaft. In this version of implementation of facility of MM segments commutation it is required to under compensate the return spring in such a way that the flip – flop effect is left a little, it means that the segments must reverse the position abruptly. The practical usage shows that the propulsive magnet of rotor should have, in ideal case, the form of trapezoid and its planes of faces should coincide with the radius lines of the magnetic ring. For experiments it is possible to use magnet having a form of parallelepiped.

Magnetic segmental motor with cyclic rotation of magnet segment

In a given segmental MM, which represents the improved first version, it is proposed to change the interruption of magnetic field by means of extraction-insertion of magnet segments-sectors for their circular movement towards the side which is opposite to the rotation of magnetic shield rotor, provided that the magnetic ring is entire.

It is proposed to perform this movement of sector with the help of the system of levers-cams-connecting rods being fixed on rotor magnet. In order to simplify the commutation of magnetic flow and increase the power of MM approximately by two times at the expense of more complete usage of internal energy of ring magnet , it is possible to use the ring magnet with axial magnetization but by changing MM construction transform it into toroidal magnet with radial polar magnetization. For this

purpose firstly we assemble the following simple construction of MM (Figure 7).

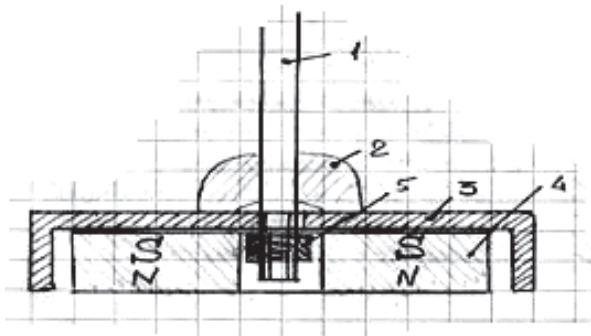


Fig. 7

It is a side view, where 1 – shaft, 2 – plastic dome, 3 – iron dome – concentrator of magnetic field, 4 – ring magnet with axial magnetization, 5 – turnbuckle nut.

Then we transform the magnetic shield in this original construction, as it is shown on Figure 8. For this purpose we cut metal dome 3 by its rotation axis and one of its halves and install it at 180° at the bottom of ring magnet as it is shown on Figure 8.

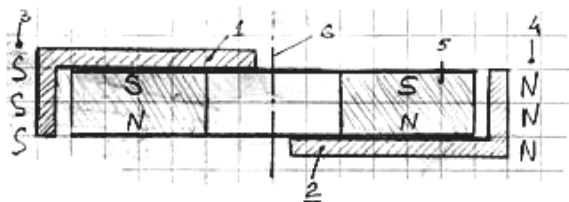


Fig. 8

On Figure 8 it is conventionally shown:

- 1–half of metal dome–shield,
- 2–the second half of shield – another pole,
- 3–concentrated field of one pole,
- 4–the same for another pole,
- 5–torroidal permanent magnet,
- 6–axis of rotation.

Cups – concentrators should be left entire ones (full disc) and it will permit to concentrate the maximal field strength of magnet 1 on their lateral and end-face surfaces and shield the magnet field in required directions. Besides in a given case the magneto-mechanical system will become more balanced when rotating

around axis 6. The top view of a given construction is shown on Figure 9.

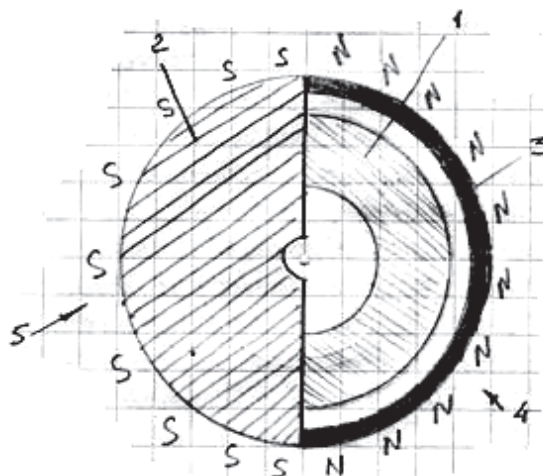


Fig. 9.

Here: 1- torroidal magnet, 2 – half of concentrator-shield of magnet 1, 3 – the second half of concentrator-shield, 4 and 5 – operational magnetic field of force of magnet 1.

It is required only to install the ring made of material with high magnetic permeability in the assigned (necessary) sectors. Roughly speaking, to short-circuit cyclically the field of permanent magnet by this closed ring: it is given on Figure 10 as a version.

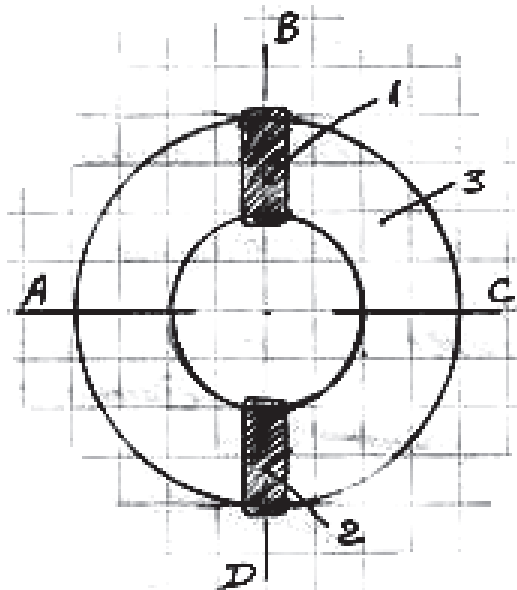


Fig. 10

Where 1 and 2 –ferromagnetic short-circuiting ferrules, 3 – ring toroidal magnet; in such a system the minimal strength of magnetic field will be in points B and D and in points A and C –maximal strength. Generally speaking, there is a lot of ways of controlling...

Note concerning keeping segments in their sectors. It is possible to simplify kinetics considerably, if we do not slide them in and out, but simply turn them a little on the place around their axes, as it is shown on Figure 11.

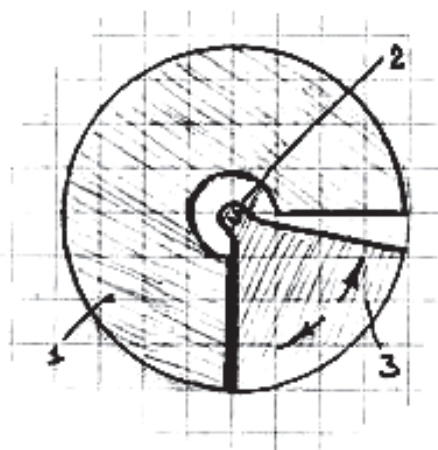


Fig.11

- 1–non-cut sector of the ring-concentrator,
- 2–common axis of system rotation,
- 3–commutating segment.

On next Figure 12 one of variety of versions for controlling kinematics without any solenoid at all is shown. In the previous versions the solenoid is required only for complete (from zero to maximum) regulation of revolutions, i.e. for digital control of system power, but it is possible to do it as it is shown on Figure 12. (1 is crank–connecting rod gear, 2 is compensating spring, 3 is commutating segment, 4 is commutated magnetic gap, 5 is rotational axis of force, 6 is example of direction of magnet with axis rotation, 5, 7 are thrust base.)

The segmental MM are very complicated ones from the point of view of the construction, low-power ones and they have low rpm (revolutions per minute). Their fault consists in usage of rather small part of potential energy of magnetic field, because the magnet attraction occurs in tangential directions which is much weaker than attraction in normal direction. Also the fault of this

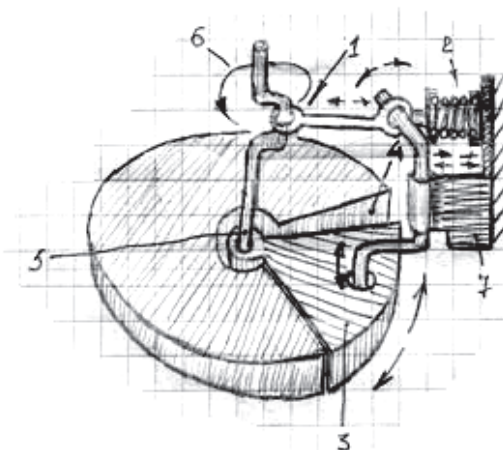


Fig.12

segmental MM is in rather complicated mechanics. However they are already checked during experiments and operable. Further let us consider several new versions of magnetic converters based on PM, implementing the above listed principles of PM magnetic energy conversion.

Jet-vortex magnetic engine

It represents combination of bar permanent magnet 2 and ring magnet 1, located at some angle to each other, Figure 13.

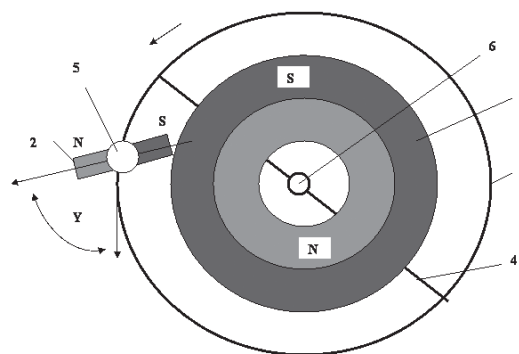


Fig. 13

- 1. Stator ring magnet with radial magnetization.
- 2. Rotor bar magnet inclined to stator magnet.
- 3. Movable rim.
- 4. Rim stiffener.
- 5. Facility for turning rotor bar magnet around its axis.
- 6. Axes of rotation.
- Y. Angle of inclination of rotor magnet to stator magnet.

The operational principle of a given MM consists in creation of thrust vector of rotor 3 from bar magnet by means of its inclination relative to ring

magnet 1. It is quite understandable that , when having radial magnetization of ring magnet of stator 1 and location of bar magnet 2 at acute angle to it and placing their like poles towards each other, the tangential rotation force of rotor magnet always exists and consequently the rotor torque does. More the quantity of bar magnets being placed on rim 3, higher the torque of such jet MM. Regulation of torque and rpm of rotor magnet 2 in such simple MM is performed by changing angle of bar angle inclination relative to ring magnet 1, for example, by facility 5 of axial magnet 2 around its axis. Regulating angle of bar magnets inclination relative to stator magnetic ring, it is possible not only change the rotor torque but even reverse rotor rotation, provided that the direction of magnets repelling is changed for opposite one. Naturally it is possible to make the bar magnet of rotor 2 as a stationary one and ring magnet 2 –as a movable one.

Magneto-solenoid reversible machine (motor-generator) of polar type

The system (Figure 14) comprises central solenoid 1 with winding 2, 4 of permanent magnets (3, 4) with axial magnetization, located in parallel pairwise in quadrature, two stationary generator windings 6, 7 fixed on rim 5 with voltage regulators 8, 9, 10 , position pickups 13, 14.

MM also consists of mechanical unit for mounting magnets, which comprises horizontal axis 15 with rotation bearing 16, vertical rotation axis 17, basement 18. The system contains also the starting electric power source 11 and magnetic pipeline 12, passing through inductive generator windings 6, 7

This magneto-electric converter implements the principle of magnetic field commutation using low-consumption electromagnetic method of electric current inversion in the central solenoid and is able to operate in fully autonomous mode simultaneously or independently, both in generator and motor modes after its starting. After initial run up of such unusual autonomous MM motor-generator and its putting into operational mode, as in vehicle ICE (internal-combustion engine) , the accumulator is required for starting and the central solenoid 2 will be used as starter. Due to availability of non-uniform magnetic field of solenoid 2 and alternative change of its electric

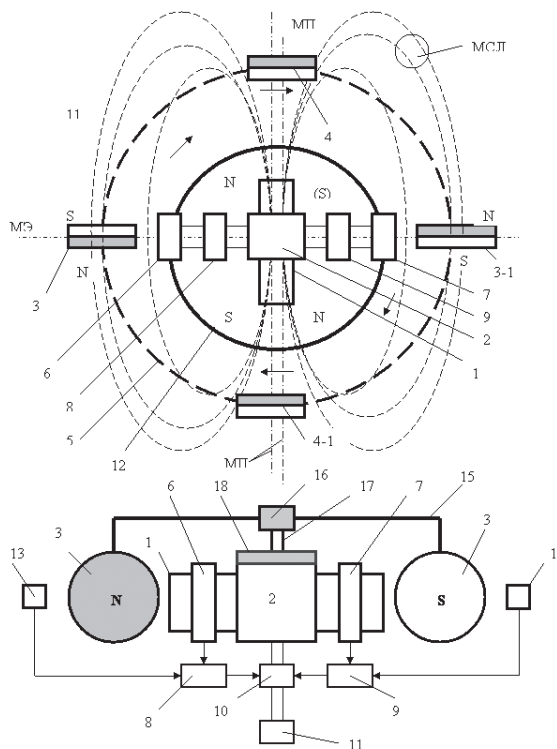


Fig.14

magnet polarity the magnets 3, 4 acquire torque and begin rotating. When rotating the magnets induce emf in windings 6, 7, and the electric energy comes to the central solenoid and load from them. Thus the given polar magnetic converter provides PM energy take-off and combined motor-generator operational mode.

Ring magnetic motor

The construction of such simple magnetic motor (MM) is shown on Figure 15. This MM consists of the central stationary ring magnet with radial magnetization 1 and two ring magnets with axial magnetization 2, 3, fixed on rod 4 co-axially with ring magnet 1. Magnets of rotor 2, 3 at selected

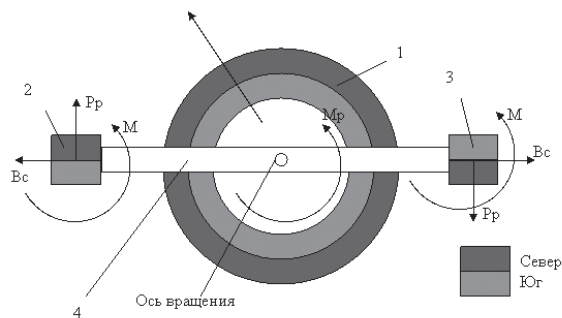


Fig. 15. Front view

location of their poles interact with ring magnet in a different way and create magnetic torque of rod 4.

It is known that the mechanical torque of the magnet in external magnetic field is equal $M = \{P, B\}$, where P is a vector of magnet magnetization, B – external magnetic field, piercing magnet. Having placed the magnetic ring with radial magnetization in the center and fixed magnets 2, 3 on it, as it is shown on Figure 1, we create conditions for magnets 2, 3 rotation around magnet 1. The rotor magnets are in the same plane with the ring and consequently with the field of stator B_c . According to our formula the torques M will act on the magnets (and, consequently, on the rod), on the rotor magnets – M_p and total torque – on the whole rotor – rod. The distance between poles of disc rotor magnet must be more than the distance between rotor pole and surface of the central fixed magnet. In this case all the lines of force of the required pole of rotor magnet will benefit for creation of torque.

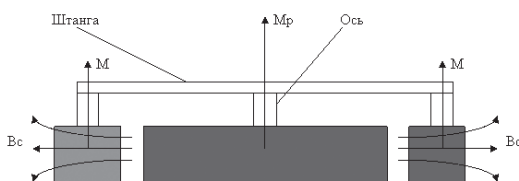


Fig. 15B

Conclusion: The present research is basic to theory of conversion of PM magnetic field energy into other types of energy, to theory of magnetic machines and methodology of their designing. It is quite understandable that the known and proposed constructions of magnetic motors-generators and their energy is not perfect yet. However their operational principles being formulated in the present article and their classification on base of usage of different physical effects for creation of closed cycle of MM operation, evidently represent considerable scientific and real practical interest as the general methodology and cardinal way to create effective magnetic motor-generator without any external electric energy source at all.

Conclusions

1. The main principles of direct conversion of magnetic fields energy of permanent magnets into other useful types of energies and work have been formulated.
2. The initial classification of these converters

of PM magnetic fields energies according to different signs and criteria has been carried out.

3. The combination and successive application of different physical effects to provide MM operability in closed operational cycle has been proposed.

4. The principal condition of MM operation consists in availability of PM non-uniform magnetic field in space and time even on certain interval of sequence diagram of MM operation.

5. The magneto-mechanical principle of commutation (changing and regulating) of magnetic field of ring permanent magnet for direct generation of mechanical and electric energy from them and different facilities based on it have been proposed.

6. The principle of non-contact commutation of PM magnetic field based on effect of magnetic flip-flop (Barkgaussen effect) and magnetic motor-generator of polar type implementing such principle have been proposed.

7. The method of direct conversion of PM magnetic field energy into thermal energy has been proposed in this article.

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The Kelvin dropper

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This article is example of simplest and high efficiency method of electricity generation.

This article describes the Kelvin dropper. It is a device to provide generation of electrostatic charge up to 15000 V. The device is based on the effect of water drops polarization and the consequent charge storage on components of the device. The information on the Kelvin dropper has been obtained from the book: J. Walker. Physical fireworks. "Mir", Moscow, 1989.

It sometimes happens that interesting solutions, effects and devices discovered or invented earlier remain far apart from the main line of the development of technology and can be forgotten for a while. But at a later time they can prove to be worthy of special attention. This is true about the Kelvin dropper. This very simple device provides generation of electrostatic charge up to 15000 V.

As a matter of fact, this simple device (Fig.1) constitutes two couples of tins, (tins 1 and 3, 2 and 4). The left upper tin (1) is connected with a wire (5) to the right lower tin (4); the right upper tin (2) through the wire (6) is connected to the left lower tin (3). There are branch pipes (7 and 8) above the upper tins (1 and 2). From those pipes drops can come down through the upper tins (1 and 2) to the lower tins (3 and 4). To let drops through the bottoms of the tins 1 and 2 are cut out. It is essential that the tins should be insulated, for example, by putting them onto dry glass plates. The valves 9 and 10 should be adjusted so that water from the branch pipes 7 and 8 would break up into drops at the height of the upper tins 1 and 2. At the beginning, just after water has been supplied one of the tins is slightly more negatively charged than the other. Which of them has greater charge is a matter of chance, initial charge of tins being caused by natural radioactivity or cosmic radiation. Assume that the left lower tin 3 has greater negative charge. So, the right upper tin 2 has greater negative charge than the left upper tin 1 (because the tins are connected to each other crosswise). The right sheet of water will be

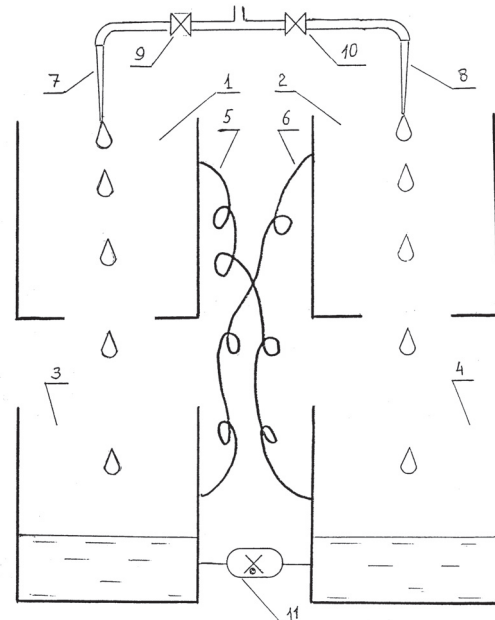


Fig.1

polarized when passing through the right tin. If drops are formed at the level of this tin then they will be charged positively, because negative charge will be repelled from the negatively charged tin 2 up the sheet. These positively charged drops go down to the right lower tin 4 and add to its positive charge. In spite of the negligibly small initial electric potential, some self-made Kelvin droppers can give potentials as high as 15 kV. One couple of tins get charged positively and the other one – negatively.

A neon glow lamp 11 can be connected to the lower tins. While the device is operating the lamp will flash periodically as charge is accumulated on the tins. It is amazing that at home, having just some empty tins and pieces of wire one can make a real electric generator, and a very effective one whose potential can reach 15000 V.

One more thing is amazing too that electric energy is generated by converting the energy of common drops of water in the simplest construction.

Commercialization of Vortex Technology in the United States

by Adrian Akau, USA, adrianakau@aol.com

Dr. Lewis Carr of the poultry Eastern Shore Research Facilities has tested the TNC (Tornado in a Can) otherwise known as TNT (Tornado in a Tank) invented by 73 year old wheat and milo (drought resistant sorghum) farmer in Hays, Kansas, Frank Polifka. The inventor calls it a "Windhexe" after the winds that blow across the flat plains. Its 8 foot tall inverted cone with no moving parts inside uses vortex technology to change solid and liquid substances into powder.

It is an invention based upon the Hilsch Tube named after a German physicist Rudolph Hilsch who published a paper describing the discovery in 1928 of George Ranque, a French physics student. A vortex is defined as a fluid that rotates about an axis. The tube used by Ranque created a vortex from compressed air and separated it into a hot stream and a cold stream like a kind of a Maxwell's Demon. The molecules spinning at speeds up to 1,000,000 rpm in the inner part of the spiral have less kinetic energy than in outside part because of the diameter of the tube so that the temperature outside is higher than inside.

Originally, Polifka intended to design a portable machine to mill grain for a grain buyer. With a high school diploma and a certificate from a diesel engine school, he spent 15 years on the project but could not find the grain buyer when it was completed. A video tape of the machine somehow ended up with a poultry business in Maryland.

The US poultry industry generates about 4 million pounds of chicken byproducts (feathers, entrails, heads and feet) which must be processed each year for use other than the super-market. About 300 million tons of egg shells are worked into the soil and much of 50,000 tons of dissolved solids such as fat are sprayed on farm fields as fertilizer each year. A number of the poultry companies thought enough of the test results to donate equipment to a start-up company, Vortex Deyhdration because they find that recently passed

environmental laws have made land disposal of the chicken wastes more difficult in some areas.

The air from two 1500 cubic foot per minute air compressors is preheated by a 80 kW heater before being sent through four openings at the top of an air tight metal cone hundreds of miles an hour to generate a powerful miniature vortex which Dr. Carr is testing as an industrial machine for the interested poultry processors. Total power used is 200 kW per hour.

What is most important for the food industry is that whatever animal or vegetable matter is sent through at the top of the TNT (by conveyor belt), the 0.00004 particle sized dry but cool powder that emerges at the bottom has kept its full nutritional value and could be used as a flavoring agent, nutritious additive to pet foods or as a fertilizer. Value would be added on and it would be worth more than the original material. It acts as a dehydrating as well as pulverizing machine.

Eggshells can be processed and collagen powder separated out to be used for medical applications such as skin grafts for burn victims or heart-valve sleeves. It may be used to dry Australian lignite coal, leaving a powder free of pollutants when burned. Animal, human and industrial waste could be turned into a powder taking up one-tenth the space in a landfill. When glass bottles are sent in, the glass particles produced are the size of beach sand, round and will not cut the skin if rubbed between the fingers.

Aluminum cans may also be quickly processed and the use of the TNC may offer a new way of mining precious metals since it can readily pulverize chunks of stone. It may also grind concrete into a powder that can be formed into concrete again by just adding water. Whatever you put in the Windhexe – shoes, rocks, sludge, concrete, industrial waste – comes out the bottom as a superfine powder. It's a clean way to dispose of

almost anything safely and cheaply, because there are virtually no polluting emissions.

As compared to the lost Richard Clem's motor which used liquid oil spiraling outward to produce the heat, the Windhexe in contrast, uses superheated hot spiraling air to weaken the bonds holding materials together. It is doubtful if the action is singularly mechanical in nature but the results are clear, it works and it works sufficiently well to be used as an industrial machine. The very fact that it powders the calcium part of an egg shell while leaving the membrane intact may point to a greater effect upon ionic bonded materials as compared to those covalently bonded.



Fig.1 TNT with conveyer belt (Eastern Shore Research Facilities)



Fig.2 TNT with air compressor (foreground).

Editor: From this short article we can conclude that vortex technologies in USA are developing but it is not planned as energy source. Practical application of vortex technologies can be more useful in power engineering, please read article by Yu. Potapov.

CD “New Energy Technologies”

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Time control by means of scalar waves

Glenn Roberts
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Dear Mr. Frolov,

Greetings! I was greatly interested in your page <http://www.faraday.ru/lwgl.html> especially, and also in all your projects in general. The above is similar to what I have written about in the attached doc file, which you may publish if you, as you published a previous one of mine called "Key Concepts..." 2 years ago. I am working on its implementation in my spare time,

*Regards,
Glenn Roberts
Glennmr2002@yahoo.com.au
October 22, 2004*

Dear Guys,

I simply repeat some earlier work and add some related stuff for hopeful clarification.

I'm quite aware that most of us are busy and tired of too much confusing detail, and believe that we've already worked out what to do, just need to focus and make time to work at it. The fellow Aussie inventor John Davey told me of his technique for tapping into the ZPE and "Steve" and I worked out how to apply it - focus a double set of scalar waves into a locally defined area/space and set up a load set to take off energy electrically. It so "happens" that the physical set-up for this closely resembles descriptions quoted below regarding the Philadelphia experiment, BUT we are not trying to shift TIME here, just transduce energy! Also a recently discovered/invented antenna arrangement has similar features too - the "Crossed Field type Antenna"! - practical "hams" should see this: <http://www.antennex.com/preview/cfa/cfa.htm> This

very important principle, that artificially superimposed E and H fields at right angles can create a suitable wavelength for broadcasting without the need for tall antennas of quarter-wave height, is a rediscovery from Maxwell's equations - which tell us that an electric field arises from a collapsing magnetic field & vice versa - an orthogonal magnetic field with an engineered 90 phase lag already is "virtually" an electric field in relation to the field it lags! It should be noted here that such an arrangement can be just as suitably described as a producing a "rotating electromagnetic field", and similarly, a magnet spinning the right way could also imitate such an alternating field effect! However the next point to note is that this whole scheme involves VECTOR spinning fields only, whereas the non-conventional scheme I describe above/below involves SCALAR fields produced by the superpositioning of 2 counter-rotating magnetic or electric fields. For clarification, we can even stop talking about "a pair of electric fields at right angles" and replace this term (and its real implementation) with a substitute pair of magnetic fields at right angles also having a 90 degree TIME/PHASE lag! Together, the 2 pairs then constitute a double set of alternating scalars! (note: the MAGVID of Stefan Marinov was similar, but still only involved vector fields, quod vide at <http://www.fortunecity.com/greenfield/bp/16/magvid.htm>)

See also the keen insights presented on: <http://www.geocities.com/cadduceus/files.html>

The CAD I sent called "Radical GRIC" shows just 1 way of producing such a set of waves Electro-mechanically, but as I said, it can be done electronically too, such as outlined below quoted from an old email from Tom.

"T. Akin" <wram_tech@yahoo.com wrote (in 2003) "How to generate a Rotating Field" <http://www.tricountyi.net/~randerse/rotating.htm> & <http://www.tricountyi.net/~randerse/ortho1.htm>

Many of the sources in the alt-science underground relate that Philadelphia Experiment-type setups rely on a rotating (usually magnetic) field as the key mechanism for producing space-time shifts. We should be able to accomplish this without the need for bulky, expensive 1940's electromechanical equipment such as synchro-motors and generators. Indeed, it can be done quite simply (at least the basic waveform control) using today's fast digital signal processing chips and software. For you hobbyists, however, there's also a relatively simple way to do it using analog circuitry built from readily available parts. First, we need an oscillator or wave function generator, which can be built using a few parts that you can buy from Radio Shack. (We are assuming audio frequencies in this discussion, up to about 10 KHz maximum.)

1) Using the example of the simplest periodic wave, the sine wave, the first step is to generate both the sine wave itself, and simultaneously, a cosine wave (a sine wave shifted in time by +/- 90 degrees with respect to the sine wave) at the same frequency.

2) These two waveforms must then be transmitted into an area together, with a 90 degree spatial separation between the antennas/coils/speakers/transducers. In other words, they're perpendicular or "orthogonal" to one another.

3) Across from each of the above, at the opposite side of the central focal point for all this transmitted wave energy, we need another transducer whose waveform is inverted or phase shifted 180 degrees from our sine and cosine waves, above. (vector zero effect) Thus our 4 transducers' outputs form a "cross" with one transducer at each point of the cross, or "compass," in a horizontal plane: the "North" one projects the reference sine wave; the "South" projects an inverted sine wave; the "East" projects a cosine wave; the "West" projects an inverted cosine wave. All four

transducers are aimed at the central focal point which they surround. Now what you must understand is that the above will only work if you have complete control over that 90 degree phase separation at each and every frequency of interest. If you decide to change the reference oscillator frequency, the cosine wave must "track" and maintain the quadrature (90 degree time-) relationship. If you want to do this with more complex waveforms, such as sawtooth or square or even white noise, this can be very problematic..."

Now I will simply paste in Tom's and my earlier comments to jog people's memories: (Sun 2nd Nov, 2003 (AD)) Hi Glenn. This is 'scalar field work'. If you can join the beam (several beams) into one stream, you might get 'time distortions'. If you do, try to rotate or accelerate it in say a circle track. Put recording instruments inside to watch for 'time distortions'. I will be interested to know your progress. This will be a good one for our center after we get set up. Thanks. May we give GOD the Praise and GLORY. Your friend in Christ.
Tom. (wram_tech)

This is based on SCALAR effects - already proven and done by the local (Brisbane) inventor i spoke with. (but i've been too busy to try it myself) (updated 12th Nov. 03)

The physical arrangement here is due to the fact that each cone/core has of course an inductance WITHIN itself, whilst also having a mutual inductive capacitance with its opposite of the pair, that is - the material BETWEEN the pair of conic(or pancake) coils is affected with a scalar pressure, while the material/air INSIDE the coils is affected with normal inductance. Thus overall, we can say that it is a matter of SCALARs in(wards) and VECTORs out(wards).

Impedance Matching is still to be achieved by making the transformer winding impedance into the GEOMETRIC MEAN of the source and load impedances, and the transformer windings ratios should also cascade down following the Golden Ratio, that is: 0.618/1, whilst also the final impedance should be a subharmonic (by the same ratio) of the

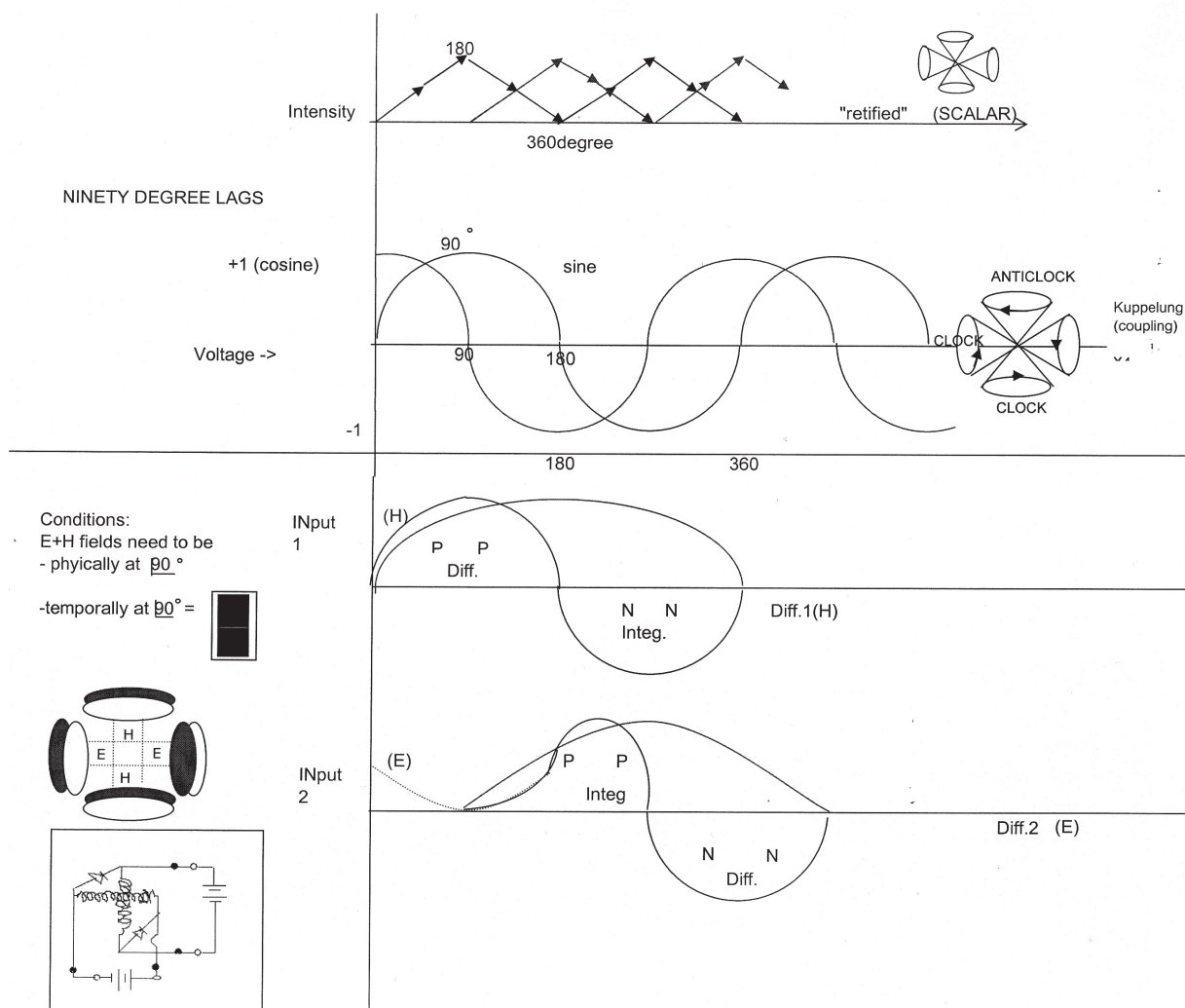


Fig.1

impedance of Free Space (377 Ohm).

Thus:

- $Z_0 = 377 \text{ Ohm}$
- $Z_s = 233 \text{ Ohm}$
- $Z_t = 144 \text{ Ohm}$
- $Z_l = 89 \text{ Ohm}$
- $Z_{RL} = Z_{GC} = 55 \text{ Ohm}$

Equipment (Fig.1): Signal Generator, or Rotating Magnet Pair in centre, then Cone Sets arranged geometrically as shown in the CAD consisting of: 16 (or 8, if Auto-Transformation is used) CONIC plastic formers for conic windings, filled with powdered ferrite/air, 4 of these will be driving coils, 8 will be (auto)transformer coils, 4 will be driven focusing coils, as per sketch.

Procedure: it is based on the principle that 2

crossing scalar beams will produce constructive/destructive interference at the point when/where they cross, if their signal are phased at 90 degrees with reference to each other. (similar to when matter/antimatter are recombined to produce a large amount of energy – truly O/U)!

SAFETY NOTE:
 This procedure has been proven to WORK, and can be dangerous.

Make windings on CONIC formers (it is assumed that the readers know what bifilar means – if not, just look it up elsewhere) The ideal vortex angle will also be related to the Golden Mean in this way: $= 2(\text{atan}(1/\sqrt{2}))$ These can be wound in a normal fashion, except that here the cores are cones instead of rods. Proven theory states that when pulsed this will produce a DIRECTIONAL scalar beam in the direction of the cone core. However, in this case, we are directing both waves into the CENTRE.

INPUT SIGNAL(s): The signal itself can be pulsed d.c. OR a.c. in sine or square mode, and as stated by the local inventor, the higher the frequency, the more power will be manifested! (thus no particular frequency, which is why I suggest the mechanical magnet “regulator” method below, going at “ELF” or at least (s)low speeds.

The following scheme is my suggestion, additional to what he said: Arrange 4 Conic Coils with perimeters touching so that rotor may partially spin Inside them; The polarities are such that there are 2 pairs of contra-wound coils facing each other, each of which will be set at 90 degrees to the other (to put the 2 signals 90 out of phase with each other) it can be done 2 ways:

- 1) Actually it could also be done directly - electronically using phase shifting circuitry, within the sig.gen. or more simply:
- 2) Physically using a spinning/driven magnet set/pair as a “regulator” in the centre between the 4 driving coils, which are of course at 90 degrees to each other. This ensures that 1 transformer pair’s current is then 90 out of phase to the other pair at right angles. (see RADICAL GRLC Design!) This way may be more reliable, or at least more visual in terms of 4 x 90.

The output is said to produce a large amount of energy/heat at the junction/nexus point (or crossing) of the 2 scalar beams thus produced. In this case here, it is in the centre of the receiving core material. This can be converted to other forms, of course including electricity, as it can be here, where a balanced/matched (prepared) load set can be attached.

**Editorial note:
next article (page 48) about similar technology can be interesting analogy with Glenn Roberts’ ideas. Russian Acad. Gennady F. Ignatyev developed drive (propulsion unit) for space craft. This device uses rotation of ExH fields to produce the aether flow, which can be described as Poynting vector.**



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Space craft based on pondemotor effect

Academician of Russian Academy for Sciences

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(This article is short version of the report made by Acad. Ignatyev for scientific congress
New Ideas in Natural Sciences, 1996, St.Petersburg.)

This device is based on the principle of creation of propulsion force from interaction between electric and magnetic fields. The interaction between electric and magnetic fields produces energy-flux, determined by the Poyting vector:

$$P=ExH, F=P/c, P=mc^2$$

There are many versions for excitors disposition and feed, and in particular case it is radial and circular dispositions. We can say that electric and magnetic fields act on the ether with force $F=P/c$, forcing the ether to move. But the energy-flux that is produced by alone fragment of the exciter, compensates the incoming and outcoming quantity of ether. We must make some asymmetrical construction for discompensation of these fluxes. For example, if we take two fragments with different diameters these are disposed at a distance h from each other, but with equal P , and disposite them

coaxially then the ether will moves asymmetrically due to the law of conservation of momentum, and we'll get the propulsion force F_t .

At the present time a third model of the fragment of the engine (Fig.1) and its main technical parameters are measured. So, for the frequency of 80 kHz :

- the electric intensity $E=10^5$ V/m,
- the total electric intensity $E=10^6$ V/m,
- the magnetic intensity $H=2 \times 10^4$ A/m,
- the Poyting's vector $P=10^{10}$ J/(m² s)
- the propulsion force $F=60$ N

with input power to one arm at 10 kW.

In the near future we'll start experiments with engine of 40 meters diameter to fly in space. This device will create vector $P=10^{14}$ (J/(m²s)) and force about $F_t=3 \times 10^4$ N.

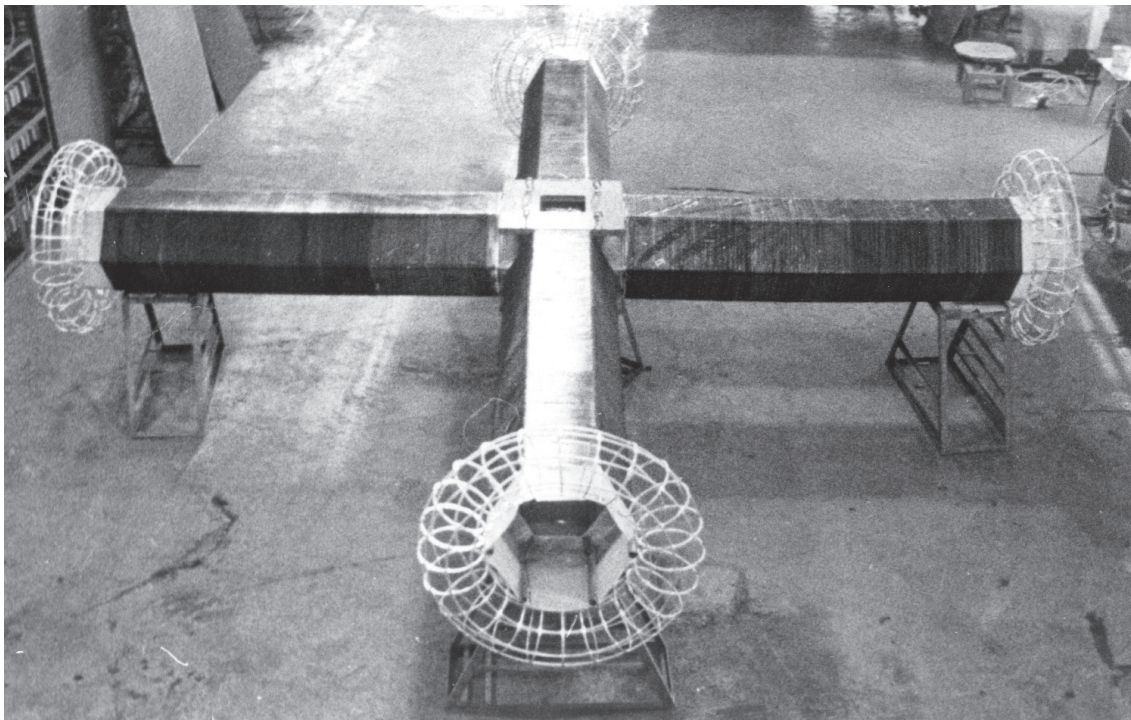


Fig.1. Device of 4 m diameter. You can see two crossed coils and 4 toroidal capacitors

Electromagnetic Propulsion

By pushing against The Zero-point Field
(Review)

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Published in short. Full text version:

<http://luna.brighton.ac.uk/~roc1/ElectromagneticPropulsion ZPE.pdf>

Editorial note: Please compare the ideas with previous articles about scalar waves and Poynting vector to see the importance of the aether conception for modern physics.

A new means of non-photonic electromagnetic propulsion is discussed based on the Feynman Disk. It is found possible on using two such disks sharing a common electret to leave the craft with angular and linear momentum. The problem of hidden momentum is not an issue here. Two such units of two disks can work together to leave the craft solely with linear momentum. We show that the electromagnetic field photon flux representing the Poynting field of the electret and magnetic field loses its momentum to the zero-point photon field by Compton scattering, Conservation Laws are not violated.

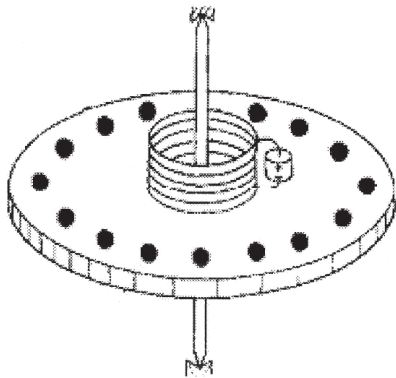


Fig. 1

Intriguingly, though, the Poynting term implies the existence of field momentum in static situations such as when a steady magnetic field impinges on an electret. The well known Feynman disk though experiment (Fig. 1) illustrates this. The disk is formed from plastic or another insulating material, and is provided with a number of charged metal spheres distributed near the rim. The disk is supported on an elongated spindle passing through the centre about which it is free to rotate. On the disk a coil of conducting wire is placed around the spindle and a battery or other current source drives a current around the coil. If the current flowing through the coil is suddenly switched off, a tangential electric field acts around the coil and this generates a torque around the spindle when acting on the metal spheres. The disk undergoes angular translation even in vacuum. The momentum balance is achieved by equal and opposite momentum going to the mechanical (the disk etc.) and the electromagnetic aspects of the system.

Various schemes to utilize the momentum from static field (i.e. just a magnet opposing on an electret) and generate simple linear momentum have been dispelled; they are prohibited by a relativistic effect of the static electric field on the charge carriers of the solenoid that give them exactly equal and opposite momentum to the field momentum.

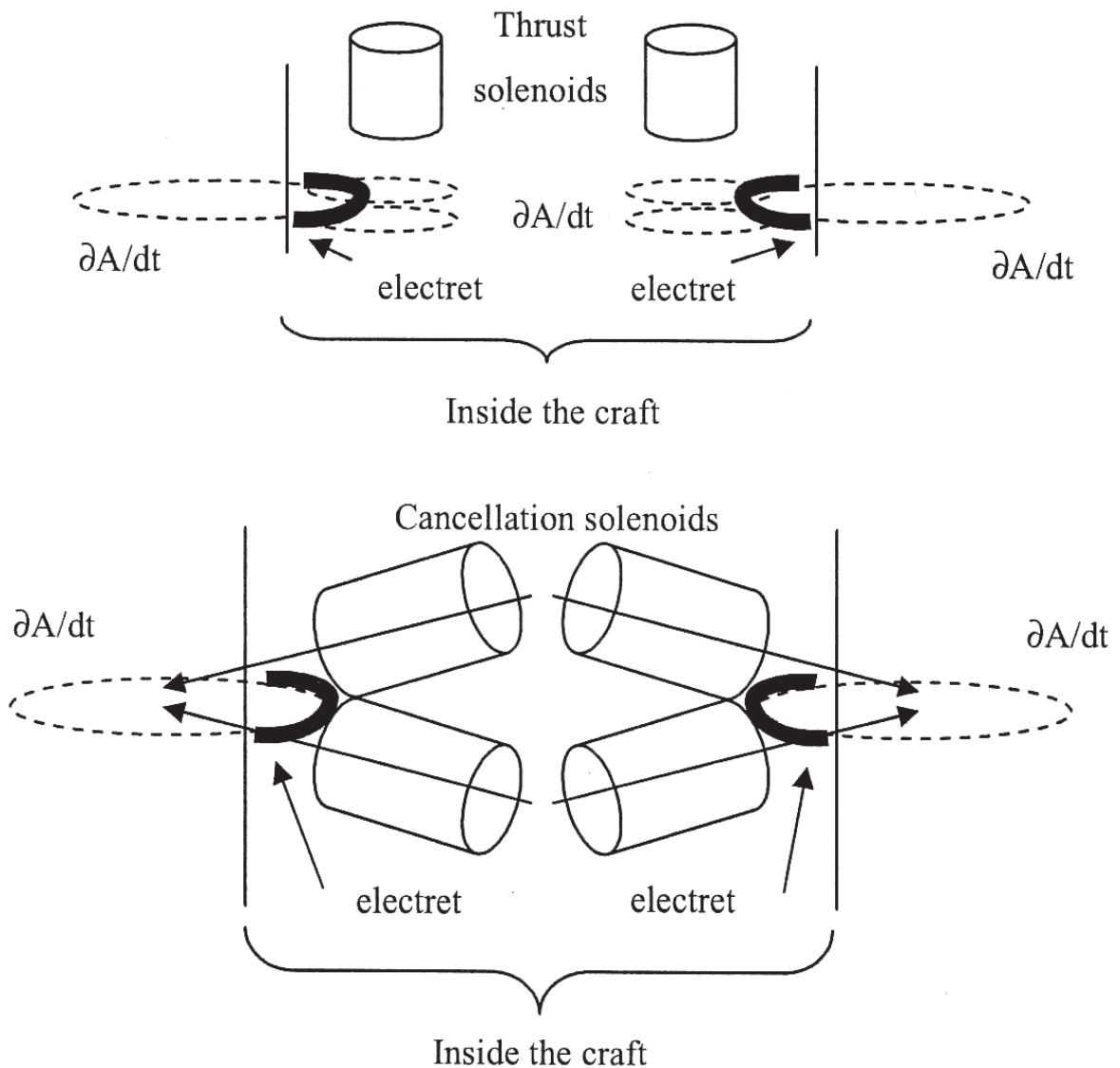


Fig.2a, Fig. 2b

Fig. 2 (a dual sided device too) shows a scheme whereby the thrust (2a) and cancellation (2b) solenoids can act on different centers. It is not necessary to project the field outside of the craft but this shows one possibility.

A method of electromagnetic propulsion not reliant on expulsion of propellant has been presented. The physical phenomena it is based upon is the field momentum as exemplified by the Feynman disk though experiment and real experiments on the angular momentum of the electromagnetic field in static situations. It was shown how to convert the purely angular

momentum into linear momentum and to get around the net-zero torque by a system of two solenoids acting on an electret setting up different torque fields; the unbalanced forces had a linear element. Two such devices coupled together cancelled any angular momentum leaving a linear force.

We showed that this device does not fall into the hidden momentum trap or other "conventional" means of electromagnetic propulsion. A mechanism was put forward to explain how the zero-point background took up momentum by a scattering, maximal entropy argument.

Magnetic motor

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In a proposed motor the ability of the magnetic field to be insulated by means of ferromagnetic shield is used. This motor is patented RU34826.

Simple experiment: if we lean a steel plate against the magnet, in this case the magnetic field is absent behind the plate. However the plate should be thick enough in order to shield the field.

Secondly: from physics as well as from everyday life we know that if the force being applied to the body is perpendicular to the body movement, this force does not carry out any work at a given movement.

Hence we can conclude: if in magnetic field we move the ferromagnetic shield perpendicularly to magnetic field lines of force, the magnetic field will not resist movement of the shield. At the same time the shield having overlapped the whole transversal area of magnet will let to bring the second repelling magnet closer without overcoming forces of magnetic repulsion and even vice versa the second magnet will be attracted to the shield. When the magnets are brought closer it will be sufficient to extract the shield and the magnets will scatter in opposite directions.

I would like to clear up just at once: there are several practical nuances, because in real life the lines of force are not parallel ones and consequently they are not always perpendicular to the shield. However it is possible to create the systems which are very approximated to the ideal ones.

I have made the given experiments and carried out calculations and the information given in this article is confirmed. I adduce the results of experiments made on the super strong magnets.

It is one of the models where the strong negative

influence on the shutter movement has taken place; I will avoid it on the next model.

And now, look at the facts...

In Table 1 I give the value of torque on the motor shaft which is a result of the magnets repelling and in Table 2 I adduce the dependence of the resistance force on the shield movement.

Table 1

Torque on the motor shaft

Angle position	Torque, Nm
0	0.031
1	0.176
2	0.353
3	1.148
4	1.103
5	0.309
6	-0.110
7	-0.132

In a given model the shutter is jammed because the construction was designed for weaker magnets, that is why the movement force can be much less than the value given in Table 2.

Table 2

Force of shutter movement

Movement, m	Movement force, N
0,01	0.98
0,02	0.98
0,03	0.98
0,04	17.66
0,05	33.35
0,06	41.20
0,07	0.00

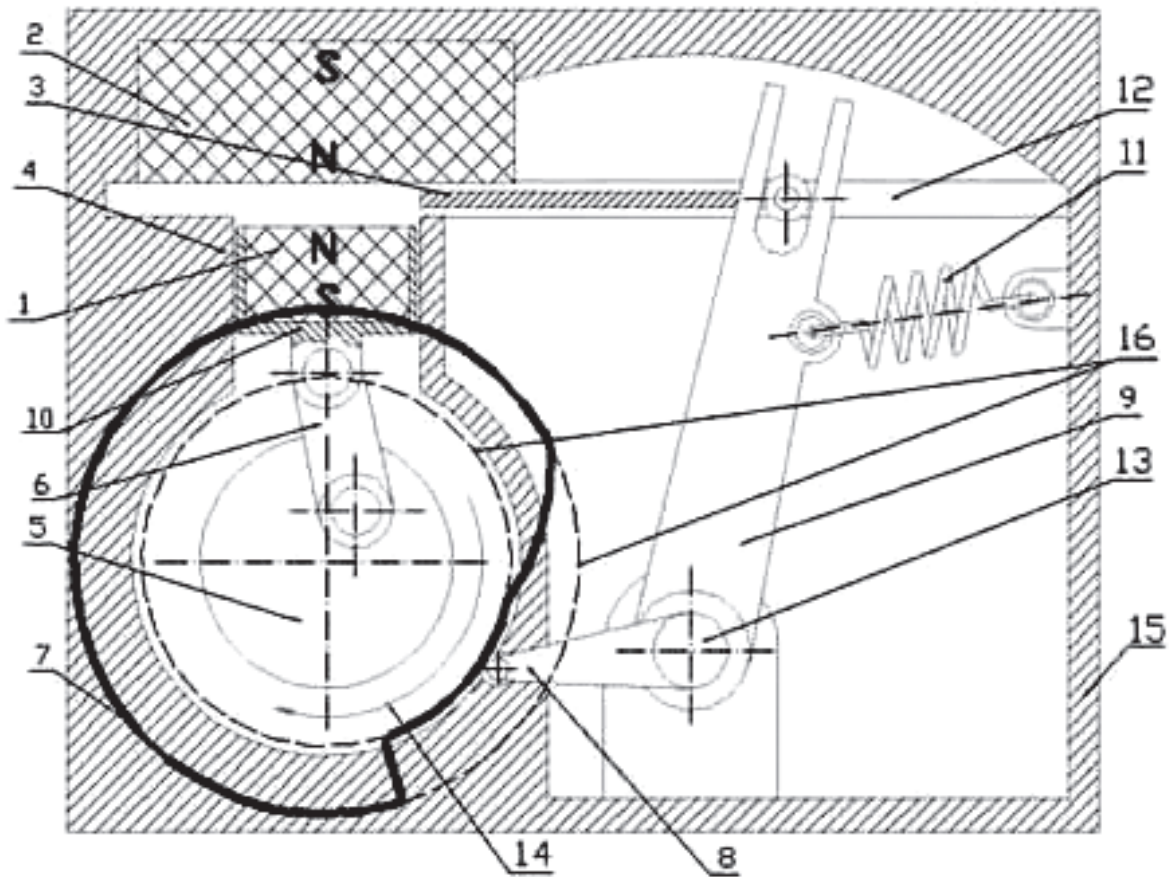


Fig.1. Diagram of motor

Please, look at the Fig.1. Items indicated on the sketch:

- 1 - movable magnet;
- 2 – upper fixed magnet;
- 3 – ferromagnetic shutter;
- 4– motor cylinder;
- 5 – crankshaft;
- 6 – connecting rod;
- 7- profiling cam;
- 8 – rotary pusher;
- 9 – shutter drive liver;
- 10 – motor piston;
- 11 –spring for shutter return movement;
- 12 – shutter guides;
- 13 – lever axis;
- 14 – direction of the motor shaft rotation;
- 15 – motor case;
- 16 – circle of the pusher maximal and minimal pusher distance.

Motor description

Magnetic motor: in its body the permanent magnets are placed: the first of them is installed

to provide the possibility to perform reciprocating movement under the action of the magnetic field forces. Also in the body the shaft is installed which is connected with the first magnet with the help of facility permitting to convert the reciprocal movement of the first magnet into shaft rotation. The second magnet is fixed on the body opposite to the first one: both magnets are oriented by their poles in opposing; the magnetic motor is provided with the ferromagnetic shield which construction provides its movement inside the gap between the magnets perpendicularly to the magnetic field lines of force. The shield has a drive from the shaft and homing spring. On the shaft there is a flywheel for accumulating energy of the first magnet movement. The operation principle is similar to the operation of the two-stroke internal combustion engine. When the magnets are brought at minimal distance the shutter is opened, the magnets are being repelled and the first magnet while moving away drives the flywheel. When the first magnet is approaching to the lower magnetic pusher the shutter is closed, then the inertial movement under the effect of the flywheel energy goes on. The

movable magnet travels upward and passes the upper magnetic pusher and after that the shutter is opened. The cycle is repeated. The effort for moving the shutter is lower considerably than the effort of repelling magnets.

The technical parameters of my model (one of manufactured models):

Weight of piston magnets 220 g,
Weight of big magnet 275 g,
Piston stroke 45 mm,
Effort of piston repelling = 1.396 Joules,
Effort of shutter movement = 0.444 Joules,
Effort of friction parts = 0.555 Joules.

It can be concluded from the above parameters that the friction in my model is too high and it is not reasonable (because of dry friction of caprolone piston against the walls of the caprolone cylinder and bad quality of the manufactured parts). That is why I am going to change the construction in order to change the sliding friction for rolling friction. According to preliminary calculations it is possible to get an motor of power 2 h.p. with the overall dimensions which do not exceed the overall dimensions of the internal combustion engine by 650 cubic cm at about 700\$. When increasing power and overall dimensions the first cost will be dropping.

The motor can be used for ground and water transport and also as the universal energy source operating in any media. The operation time is limited only by the quality of the manufactured parts. The motor does not emanate any radiation and does not give any fields or waste.

For a given moment I have a model of motor with super strong magnets on the stage of manufacturing. The tests for interactions of forces of the motor units have been carried out with subsequent processing of results and estimation of the effective and harmful efforts.

The considerable experience in practical study of the magnetic fields interaction is accumulated and it permits to optimize the overall dimensions and the design of the motor with the subsequent increasing of its efficiency. There are some real schemes and proposals.

After having increased the upper magnet (continuation of the work on model after shooting a film some design faults of my construction have been revealed and it is necessary to eliminate them. These are the minuses of manufacturing quality and absence of the calculations for high loads. In order to have a motor in operational condition it is required to change the design of piston-cylinder because in this part the big quantity of useful energy is being spent and it is not justified. That is why I have already disassembled the given unit and I am going to produce a sample of the possible model. Also it is necessary to change the construction of the shutter.



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News about Perendev magnet motor

Keith Anderson <keith@purescience.com> wrote about new Perendev motors replication: I have seen first-hand three magnetic motors running and have written cost feasibility and reproducibility reports on all three. Two of them I had in my lab and my staff used the inventors' plans to build several working replicas. We also went and saw, first-hand, the Perendev device. All three designs used "Rare Earth" magnets (Neodymium, or more correctly stated, Neodymium Iron Boron or NdFeB) and our various reproductions used NdFeB, SmCo and Ferrite magnets. We did not attempt to reproduce the Perendev device because of its design proximity to one of the other two. The results were always the same: they all run down. Under load, they run down very quickly. It doesn't take very long for magnets to lose their magnetism when they are constantly being put in opposition to one another. Every magnet has a "maximum energy product" rated in Mega Gauss Oersteds, MGOe. This is the amount of work a magnet can do before its level of magnetism has deteriorated to the point that its energy doesn't reach out far enough to affect anything surrounding it. Contrary to the popular notion that rare earth magnets are invincible, even the most expensive sintered NdFeB magnets max out at less than 50 MGOe. If they are used in a device that puts them constantly in opposition, they will run down, and this is the whole assumption behind so-called "magnetic motors". The amount of energy used in manufacturing a magnet is typically 10 times what the magnet is capable of producing. More expensive magnets are even less efficient. Add to this the losses in energy incurred by these 33%-66% concept magnet devices themselves, and the energy consumed in the overall manufacturing process is 20-25 times the energy you will get out.

There are situations where these types of devices may be useful, but they are not "free

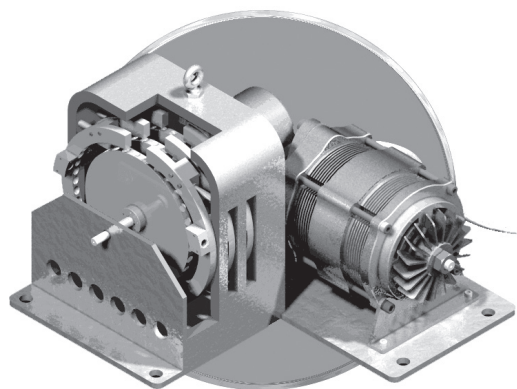
energy", nor do they represent any sort of "overunity" phenomenon, nor any solution to the energy crisis.

I'm still on the fence when it comes to magnet motors. I'd love to see one working! To that end i'm offering to cut free of charge whatever acrylic is needed on an laser engraver free of charge.

Without putting the magnets in opposition at some point during the cycle, and probably for at least 33% of the time, you will have the same problem that exists with the many hypothetical gravity motor designs that don't work. What goes up, comes down. Nothing will simply come down without having gone up first.

You have to treat magnets a lot like springs from a design standpoint, although the mechanics of magnetism aren't as simple as that of springs. There are billions of spring-powered motors in the world: clocks, toys, etc. They all run down. Nobody will ever design a spring-powered motor that runs forever without winding. How about putting the magnets into a cooperative or use them in attraction mode only?

You can read more about this discussion here: energy2000@yahoogroups.com



The Perendev company www.perendev.com

Global Energy Sources

Ph.M. Kanarev
E-mail: kanphil@mail.ru

Editorial: We published several articles about Prof. Kanarev's research work. For this time it is similar article but there are some important aspects here and we hope that our readers are interested to see this information.

Introduction

The global energy problems have been discussed for a long time; they are well known. Depletion of natural energy carriers (oil, gas and coal) is the first problem. Environmental safety of energy carriers is the second problem. It is generally recognized that the solution of the issues connected with the aggregate of these two problems is of a global character. The scientific research results, which should belong to global (clear) energy, originate from it. First and foremost, they are such scientific investigations, which result in the possibility to use an inexhaustible and environmental friendly energy carrier [1], [2], [3].

Many experimental data concerning excessive heat production in various engineering processes have been published of late years. The most probable source of this heat is perfect vacuum energy being absorbed by destabilized valence electrons and emitted in the form of the photons.

In Russia, many firms (Yusmar, Termovikhr, Noteka and others) sell cavitation heating equipment with energy performance index up to 150% already. Official science looks awry at this activity, because such results conflict with one of the main laws of physics: law of conservation of energy. But market profit is stronger than this law.

Engineering practice has already proved that additional energy in the form of heat is generated in the ventilation systems and in the water cavitation systems. Deep scientific analysis of this problem shows that physical vacuum is the most probable source of additional energy in the systems of ventilation and water cavitation. Valence electrons of destroyed molecules of water take energy from physical vacuum and release it during repeated fusion of these molecules.

Why is additional energy generated in the air systems of ventilation and in water cavitation systems? Because they are mechanical systems; mechanical destruction of chemical links requires half energy as compared with thermal destruction of these links. This is the main reason why one fails to increase energy performance index of one step of cavitation processes over 200%.

An increase of efficacy of any process by 30 or 50% is a good result; if it is obtained, it is possible to get even better result. What if a water molecule is destroyed not mechanically, but electro-dynamically? In this case, it becomes possible to find resonance frequencies of impact on the molecules and to reduce considerably electrical energy expenses for their destruction. Subsequent fusion of destroyed molecules will release prescribed quantity of energy unavoidably. It is a simple idea, and it has already been implemented [1], [2], [3].

1. The First Brief Theoretical Part

Now, it is possible to analyse serviceability of the resonance hypothesis, according to which a resonance destruction of chemical bonds in the molecules of water and its ions reduces energy consumption for this process considerably, and further fusion of these molecules and ions generates additional heat energy.

The analysis shows that ion is the main heat generator (Fig. 1). When temperature is increased, the distance between the proton and the electron as well as between the electron of the hydrogen atom and the electron 1 of the oxygen atom is increased. As this increase takes place at the expense of the photons absorbed by the electrons, this process becomes a pulsating one. Frequency of these pulsations depends on the rate of increase of solution temperature and is not great in general. Current pulses, which are supplied to the electrodes, point the ion in such a way that the proton of the hydrogen atom is pointed to the cathode, and the electron 2 of the oxygen atom is pointed to the anode. As a result, the pulses are directed along the ion axis. As it is clear, it is possible to separate the proton of the hydrogen atom or the whole atom (the proton with the electron). As a result, the oxygen atom remains. When only the proton is separated, it will go to the cathode, will get the electron and will form the hydrogen atom. If current density on the cathode surface is high, an array of the hydrogen atoms being formed will generate plasma. It is a very unstable and undesirable process in this case. What if the hydrogen atom separation is organized not in the cathode area, but in the area between the electrodes [1], [2], [3]?

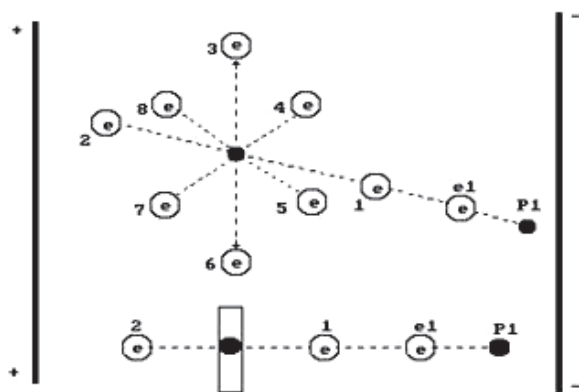


Fig. 1. Diagram of the hydroxyl ion in the electric field

If such pulses influence the ion that the hydrogen atoms separate, after resonance separation from the electron of the oxygen atom the electron of the hydrogen atom having lost the bond will be in a state with a lack of energy (electromagnetic mass), which corresponds to

binding energy. Where will it take energy from? Only from the environment. What if the environment has no photons, which are necessary for it? There is only one source – physical vacuum. Having absorbed necessary quantity of energy from physical vacuum (electromagnetic substance), the electron of the hydrogen atom is able to contact again. It has two opportunities: it can join with the oxygen atom and form the ion being destroyed lately or it can join the second hydrogen atom and form a hydrogen molecule and two oxygen atom form oxygen molecule. Both these processes are exothermic ones. The fusion processes of the ions, the molecules of hydrogen and oxygen will be accompanied by emission of the heat photons.

Energy of these photons depends on energy levels where the valence electrons have been before electrodynamic cleavage of their bond. At an optimal combination of the process parameters, they are invisible infrared heat photons, which heat the solution. The slightest disturbance of process parameter combination optimality disturbs the process of destruction and OH- ion fusion. As a result, atomic hydrogen plasma formation begins, and energy effect disappears [1], [2], [3].

2. The First Experimental Part

The measurements have been carried out using a laboratory model of the most effective cell of the water electric generator of heat (Fig. 2). A diagram of the experimental assembly is shown in Fig. 3 [1], [2], [3].

Voltage and current at the input of the cell of the water electric generator of heat were measured with the help of two sets of the devices: a voltmeter of 0.2 accuracy class (GOST 8711-78), an ammeter of 0.2 accuracy class (GOST 8711-60) and ACK-20222 electronic oscillograph.

In order to reduce heat losses that were not taken into consideration in the experiment, a solution temperature difference before its heating in the cell and after heating was maintained as not very high: $t=20\text{C}$. Connection diagram of metering equipment is given in Fig. 4.

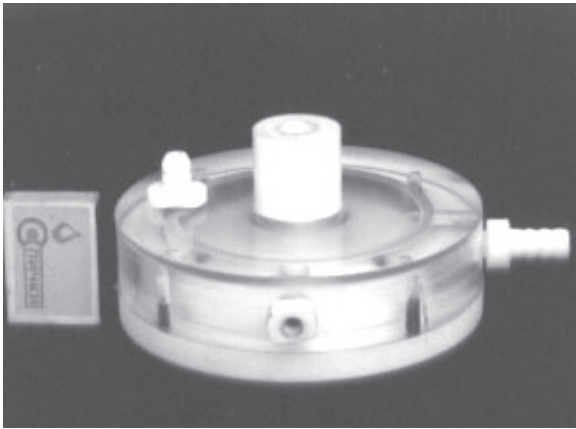


Fig. 2. Cell of the water electric generator of heat

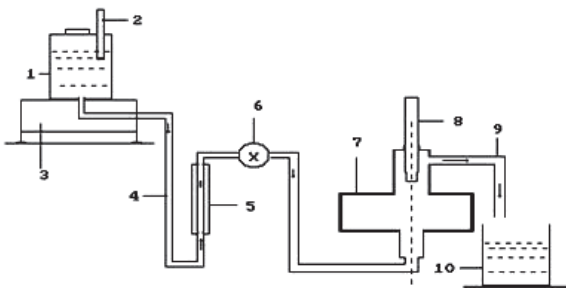


Fig. 3. Diagram of the experimental assembly: 1 – a tank for the solution; 2 – thermometer; 3 – electronic scales; 4 – solution feed duct; 5 – rotameter; 6 – solution feed regulator; 7 – cell of the water electric generator of heat; 8 – thermometer; 9 – heated solution drain; 10 – intake tank

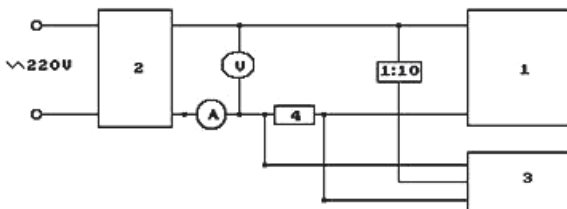


Fig. 4. Connection diagram of metering equipment:
 1 – the cell of the water electric generator of heat; 2 – pulse generator;
 3 – ACK-2022 oscillograph; 5 – P33 resistance bridge

The oscillograms of voltage (Fig. 5, 6 and 7) and current (Fig. 8) as well as the method of their processing are given below. Pulse scale is 10. Average voltage amplitude (Fig. 5, 6 and 7):
 $U_{acp} = (29+31+8+33+32+40+40) \times 10 / 7 = 304.3 \text{ V}$. Current magnitude was determined as voltage drop on the resistor with resistance of 0.1 Ohm. Taking this into account, average current amplitude is (Fig. 8):

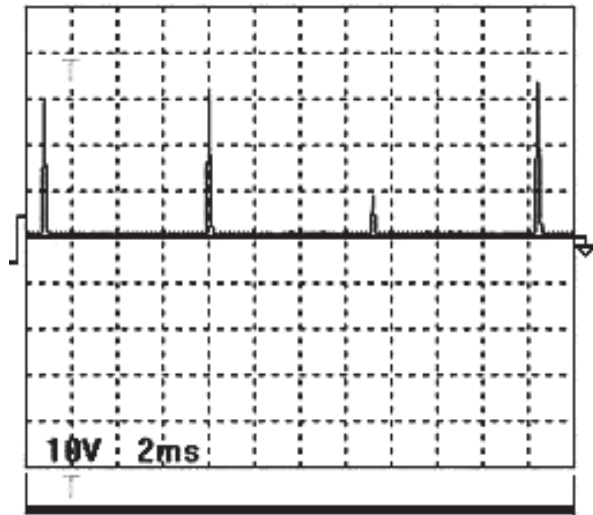


Fig. 5. Voltage

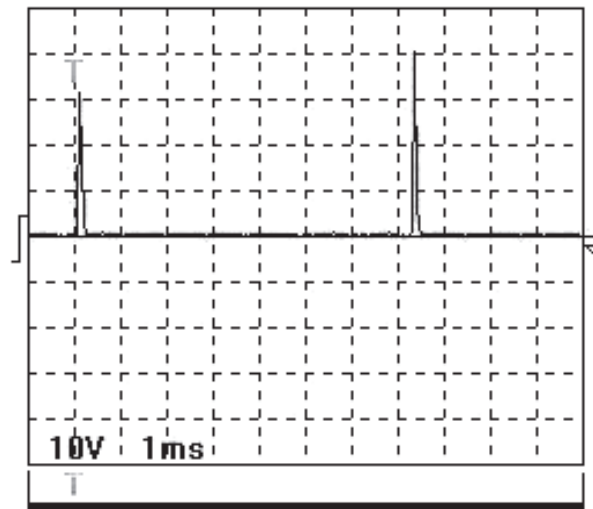


Fig. 6. Voltage

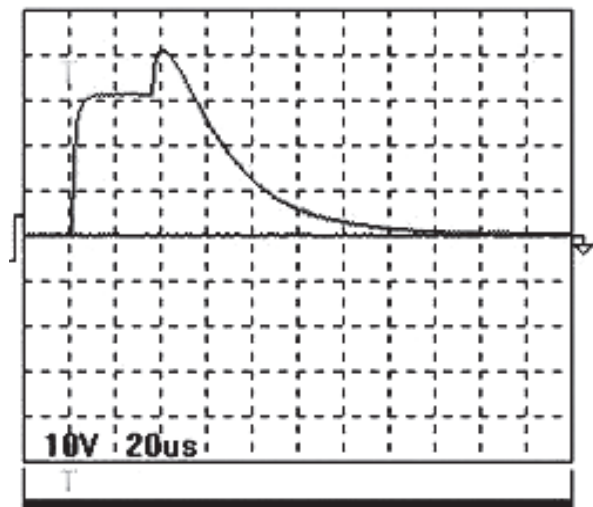


Fig. 7. Voltage

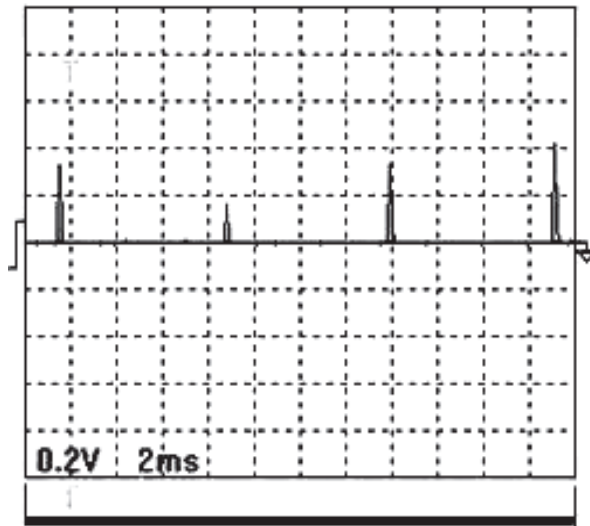


Fig. 8. Current

$I_a = (1.7 + 0.8 + 1.7 + 2.1) \times 0.2 \times 10 / (4 \times 0.1) = 31.5 \text{ A}$.
Pulse repetition period $T = 7.25 \text{ ms}$.

Pulse duration was determined according to the oscillogram in Fig. 7. The pulse form was reduced to a triangular form in such a way that an area of a triangle was equal approximately to the area described by a complex form of the pulse curve.

Pulse duration (Fig. 7) $t_p = 0.14 \text{ ms}$.

Pulse frequency $f = 1000 / 7.25 = 137.9 \text{ Hz}$.

Relative pulse duration $S = 7.25 / 0.14 = 51.78$.

Pulse ratio $Z = 0.5 / 51.78 = 0.01$.

Average value of pulse voltage $U_{cp} = 0.01 \times 304.3 = 3.04 \text{ V}$.

Average value of current in pulses $I_{cp} = 0.01 \times 31.5 = 0.32 \text{ A}$.

The results of the experiment are given in Table 1 [1], [2], [3].

It is known that a determination of the values of voltage and current in electric circuits with complicated electric pulses (Figs 5, 6, 7 and 8) with the help of the oscillograms is considered to be the most reliable [4].

3. The Second Brief Theoretical Part

Low voltage process of water electrolysis is known from Faraday's times. It is widely used in modern industry. Voltage of 1.6-2.3 volts is operation voltage between the anode and the cathode of the electrolyzer; current strength is tens and hundreds of amperes. In accordance with Faraday's law, energy consumption for production of one cubic meter of hydrogen is nearly in this case. When one cubic meter of hydrogen is burnt, 3.55 kWh of energy is released.

Table 1

Indices	1	2	3	Average
1 - mass of the solution through the sell, kg.	0.600	0.624	0.600	0.608
2 - temperature of solution at the input, degrees	21.0	21.0	21.0	21.0
3 - temperature of the solution at the output, degrees	41.0	41.0	41.0	41.0
4 - temperature difference of the solution, degrees	20.0	20.0	20.0	20.0
5 - duration of experiment, s	300.0	300.0	300.0	300.0
6 - reading of voltmeter, V	5.0	5.0	5.0	5.0
6' - readings of oscillograph, V	3.04	3.04	3.04	3.04
7 - reading of ammeter, A	0.60	0.60	0.60	0.60
7' - readings of oscillograph', A	0.32	0.32	0.32	0.32
8 - electric power consumption according to the readings of voltmeter and ammeter, kJ	0.90	0.90	0.90	0.90
8' - electric power consumption according to oscillograph, kJ	0.29	0.29	0.29	0.29
9 - heated solution energy, kJ	36.48	37.94	36.48	36.97
10 - COP of the sell according to the readings of voltmeter and ammeter,	40.53	42.15	40.53	41.07
10' - COP of the sell according to the readings of readings of oscillograph,	125.8	130.8	125.8	127.5

An interest to hydrogen energetic is being increased of late years. It is explained by the fact that hydrogen is an inexhaustible and environmental-friendly energy carrier. But the implementation of these properties is slowed down by large energy consumption for its production from water. Many laboratories in the world are busy solving a problem of a reduction of energy consumption for hydrogen production from water, but there are no significant results. In the meantime, a money-saving process of decomposition of water molecules into hydrogen and oxygen exists in the Nature. This process takes place during photosynthesis. Hydrogen atoms are separated from water molecules and are used as connecting links while forming organic molecules, and oxygen is released into the air [1], [2], [3].

It is known that carbon dioxide CO_2 is absorbed during photosynthesis. It is considered that carbon C of the molecule CO_2 is used for plant cell construction, and oxygen O_2 is released. Now we have every reason to doubt at it and to suppose that the molecule CO_2 is used totally for plant cell construction. Water molecules release oxygen; the hydrogen atoms of water molecules are used as connecting links of the molecules, from which the plant cells are constructed.

A question emerges: is it possible to model an electrolytic process of water decomposition into hydrogen and oxygen, which takes place during photosynthesis?

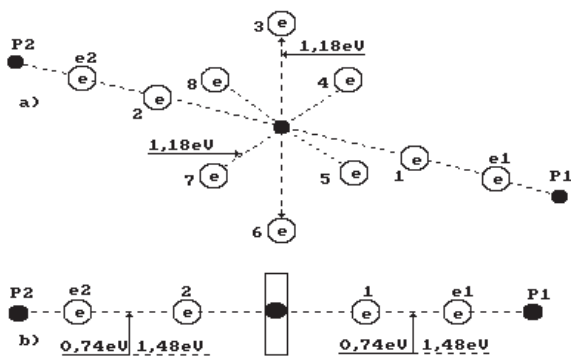


Fig. 9. Water molecule diagram
1,2,3,4,5,6,7,8 are numbers of the electrons of the oxygen atom; P1, P2 are the hydrogen atom nuclei (the protons); e1 and e2 are the electron numbers of the hydrogen atoms

The analysis of the water molecule structure (Fig. 9) worked out by us shows the possibility of water electrolysis at minimal current and even without it. The protons of the hydrogen atoms in water molecules can be combined with each other and can form clusters. As a result, an orthohydrogen molecule is formed (Fig. 10). A question emerges: is it possible to separate this molecule from such cluster?

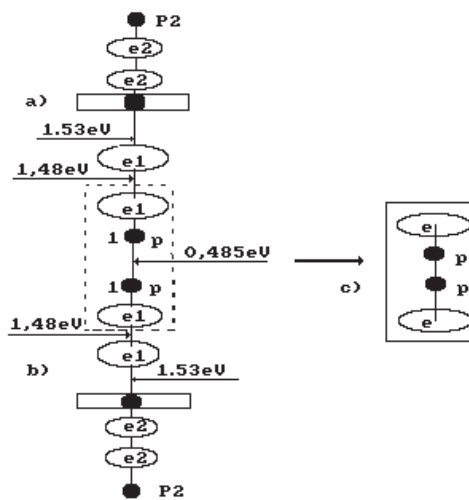


Fig. 10. Formation diagram of the second model of orthohydrogen
a) and b) water molecule diagrams; c) orthohydrogen

In Fig. 11, the anode (+) is shown leftward and the cathode (-) is shown rightward. The proton P of the hydrogen atom in water molecule is oriented to the cathode (-); another proton of this molecule is connected with the proton of the ion (leftward). As a result, a cluster chain is formed; rightward, the water molecule is situated; leftward, the ion is situated (Fig. 11, a); the orthohydrogen molecule is in the center (Fig. 11, a, b).

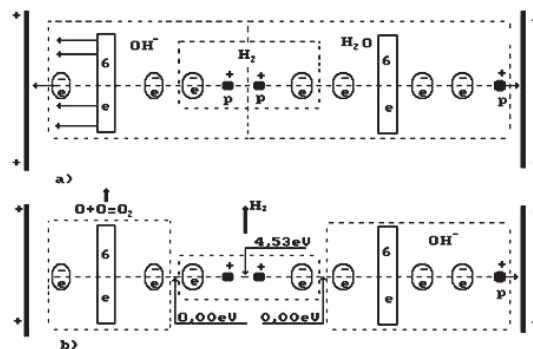


Fig. 11. Diagram of low current electrolysis process

Thus, the complex cluster chains with strict orientation between the anode and the cathode are formed in the electrolytic solution under the influence of the electrostatic field.

Let us pay attention to the fact that the axis electron of the oxygen atom (Fig. 1 and 11 left) and its six ring electrons of the ion are attracted to the anode simultaneously. Electrostatic forces attracting six ring electrons to the anode deform the electrostatic field in such a way that the axis electron comes to the nucleus of the oxygen atom, and six ring electrons withdraw from the atomic nucleus. In this case, binding energies between the protons and the electrons in a hydrogen molecule being formed are distributed in such a way that binding energy between the hydrogen atoms in its molecule are increased up to 4.53 eV. Between the electrons of the oxygen atom and the ion, they become equal to zero, and the hydrogen molecule is released from the cluster chain. Two oxygen atoms form a molecule of this gas, and it is released as well. Certainly, it is a simplified diagram. If the process is more complicated, it is possible to form the molecules of hydrogen peroxide prior the oxygen molecule formation. But we'll not analyze this process here [1], [2], [3].

4. The Second Experimental Part

A search of a reply to the question: is it possible to model an electrolytic process of water decomposition into hydrogen and oxygen, which takes place during photosynthesis? The answer on this question has resulted in a simple structure of a cell (Fig. 12), in which the process takes place by voltage of 1.5-2.0 V between the anode and the cathode and amperage of 0.02 amperes, that's why it has been called low current one.

First of all, we should note that the anode and the cathode are made of one and the same material: steel. It excludes the possibility of formation of a galvanic cell. Nevertheless, at the cell electrodes a potential difference of nearly 0.1 V takes place in complete default of electrolytic solution in it. When the solution is charged, the potential difference is increased. The positive sign of the charge appears on the upper electrode always, and the negative sign

appears on the lower one. If a direct current source generates pulses, gas output is increased. Let us note a very important thing. If a gap between the electrodes of the low voltage electrolyzer is commensurable with the gas bubble size; so the gas bubbles go upwards and promote mechanical destruction of the bonds between the atoms in the molecules. As we have already shown, it consumes less energy that it is spent for thermal destruction of these bonds. Gas generation process is manifested by release of the bubbles being formed. The bubbles go on being released after the electrolyzer is disconnected from the supply line (Table 2).

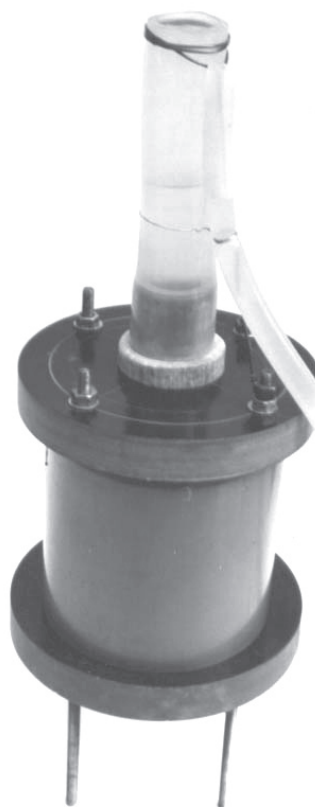
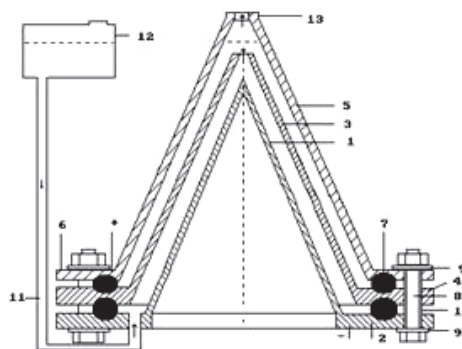


Fig. 12. Model of a low current cell of the electrolyzer (Patent RU2227817)

When the electrolyzer is de-energized, gas release intensity is reduced, but it is not stopped during many hours. It is proved by the fact that electrolysis takes place at the expense of potential difference on the electrodes.

After electrolyzer de-energizing, gas release during a long period of time proves the fact that the molecules of oxygen and hydrogen are formed without the electrons emitted by the cathode, i.e. at the expense of the electrons of the water molecule itself [1], [2], [3].

As a laboratory model of the low current electrolyzer cell generates small quantity of gases, a solution mass change definition method during the experiment and further calculation of released hydrogen and oxygen is the most reliable method of definition of their quantity. It is known that a gram atom is equal to atomic mass of substance; a gram molecule is equal to molecular mass of substance. For example, the gram molecule of hydrogen in the water molecule is equal to two grams; the gram-atom of the oxygen atom is 16 grams. The gram molecule of water is equal to 18 grams. Hydrogen mass in a water molecule is $2 \times 100 / 18 = 11.11\%$; oxygen mass is $16 \times 100 / 18 = 88.89\%$; this ratio of hydrogen and oxygen is in one liter of water. It means that 111.11 grams of hydrogen and 888.89 grams of oxygen are in 1000 grams of water.

One liter of hydrogen weighs 0.09 g; one liter of oxygen weighs 1.47 g. It means that it is possible to produce $111.11 / 0.09 = 1234.44$ liters of hydrogen and $888.89 / 1.47 = 604.69$ liters of oxygen from one liter of water. It appears from this that one gram of water contains 1.23 liters of hydrogen. Energy consumption for production of 1000 liters of hydrogen is 4 kWh and for one liter 4 Wh. As it is possible to produce 1.234 liters of hydrogen from one gram of water, $1.234 \times 4 = 4.94$ Wh is spent for hydrogen production from one gram of water now [1], [2], [3].

Instruments and equipment used during the experiment

Special experimental low current electrolyzer (Fig. 12); voltmeter of the highest accuracy class (accuracy class of 0.2 GOST 9711-78); ammeter of the highest accuracy class (accuracy class of 0.2 GOST 9711-78); electronic scale with scale division value of 0.1 and 0.01 g; stop watch with scale division value of 0.1 s; oscillograph ACK-2022. In Table 2, the results of the experiment are given when no additional frequency has been generated by the power supply. Note: In Table 2, the results of the experiment are given when no additional frequency has been generated by the power supply.

Table 2

Indices	Amount
1 – operation period of the electrolyzer connected to the power source, in six cycles, min	6x30=180.0
2 – voltmeter readings V, volts	3.750
3 – ammeter readings I, ampere	0.022
4 – energy consumption (P=VxIxt/60), Wh	0.247
5 – operation period of the electrolyzer disconnected from the line, in six cycles, min	6x30=180.0
6 – solution mass change m, grams	0.45
7 – evaporating water mass m', grams	0.01x6=0.06
8 – mass of water passed into gases, m''=m-m', grams	0.39
9 – energy consumption per gram of water passed into gases P'=P/m'', Wh/gram of water	0.63
10 – existing energy consumption per gram of water passing into gases P'', Wh/gram of water	4.94
11 – reduction of energy consumption for hydrogen production from water K=P''/P', fold	5.84
12 - released hydrogen quantity M=0.39x1.23x0.09=0.043, gram	0.043
13 – energy content of produced hydrogen (E=0.043x142/3.6) =1.70, Wh	1.70
14 – energy effectiveness of water electrolysis process (Ex100/P), %	689.0

In Figs 13-18, the oscillograms of voltage and current with frequency across the input into the electrolyzer are shown [1], [2], [3].

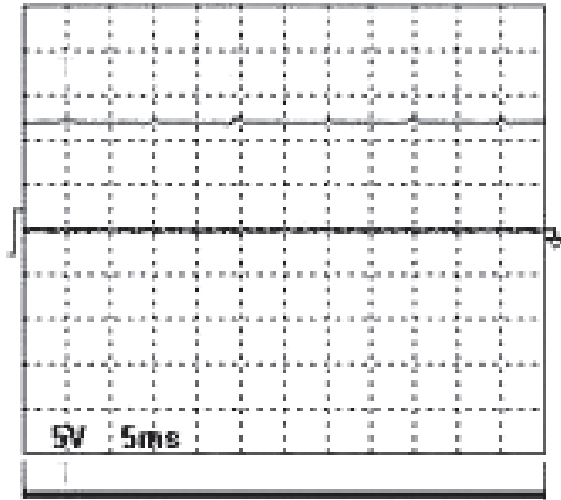


Fig. 13. Voltage

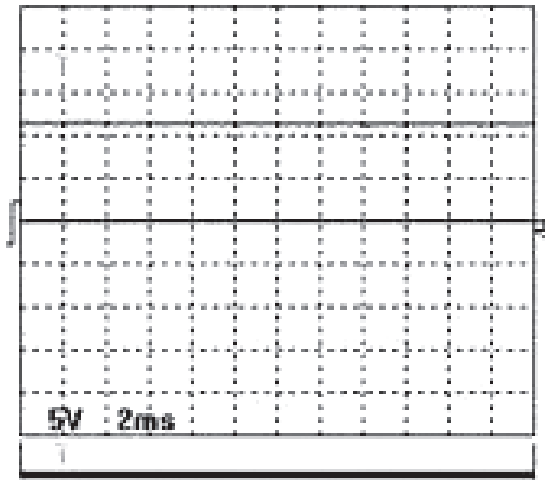


Fig. 14. Voltage

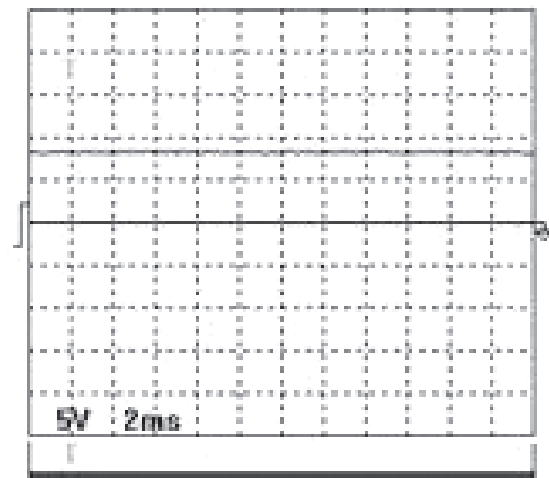


Fig. 15. Voltage

In Fig. 13, the oscillogram of voltage with pulse frequency of nearly 200 Hz is shown. The record scale is 1:1. The pulses are invisible, because their amplitude is negligibly small. The measurements show that voltage of nearly 13.5 V was registered on the oscillogram. The voltmeter showed 11.4 V at that time.

Fig. 14 shows the oscillogram of voltage across the input into the electrolyzer in 1 second after it is disconnected from the mains. Fig. 15 shows the oscillogram of voltage across the input into the electrolyzer in 3 seconds after it is disconnected from the mains. The oscillograms in Figs 14 and 15 show that when the electrolyzer is disconnected from the mains, the process of its discharge takes place. It should be noted that voltage is reduced, but it does not become equal to zero. It means that the electrolyzer is not only a capacitor, but it is an energy source as well.

As it is clear, at the initial time after the electrolyzer is disconnected from the mains (Fig. 14 and 15), it preserves the potential, which is close to the potential of the mains and which has been formed during electrolyzer chargings when it is connected to the mains and is adjusted to a specified operation mode. It should be noted that current during charging exceeded its operation value of 0.02 A greatly. In 3 seconds after de-energizing (Fig. 15), potential across the input into the electrolyzer is reduced approximately from 13.5 V to 10 V.

In the oscillogram (Fig. 13), the pulses are not seen, because their amplitude is negligibly small. If the scale is increased, the pulses are as follows (Figs 16 and 17).

Voltage oscillogram processing results (Figs 16 and 17). Taking into consideration the scale factor, which is equal to 10, we'll find a mean value of voltage pulse amplitude

$$U = [(0.20 + 0.24 + 0.12 + 0.10 + 0.30 + 0.18 + 0.16 + 0.12 + 0.30 + 0.24 + 0.30) / 11] \times 10 = 2.05 \text{ V}$$

$$\text{Pulse period } T = (24 \times 2) / 10 = 4.8 \text{ ms}$$

$$\text{Pulse duration} = (2 \times 1.45) / 10 = 0.29 \text{ ms}$$

$$\text{Pulse frequency} = (1 / 0.001 \times 4.8) = 208.3 \text{ Hz}$$

$$\text{Pulse period-to-pulse duration ratio} = 48 / 0.29 = 16.55$$

$$\text{Duty factor} = 0.5 / 16.55 = 0.0302$$

Equivalent mean component of voltage pulses

calculated according to the oscillograph readings $U=2.05 \times 0.0302=0.062$ V. At that time, the voltmeter readings were 11.4 V.

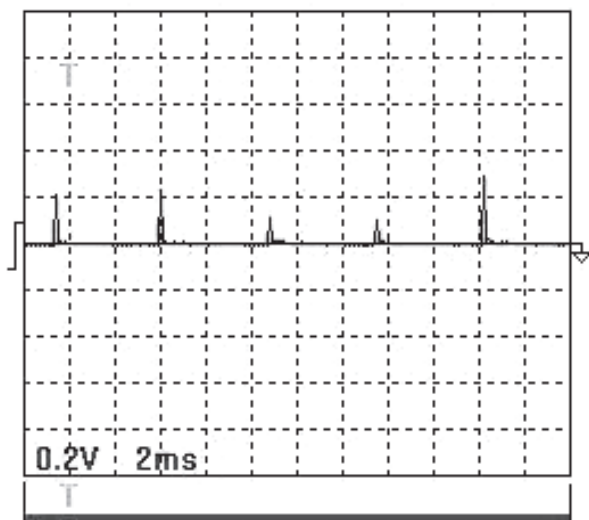


Fig. 16. Voltage

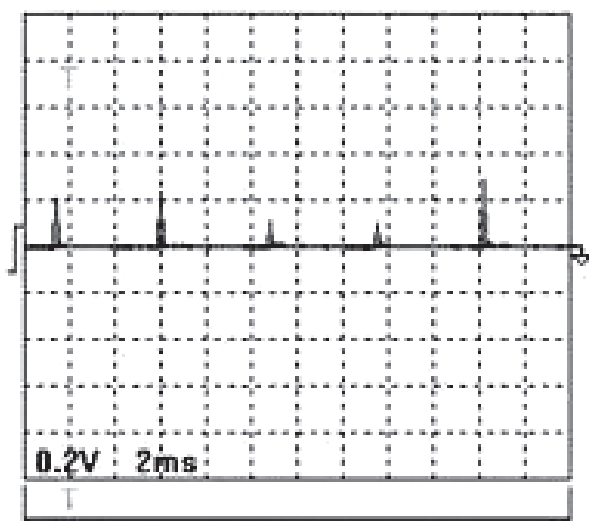


Fig. 17. Voltage

Thus, there is every reason to believe that the low current electrolyzer has the properties of a capacitor and an electric source at the same time. It has been charged at the very beginning; then it is discharged gradually under the influence of the electrolytic processes, which take place in it. Quantity of electric power generated by it is insufficient for the electrolysis process support, and it is discharged gradually. If it is charged with the help of voltage pulses, which compensate for

power consumption, the charge of the electrolyzer as the capacitor will remain constant, and the electrolysis process will remain stable.

A value of potential being necessary for the electrolyzer discharge compensation is registered on the oscillograms (Figs 16 and 17). This value should be used when calculating power expenses for hydrogen production from water during its low current electrolysis.

Thus, according to the readings of the voltmeter and the ammeter, capacity of power source of the laboratory model of the low current electrolyzer is $P=IU=0.02 \times 11.4=0.228$ W. But the analysis of the oscillograms shows that this power is necessary only to put the electrolyzer in operation. After starting, when it is charged, capacity for its charging is $P=IU=0.02 \times 0.062=0.0012$ W, i.e. 190fold less (Table 3) [1], [2], [3], [4].

Availability of a constant component of electric potential across the input into the electrolyzer shows that in order to calculate power consumption for the electrolysis process it is necessary to use not the voltmeter readings, but the oscillograph readings, which register the electrolyzer charge potential originating from the oscillograms given in Figs 16 and 17.

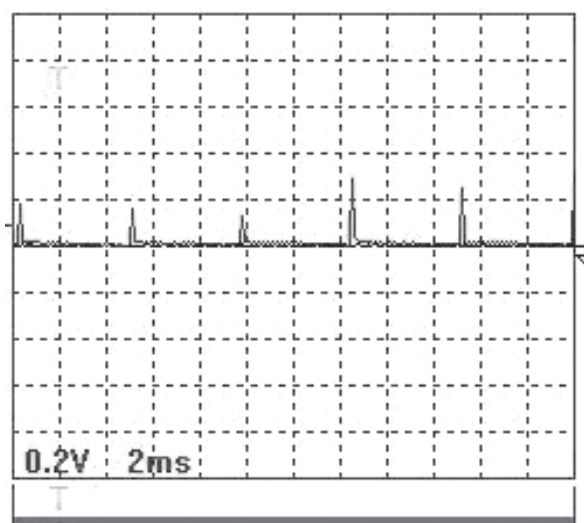


Fig. 18. Current

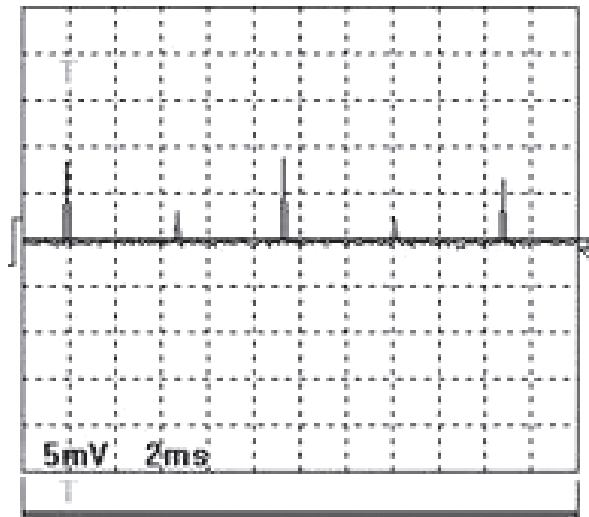


Fig. 19. Current

In Figs 18 and 19, the oscillograms of current are shown when the electrolyzer power supply source generates pulses with frequency of nearly 200 Hz.

Current oscillogram processing results (Figs 18 and 19). Taking into consideration the scale factor, which is equal to 10, and resistance of 0.1 Ohm resistor we'll find a mean value of current pulse amplitude

$$I = \{[(9.0+7.0+2.0+11.5+6.0+8.5+3.5+9.0+2.5+6.5)/10] \times 10\} / 0.1 = 655 \text{ mA} = 0.655 \text{ A}.$$

Table 3

Indices	Amount
1 – operation period of the electrolyzer connected to power source, in six cycles, min	6x10=60.0
2 – voltmeter readings V, volts;	11.40
2' – oscillograph readings V', volts;	0.062
3 – ammeter readings I, ampere;	0.0228
3' – oscillograph readings, I', ampere;	0.01978
4 – energy consumption according to the voltmeter and ammeter ($P=V \times I \times t/60$), Wh;	0.220
4' – energy consumption according to oscillograph readings ($P'=V' \times I' \times t/60$) Wh;	0.00124
5 – operation period of the electrolyzer disconnected from the power source, in six cycles, min	6x50=300.0
6 – solution mass change m, grams	0.60
7 – evaporating water mass m', grams	0.06
8 – mass of water passed into gases, m''=m-m', grams	0.54
9 – energy consumption per gram of water passed into gases according to the readings of the voltmeter and ammeter $E=P/m''$, Wh/gram of water	0.420
9' – energy consumption per gram of water passed into gases according to oscillograph readings $E'=P'/m''$, Wh/gram of water	0.0023
10 – existing energy consumption per gram of water passing into gases E'' , Wh/gram of water	4.94
11 – reduction of energy consumption for hydrogen production from water according to the readings of voltmeter and ammeter $K=E''/P$, fold	11.76
11' – reduction of energy consumption for hydrogen production from water according to the oscillograph readings $K'=E''/P'$, fold	2147.8
12- released hydrogen quantity $M=0.54 \times 1.23 \times 0.09=0.06$, gram	0.06
13 – energy content of produced hydrogen ($W=0.06 \times 142/3.6$) =2.36, Wh	2.36
14 – energy effectiveness of water electrolysis process according to the readings of the voltmeter and the ammeter ($W \times 100/P$), %	1035.1
14' - energy effectiveness of water electrolysis process according to the oscillograph readings ($W \times 100/P'$), %	190322.6

Mean current in the electrolyzer supply circuit is $I=0.655 \times 0.0302=0.01978A=0.02A$. The ammeter readings are 0.02 A.

Thus, the voltmeter shows a capacitor charge voltage value, and the oscillograph shows a value of its recharge, which characterizes the energy consumed by the cell from the line. It appears from this that in order to calculate energy consumed by the low current electrolyzer cell from the line it is necessary to use voltage, which is registered not by the voltmeter, but by the oscillograph. As a result, energy consumption for hydrogen production from water in case of low current electrolysis are reduced not 12fold, but almost 2000fold [1], [2], [3], [4].

The correspondence of the water electrolysis process during low current electrolysis to its electrolysis process taking place during photosynthesis is confirmed by intensive production of gas bubbles within several hours after the electrolyzer is disconnected from the mains [4].

CONCLUSION

The method of conversion of electric energy into thermal energy with energy efficiency index of more than 3000% has been found.

Thus, the convincing theoretical and experimental proofs of existence of a method, which reduces energy consumption for hydrogen production from water hundreds folds have been got. Such reduction of energy consumption for hydrogen production from water affords ground for an assumption that low-current water electrolysis is similar to its electrolysis, which takes place during photosynthesis. The way of a transfer to economical and environmental friendly power engineering is opened. But it will not be an easy one. There will be a lot of work concerning optimization of the parameters of the global energy generators.

Acknowledgement. The author thanks A.I. Tishov, candidate of technical sciences, for production of the low-current hydrogen generators and the water electric generators of heat and his participation in their tests.

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News

*Stefan Hartmann <harti@harti.com> wrote:
about Police Report on Steven Mark
(Date: Sun, 24 Oct 2004)*

Solid State 1997 Demo Video Shows Solid State Energy Coils (Not Bedini) - 10-minute video shows demonstration of two toroid coils. 183 Volts DC and 875 Volts DC; shown powering various appliances, light bulbs through inverter. Also exhibits anti-moving gyro effect. (ZPEnergy; Oct. 19)

Well it seems it was a co-operation invention from Brian Collins from Australia and Steve Marks. Collins already died, so we can not ask him anymore. Lindsay Mannix is trying to find more old investors in Australia to interview them. What has Reed got for material of this stuff? What is the 1 GB data composed of? Just movies?

Well if you read the article below on him, what Raymond Dale said, it is clear, that it is a "difficult inventor". I wonder if it really is a scam, how he can produce so much power with his systems... How can he produce almost 1 KWatts for such a long time from a so small setup. As they seem to have raided his house and cut pieces out of his bigger device (in the tape seen) and they did not find any batteries, I wonder if this invention is not really genuine?

Please try to find out, who this Australian "Raymond Dale" is, who posted this info here: <http://www.padrak.com/ine/SMARK.html> I just only found out these email addresses, but ALL bounce ! rayd@perth.design.net.au rdale@iprimus.com.au rayd@pdo.net.au

Regards, Stefan.

Stanley Meyer's Water Fuel Cell

USP #4,936,961

Method for the Production of a Fuel Gas

Inventor Stanley Meyer has developed an electric cell which will split ordinary tap water into hydrogen and oxygen with far less energy than that required by a normal electrolytic cell. Where normal water electrolysis requires the passage of current measured in amps, Meyer's cell achieves the same effect in milliamps. Furthermore, ordinary tap water requires the addition of an electrolyte such as sulphuric acid to aid current conduction; Meyer's cell functions at greatest efficiency with pure water.

According to the witnesses, the most startling aspect of the Meyer cell was that it remained cold, even after hours of gas production.

Meyer's cell seems to have many of the attributes of an electrolytic cell except that it functions at high voltage, low current rather than the other way around. Construction is unremarkable. The electrodes referred to as "exciters" by Meyer are made from parallel plates of stainless steel formed in either flat or concentric topography. Gas production seems to vary as the inverse of the distance between them; the patents suggest a spacing of 1.5 mm produces satisfactory results. The real differences occur in the power supply to the cell. Meyer uses an external inductance which appears to resonate with the capacitance of the cell pure water apparently possesses a dielectric constant of about 5 to produce a parallel resonant circuit. This is excited by a high power pulse generator which, together with the cell capacitance and a rectifier diode, forms a charge pump circuit. High frequency pulses build a rising staircase DC potential across the electrodes of the cell until a point is reached where the water breaks down and a momentary high current flows. A current measuring circuit in the supply detects this

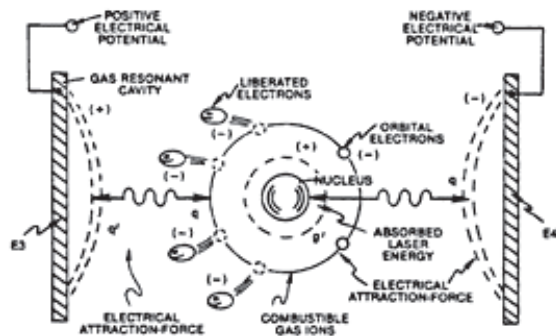
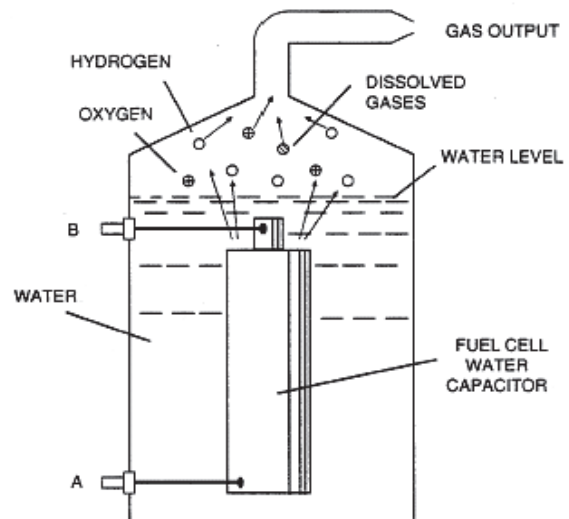


Fig. 1 from USP # 4,936,961 "Method for the Production of a Fuel Gas" by Stanley Meyer

breakdown and removes the pulse drive for a few cycles allowing the water to "recover". The inventor himself talks about a distortion and polarization of the water molecule resulting in the H:OH bonding tearing itself

Editorial: Please note Meyer's understanding of the great role of the electric field gradient to produce useful work without power input. Similar ideas you can see in T.T.Brown's electrogravitics research. The gradient can be produced due to the electrodes shape or by means of special dielectric properties. Alexander V. Frolov

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No laws of physics or thermodynamics are violated in the method and device of the present invention, and conservation of energy rigorously applies at all times. Nonetheless, by operating as an open dissipative system not in thermodynamic equilibrium with the active vacuum, the system can permissibly receive available excess energy from a known environmental source and output more energy to a load than must be input by the operator alone. As an open system not in thermodynamic equilibrium, this new and unique motor can tap in on back EMF to energize itself, loads and losses, fully complying with known laws of physics and thermodynamics.

The technology provides substantial mechanical power and/or electricity without the use of fossil fuels, hydrogen or hydrogen fuel cells, substantial batteries or any other outside recharging source (independent of the grid system). These stand-alone, all-green (100% pollution free) power systems will establish a new standard in energy efficiency and bring economical energy-producing alternatives to the world market. The systems can be adapted for powering all types of motorized products, even including the auto, trucking, RV, boating and golf cart industry in addition to delivering electrical energy for residential, commercial and agricultural markets.

The systems are safe, clean, reliable, quiet, cool, easy-to-operate, long-lasting and emission-free. They can be manufactured in various sizes and power -- from a fraction of a horsepower rating to several thousand horsepower. Depending on use, it is estimated that the systems will last for 20-50 years.

The company is looking to form alliances with entities/groups on a domestic and international basis to ensure the manufacture and

distribution of this technology to various segments of the marketplace. The overall market value is expected to exceed a trillion dollars over the next 10 years and these estimates are more than likely to be low.

For more information, including video and technical data, visit website
<http://www.jagonline.net> or call Richard Brace, President of GMC Holding Corporation, at (407) 834-9400.

Technical Description

The prototype motor presented is a permanent magnet design, with the magnets suspended in an inner frame forming the rotor and multiple coils embedded in an outer frame forming the stator. The unit is designed with helical rows of matching magnets and coils, whose numbers can be varied depending on the size requirements. The stator is pulsed with direct current (DC) forming an opposing electric field, i.e. repulsive orientation, thus collapsing existing permanent magnetic field and causing the motor to rotate. A series of electronic switches are triggered by an optical sensor to provide proper pulse width and timing. A standard DC-DC motor controller system is used to control the magnitude of the pulses and therefore the speed. The motor is designed on the known principals set forth by Nikola Tesla. The operation is based on the collapsing and subsequent expanding of the permanent magnetic field. This produces two effects: the first is tremendous repulsion and torque, as is true in all DC motors; the second effect is that of a back electromagnetic force (Ke). It is this Ke energy that is used in a regenerative fashion to increase the motor's efficiency to extremely high levels.

New Product

Water Vortex Heat-Generator

This Vortex Heat-Generator (VHG) is designed for heating and hot water supply for residences, commercial buildings, industrial facilities, storage rooms and agricultural buildings located far from traditional heating sources.

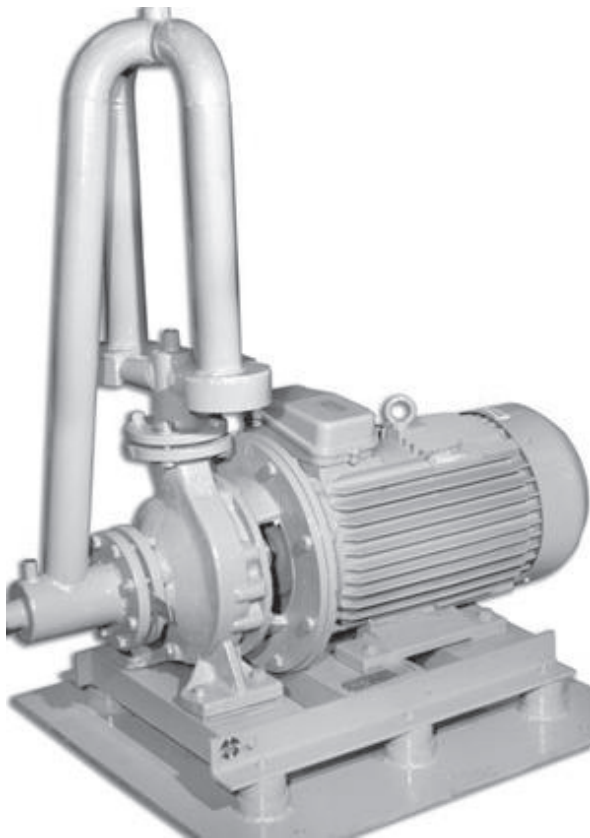


Fig.1. The VHG-11, VHG-22 generators

These generators are designed and manufactured under the guidance of Academician Yu. S. Potapov, who is owner of patent #2045715 registered in the Russian Federation (priority from 26.04.1993).

The VHG-generators extract heat from water and nonfreezable fluids by means of complex processes of intensive vortex motion which is created in a peculiar design. The heat energy released is 116% - 120% more than the power

consumption of the motor of the pump making the fluid circulate (depending on the operating mode of the pump). VHG's are supplied from 3-phase mains. The heat produced is used for heating water directly in heating systems by connecting generators to calorifers or heat exchangers.



Fig.2. The VHG-37, VHG-55 generators

The generators are free-running, environmentally friendly and highly economical. The temperature limit for their automatic operation is +95C.

The generators are reliable and high-performance in comparison with heating facilities of other types.

Compactness, maximum reduction of the distance from a heat source to a consumer, absolute ecological safety, programmed automatic control, no expenditures on

construction and repairing of heating mains – all this makes the generator one of the outstanding technical achievements of the present age. The maximum efficiency of the generators is achieved when their heat and hydrodynamic characteristics are matched with features of heating and hot water supply systems of buildings where the generators are installed. The efficiency factor of these generators is 23% higher than that of electrode heaters and 42% higher than that of thermoelectrical heaters.



Fig.3. Control panel of the generators

The heat-generators are provided with all accessories required to connect them to objects; they have an automatic control system. The generators can be easily connected both to a heating system under construction and to an existing one. Their design and sizes make it

possible to install them just in any area. Maintenance involves managing liquid in the system and eliminating leakage from connection elements of the system.

Low operating pressure of the liquid inside the system makes the generators safe and durable. No environmentally polluting substances (like coal, gas, diesel oil) are used. There is no emission or pollutants and no consumption of oxygen from air.

It is not necessary to get special state certification to put the VHG in operation.

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Warranty period (months)	12
	Size (mm)
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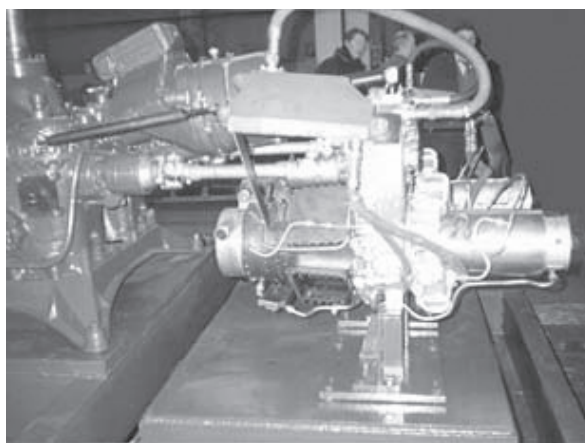


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Ball lightning in nature and laboratory

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The researches conducted in order to study laboratory ball lightning have permitted to uncover the algorithm of its formation and existence. The connection between medium parameters of ball and streak lightning has been revealed. The unique observation of ball lightning which has not been known earlier confirming the proposed hypothesis is given. The observations of ball lightning are being entered into databases [1-3]. Nowadays several tens of thousand observations have been already entered and regularly, almost each month, the new hypothesis about nature of ball lightning are arising. The new observations with fewest exceptions do not give any new features into general scene. The given observation presented by the first author of a given article permits to evaluate the energy of the ball lightning and as for this parameter it can be competitive with famous all over the world "Gudlet rundlet?". The energy evaluation made by Gudlet is repeated in almost all reviews devoted to ball lightning, published during last 40 years" [3]. Now this evaluation is 65 years old but its interpretation is actual till now. All the arising hypotheses have one common feature – they are notional ones. In the second part of this article the hypothesis of ball lightning based on properties of the object being obtained experimentally – analog of ball lightning – is given. The object of 12-14 cm diameter is formed in impulse electric charge, is floating up slowly and exists during period of up to 1sec without any power supplied from outside. The reproducibility of the experiment is 100%.

Once in two years the International Conference on ball lightning and once a year the Russian one are being held (the reports are delivered in section of ball lightning chaired by V.L.Byichkov.

1. Observation

The Borisovo village on isthmus of Karelia is famous of ball lightning frequently arising. The village dwellers are already accustomed to such guest and based on their experience they observe safety regulations. Here are some of them: switch the light off, cover the mirrors, close the windows and all the throats of chimneys. In summer of 1987 V. G. Ilyin was sitting in the living room when it grew darker because of quickly gathered clouds. Through the window he saw 3-4 strong darts of lightning. It did not rain, it was so called "dry thunderstorm". V. G. Ilyin switched the light on but having remembered safety regulations switched it off mechanically. In the living room where there was only one window, it grew too dark and that is why he decided to move to the corner room. There were 3 windows and naturally lighter. The corner room (5x6 meters) adjoined to the living room by its "short" wall. If you enter this room from the living room you can see the window in front of you and on the right hand - two more, on the left wall the closed door to the adjacent room is located. In general the house was rarely big: only on the second floor (under the roof) there were four rooms. The standpipes of stoves and cookers passed through all two floors. Having entered the room Ilyin saw how the ball lightning was moving towards the left wall. The observer did not see where from the lightning "had come out" and how it had arisen – from his point of view it began moving from ajar door of ordinary brick stove which was to the left room door just at a distance of one meter from it. The stove was connected with the standpipe by chimney. Since the mushrooms had been just dried on the stove it was still warm.

The lightning seemed dazzling. "It was impossible to watch it, the brightness was more than during plasma metal cutting". V. G. Ilyin works at experimental workshop and many times he saw how the plasma metal cutting plant was operating and he could compare its luminous exitance with the luminous exitance of ball lightning. "I had to close my eyes in order not to become blind."

The lightning was moving along left wall away from the observer. The movement of the ball lightning was accompanied with a sound of crackling as it occurs during contacts sparking. Simultaneously with forward advancing motion it was moving upward. The lightning reached the door of adjacent room (it was already close to the ceiling), turned and moved to the lampshade hanging in the center of the room, came round the lampshade and moved to the window which was opposite the door in which the observer entered. The observer did not see any haze behind the lightning during its motion may be because of strong glare light. The observer estimated the velocity of object motion from the stove up to the window using the following words: "a little bit faster than the usual speed of pedestrian."

In this story there were two critical moments which remain in memory: one of them –the lightning arising and its "hike" in the room and the second one –its interaction with the glasses. As for the first one –it has become already usual in Borisovo village, as for the second one -the observer was extremely surprised with it. So, the ordinary country double window. It is the wooden one. The ventilation pane is closed. The ball lightning overcame that barrier during less than 3 seconds having left behind it the hole of about 5cm in first (internal) glass and about 3 cm on the second (external) one. The upper edge of the first hole was at the distance of seven centimeters from the wooden frame. Both holes had a form of a cone: the diameter of intake hole of lightning was bigger than one of the outlet hole on the same glass. On the bigger diameter there is a rounding and on the smaller (outlet) the edge is a little lifted over the glass plane (by about –0,2mm) and flashed. When the lightning was passing the first glass the observer saw the whitish cloudlet (not jet) between frames a little higher than the lightning. On the first

glass (from the side of lighting outlet) there was a deposit above the hole. The deposit resembled emery #5 or# 6 to the touch with the grains being still sharp, but the emery has a uniform surface, as for this deposit – its surface has a non-uniform spotted surface. The material of glass evaporated and than condensed on the glass above the hole.

In the room, between frames and outside no glass fragments were detected. Having passed both glasses the lightning came outside and exploded as a petard and the glasses trembled due to it. The observer is sure that the explosion has happened at a distance maximum one meter from the window. After lightning disappearing the impression has left that the air became fresh in the room. Some time after lightning disappearing the heavy rain and strong wind started. During five minutes after ball lightning explosion the observer felt dizzy – in this way the ball lightning influenced on his visual analyzer.

V. G. Ilyin estimated the time of observation as approximately 30 seconds and diameter of ball lightning as 5-5cm. The last two parameters require to be ascertained. If the speed of lightning motion was ~1.7ms⁻¹ and the traveled distance ~12m, the time of motion up to the window should be ~7seconds, time of passing through the window –about 3 seconds (almost after it the explosion occurred). Consequently the total time of observation should be ~10seconds.

To the question "What was your estimation of the diameter of ball lightning?" we were answered in the following way: "The hole had a diameter of 5 centimeters, than he continued, -when it came close to the window and did not blind so much it was possible to see that its diameter was about 5-6 centimeters."

Studying the answer from the psychological point of view it is possible to understand that exactly the knowledge of hole diameter has been of principal importance in evaluation of ball lightning dimensions. When we asked him about his emotional state the observer answered that he did not feel any panic fear (otherwise he would escaped, he remembered well that when meeting ball lightning it is not recommended to move, let alone to escape.

II. Comments

The ball lightning presented in our observation has not been the most luminous among known earlier, in [1] it was described using the following words: "brighter than 20 Kwt xenon lamp" and during two months after meeting it the observer treated his eyes. In [2], as in our case, the observer compared the brightness of the ball lightning with the operation of plasma generator. I. P. Stakhanov mentions about cases of observing ball lightning with abnormal luminous emittance, but the power of the light being emitted by most of the ball lightning is several watts which is not relevant in total balance of energy of lightning [3]. The brightness in our case can be compared with the brightness of lamp 1-2 Kwt, i.e. the power of light 10Wt and during observation (~10s) it released about 100 joules. This value of energy corresponds to the energy of average ball lightning according to [4]: "The energy of exactly ball lightning (BL) (not connected with other phenomena) is about 100joules." The idea of ball lightning having low energy and in a specific case releasing 10⁵ - 10⁶ joules and more is defined best of all in [5]: The hypotheses of ball lightning are unacceptable because they contradict the law of energy conservation". The author [3] analyzing hypothesis [5] expressed its sense vividly in availability of "invisible leash" which in [4] is transformed into virtual leash. In [4] it has been affirmed that the mechanism of energy releasing of about 100KJ can operate only "on terrain". Let us move on to evaluation of the energy required for creating two holes in glasses. The cases of direct observation of interaction between ball lightning and glass (with subsequent formation of the hole) are extremely rare ones. In [6] such a rare observation has been considered. "The shaggy" ball of diameter about 5cm came up to external glass of window frame. "A small round hole with luminous red edges has been formed in the glass, then the hole diameter has been increased up to 3-4 cm" [6]. In [6] the photo of glass with a hole of diameter 5cm and a spot above the hole (40x20cm) in a form of torch is given. The estimation of energy released while interacting with glass, strongly depends on the selected model of ball lightning and glass interaction. In [6] it was presumed that the ball lightning had heated the area of 3.5cm up to the

melting point and after cooling down due to thermoelectric voltages the hole of 5cm diameter was chipped out. The formed disc with small penetration in the center has just fallen from the glass. Based on this model the energy of the ball lightning was estimated as 20 Kjoules. Disposing of our observation it is possible to revise the algorithm of ball lightning and glass interaction in case [6]. It is more believable that the glass located in the place of the hole evaporated because the photo in [6] looks like condensed vapors. It occurred also in our case. Even if the whole glass material from the formed hole had been precipitated in a form of a spot its thickness would be minimum 0.1mm. Taking into consideration the above stated the calculation of energy releasing in [6] should be corrected. We have estimated energy being released during interaction of ball lightning and glass both for our case and case of [6] as more than 100 KJoules. In [4] there is a reference to [7] where several times they return to the case when the ball lightning evaporate 50 grams of gold. The energy, required for it has been estimated in [7] as 100 Kjoules (the value is underestimated). Our experiments with analog of ball lightning – luminous formation (LF) [8] having shell structure [9-10] have shown that LF can evaporate metals [11]. The energy, released by ball lightning in living accommodations (in our case and in [7] is more than 100 Kjoules which is impossible according to [4].

However the attempt to relate the principal parameter of ball lightning, its energy, with some processes in nature based on statistical data [4-5] seems a very productive idea for us. It is necessary to find such processes in nature and such average parameter of the process which would result in parameters of averaged ball lightning. The average parameters of ball lightning are given in [12-13]. For example, in [12] the power ratios of energy releasing of ball and streak lightning are considered. Nowadays the relation of ball lightning not only with thunder storm situation but directly with streak lightning is more evident. The average parameters of steak lightning are multiple-valued due to their division into descending, ascending ones and some others [14]. Let us consider only the negative lightning descending to the ground because it is the most frequent one. In a given case the average potential being

delivered to the ground by leader [12,14] is defined well enough – it is about 30 MV. At the same time we believe [9-11], that the ball lightning inherits the structure of leader channel and it is possible that in this case there is no main stage of lightning process. This moment requires to be confirmed (in our model the considerable simplification can take place), for example:” From point of lightning stroke on the surface the plasma channel grows which is similar to the leader one” [14]. The existence of channel is detected by marks on the ground in a form of furrow one hundred meters length. That is why rather interesting scenarios of leader channel conduct are possible. The ball lightning inherits structure and potential of leader channel (the potential is an energy characteristics of the ball lightning electric field). Sudden change of potential by leader channel is experimentally simulated in [15]. The average energy of the ball lightning (W) is about 6 Kjoules. Based on these data it is possible to estimate uncompensated charge of the ball lightning. $Q = 2W\phi^{-1}$ (1) which is delivered by the leader. At the same time the potential of the ball lightning being inherited from the leader channel can be expressed as function from charge and diameter (D) of average ball:

$\phi = (\pi\epsilon_0)^{-1}Q(0,5D)^{-1}$ (2), where ϵ_0 is dielectric constant. Substituting (1) into (2) it is possible to obtain the diameter of average ball lightning which in given ϕ and W is equal 24cm and it is consistent perfectly with [13]: 23 ± 5 cm.

The probe measurements [9-11] have shown that mostly the free charge is concentrated in sphere shell, the minority of free charges which are like with sphere charges, is located in the ball center and the space without any free charges exists between them. This space is being formed due to Coulomb repulsion of free like charges of sphere and volume. The stability of a given charge configuration is reached at the expense of dynamic equilibrium of Coulomb repulsion and dielectric pressure forces. The dielectric is located outside charged sphere in non-uniform electric field being created by the above described charge configuration. For LF [8-11] this pressure is about several hundreds Pa. At the same time the dielectric shell represents a barrier which provides

conservation of one-component plasma and prevents it from possible flow of positive ions – from recombination. The free charges of sphere are supposedly electrons. Their possible state is suggested in [11]. On photo (Fig.1, color version on the cover page) the edge of “stationary” LF which is not excited with electric, magnetic, neither electromagnetic fields is given.

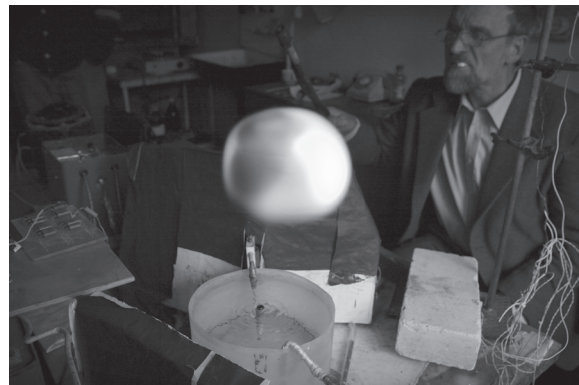


Fig.1

On Fig.2 the edge of LF immediately after partial removal of the charge is shown.



Fig.2

The luminous formation looks like a red villous ball from article [6].

On Fig.3 LF is located in the area of non-uniform electric field from the conductor with small part of poor insulation. The conductor is under positive potential 3 kV. It is seen well that LF represents practically copy of ball lightning on cover picture [7]. The LF conduct when interacting with laser electromagnetic radiation is given in [9,15]. On all the photos the two-layer shell of red (external) and yellow (internal) color is seen well. On Figure 3 the internal layer is “turned out” due to the strong interaction with non-uniform electric field. On all the photos (Fig.1-3) the LF diameter is 12-14cm. The dielectric shell in a given moment is a principle object of study. The configuration of free charges defined rather accurately in experiments [9-10] prompts what is the algorithm of shell formation and what are its properties. The shell is being formed during long-term process of pulse discharging in a strong non-uniform electric field 2. In the engineering there are materials and processes which are similar to the processes which occur during formation of LF and ball lightning. It is a matter of process of electrets manufacturing. Let us take a dielectric consisting of electric elements such as C, H, O, N etc., which are available in the air and represent building material for dielectric shell of the ball lightning. Such dielectric forms electret during solidification in a strong electric field. This electret has a heterocharge or homocharge [16].

The “electret” of ball lightning possesses exactly homocharge, when the free charges have a sign which is opposite to the sign of electret bound charges. When there is no electric field, the electrets have electric moment which exists for a long time (days, months). The electret creates an electric field around it. “The charge value per unit of surface is about 10^{-7} Coulomb /cm² ...” [16] depending on electret material. It sounds like a miracle, that during ordinary gas discharging (150 torr. of helium, 150 A, graphite electrode of 6mm

diameter) it is possible to get up to 12% fantastically beautiful molecules of fullerene. A hypothetical physicist-theoretician who had been supposed to propose something of this kind could hear many new thing about himself. In our case “the building of dielectric occurs in strong non-uniform electric field, which automatically “separates” dipole molecules being generated by the charge, and collect them into dielectric –future shell of a ball lightning. In a non-uniform electric field the dipoles are affected by the force pulling them in an area of a stronger field. The more dipole moment, the stronger force acting on the dipoles. This process requires macroscopic time. Best of all it is demonstrated on the example of leader process in [14]: “The leader grows for a rather long time – up to 0.01s –it is a real eternity comparing with a very fast phenomena of pulse electric charge. Time of LF (analog of ball lightning) creation in impulse electric charge is about 0.1s [8], as for the natural ball lightning, this time is increased up to fractions and even several seconds [3]. Huge block of observations must contain data about process of ball lightning forming which corresponds our hypothesis, otherwise our model is not valid. There is a lot of such cases. For example, in [17]: observations #19 and #21. Observation #19: “the lightning stroke the rock over us. During some fractions of a second the lightning was unmovable and then began agglomerating into clot on the rock surface. There was an impression that somebody was folding fire measuring reel”. The case #21: “ After discharging the channel of lightning began moving down, as a thread which somebody was clewing up and close to the ground the fire ball was formed.”

III. Conclusion

It has been shown that the collected and systematized data concerning observations of ball lightning are well consent with the notions of thunder-storm electricity {14}provided that we accept the proposed hypothesis that the ball lightning is formed by the leader of streak lightning. Generally the leader life time is not limited which

permits to form a dielectric shell around sphere being formed, consisting of free like charges. The dynamic equilibrium between forces of Coulomb repulsion of uncompensated charge and forces of pressure of dielectric, located in non-uniform electric field of this charge, is unstable. The corona of ball lightning ultimately results in loss of stability and "explosion". The explosion happens in more than half cases of ball lightning observations. Practically all the ball lightning properties being observed are reproduced experimentally within available energy reserve of LF [8-11, 15].

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Editorial: Publications on the ball lightning experimenting can be area of interests for alternative energy researchers. This technology can open the way to controlled plasma objects with a long life-time that is a new energy source. We hope to see comments from our readers and future articles on the topic in our magazine.

News from LUTEC company

Australia

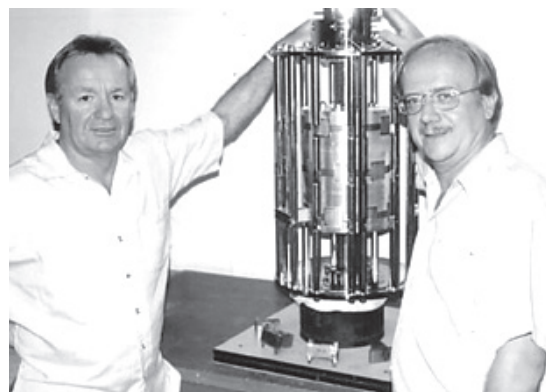
www.lutec.au

We want to thank everyone for the numerous emails requesting further updates to this site. Your continued interest and support is greatly appreciated. It is with pleasure we announce grant notification regarding our Mexican patent application. The official certificate will be forwarded to us shortly and we will post a copy of it to the patents page on this site in due course. The European patent is still pending. It covers over twenty countries and the application must be translated into all of those languages and examined individually by each of those countries patent office examiners. That's why it takes so long. The European patent is a key component in our business plan and little of obvious notice to the general public will occur until it is finalized. Read the last sentence again.

The project is continuing on course. Our original plan was to begin manufacture in Australia by 2003. This was dropped because of a lack of interest from the Australian government in providing any assistance in getting it off the ground. In fact we have never had so much as a phone call from anyone representing the Australian government, let alone a visit or request for evaluation of the technology. Our local member of parliament several years ago wished us all the best, very nice, but no help whatsoever. There has been intense international interest. Offers to relocate to several countries with taxation and funding initiatives have been made and to date rejected for various reasons. To give some idea of the scope of that interest, there have been visits from US govt interests, overtures from the US Navy, and business people. One US group has made eight trips to Australia bringing their own experts and other interested parties to view and evaluate the technology. Several US Universities have been involved in studying the technology. We have had visits and offers from Germany, Switzerland, South Korea, Singapore,

Malaysia, China, India, Pakistan, South Africa, Belgium, Holland, Russia, Papua New Guinea, Haiti, Italy, Canada, The Caribbean, France, The United Kingdom, Turkey, The UAE, and even Bangladesh. The current business plan calls for a global release of the technology; this is why the European patent is of such crucial importance. In response to your enquiries as to how the company manages to survive despite the constant struggle for funding. The company every so often sells a fixed percentage of its shares to individuals to raise capital to meet patent expenses and on-going research and development costs. Because the company is not listed on the stock exchange it has no prospectus to present, so under Australian law only twenty offers per year can be made, and no advertising of any form can be made in respect of an offer. This means only people who are already shareholders, or just happen to phone or email asking about shares, get to hear about an offer.

There is less than thirty years of oil left. (See Huberts peak on any search engine for detail) How much do you reckon a barrel will cost in ten, fifteen, twenty years.



Keep breathing, until next time, sleep well....

Until next time

John and Lou.

Antigravity experiments

Review on E. Podkletnov's experiments with comments by Alexander V. Frolov.

The history of a given discovery began in 1988 when Evgeny Podkletnov was invited to Tampere University for participation in joint project on superconductor synthesis. Podkletnov brought a superconductor disc which he made of copper, yttrium and barium oxides in Moscow. That disc had a diameter of about 30 centimeters. During one of experiments the disc was cooled down to superconductivity temperature with the help of liquid helium and driven by electric magnets. Further we quote the words of the scientist himself: "we have noticed that the smoke passing above the super conductive disc moves upwards. Then we have put a small magnetized ball on the disc and connected it with a balance . The balance indications have surprised us. Then instead of metal small ball we have taken a silicon which is non-metal and non-magnet material. The balance conduct was still very strange : they indicated the weight decreasing. As it turned out, any object being placed above the disc lost a little its weight and in a case when the disc was rotated , the effect was increased up to 2%. The objects being weighed were placed into vacuum, shielded by metal sheet but nevertheless the weight was decreasing. Moreover, mercury barometer placed above the disc, has shown the decreasing of barometric pressure by 4mm of mercury column and that decreasing of the air weight could be registered even on the second floor exactly above the experimental plant. Podkletnov managed to publish those results and immediately the assaults from the side of so called "serious scientists began. The Tampere University management reacted with regard to critical articles in press and Podkletnov was fired from the University. In 1997 he attempted to return to Moscow but in his home institute there were no possibility to continue working. Podkletnov has again left for Tampere. He began working as a specialist on materials and went on his experiments during free time. Then NASA began to conduct experiments to check

Podkletnov effect independently but the weight was decreased not by 2% but by million times less. The Americans invited Pdkletnov for giving consultations at the end of 1998. The reason of Americans' failure was the following one: they did not rotate disc and moreover , it was too small. The task was set: to create " the same disc as in Russia", and 750 000 dollars were appropriated for it. There was information about the alleged results which repeat and even surpass the experiments of Russian scientist: a group of students in Sheffield (England), scientists from Toronto. The Italian physicist Djovanny Modaneze from Trento University supported Podkletov actively. The physics-theoreticians from Alabama University- American Duglas Torr and Chinese Nin Li organized a laboratory for experiments with gravitation in NASA. Further we give information from the article by Podkletov and Modaneze "Impulse Gravity Generator Based on Charged $YBa_2Cu_3O_{7-y}$ Superconductor with Composite Crystal Structure", which describes the experiments on impulse gravity.

The initial variant of the experimental set-up was based on a high-voltage generator placed in a closed cylinder chamber with a controlled gas atmosphere, as shown in Fig. 1.

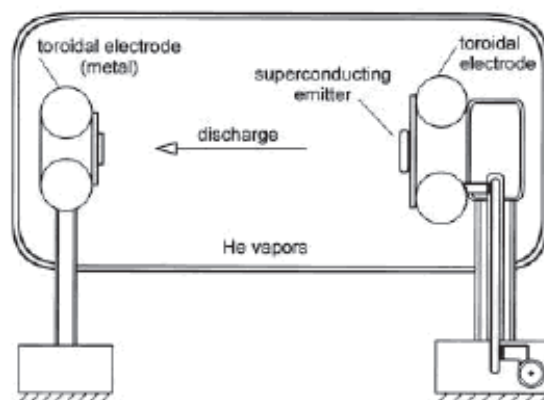


Fig.1

Two metal spheres inside the chamber were supported by hollow ceramic insulators and had electrical connections that allowed to organize a discharge between them, with voltage up to 500 kV. One of the spheres had a thin superconducting coating of $\text{YBa}_2\text{Cu}_3\text{O}_{7,y}$ obtained by plasma spraying using a "Plasmatech 3000S" installation. This sphere could be charged to high voltage using a high voltage generator similar to that of Van de Graaf. The second sphere could be moved along the axis of the chamber, the distance between the spheres varying from 250 to 2000 mm. Spheres with a diameter from 250 to 500 mm were used in the experiment. It was possible to fill the chamber with helium vapours or to create rough vacuum using a rotary pump. The walls of the chamber were made of non-conducting plastic composite material, with a big quartz glass window along one of the walls which allowed to observe the shape, the trajectory and the colour of the discharge. In order to protect the environment and the computer network from static electricity and powerful electromagnetic pulses, the chamber could be shielded by a Faraday cage with cell dimensions of 2.0 and a rubber-plastic film material absorbing ultra high frequency (UHF) radiation. The superconducting sphere was kept at a temperature between 40 and 80 K, which was achieved by injecting liquid helium or liquid nitrogen through a quartz tube inside the volume of the superconducting sphere before the charging began. The inside volume of the chamber was evacuated or filled with helium in order to avoid the condensation of moisture and different gases on the superconducting sphere. The temperature of the superconductor was measured using a standard thermocouple for low temperature measurements and was typically around 55-60 K. Given the good heat conductivity of the superconductor, we estimated that the temperature difference in the ceramic did not exceed 1 K. An improved variant of the discharge chamber is shown in Fig. 2. The charged electrode was changed to a toroid attached to a metal plate and a superconducting emitter which had the shape of a disk with round corners. The non-superconducting part of the emitter was fixed to a metal plate using metal Indium or Wood's metal, the superconducting

part of the emitter faced the opposite electrode. The second electrode was a metal toroid of smaller diameter, connected to a target.

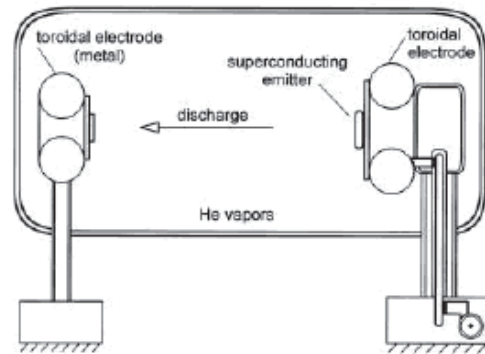


Fig.2

The target was a metal disk with the diameter of 100 mm and the height of 15 mm. The target was attached to a metal plate welded to the toroid. This improved design of the generator was able to create a well-formed discharge between the emitter and the target, still the trajectory was not always repeatable and it was difficult to maintain constant values of current and voltage. The chamber was also not rigid enough to obtain high vacuum and some moisture was condensing on the emitter, damaging the superconducting material and affecting the discharge characteristics. The large distance between the electrodes also caused considerable dissipation of energy during discharge. In order to improve the efficiency of operation, the measuring system and the reproducibility of the discharge, an entirely new design of the vacuum chamber and the charging system was created. The final variant of the discharge chamber is presented in Fig. 3 (the apparatus is shown in a vertical position though actually it is situated parallel to the floor). This set-up allowed to reduce the dimensions of the installation and to increase the efficiency of the process. The chamber has the form of a cylinder with the approximate diameter of 1 m and the length of 1.5 m and is made of quartz glass. The chamber has two connecting sections with flanges which allow to change the emitter easily. The design permits to create high vacuum inside or to fill the whole

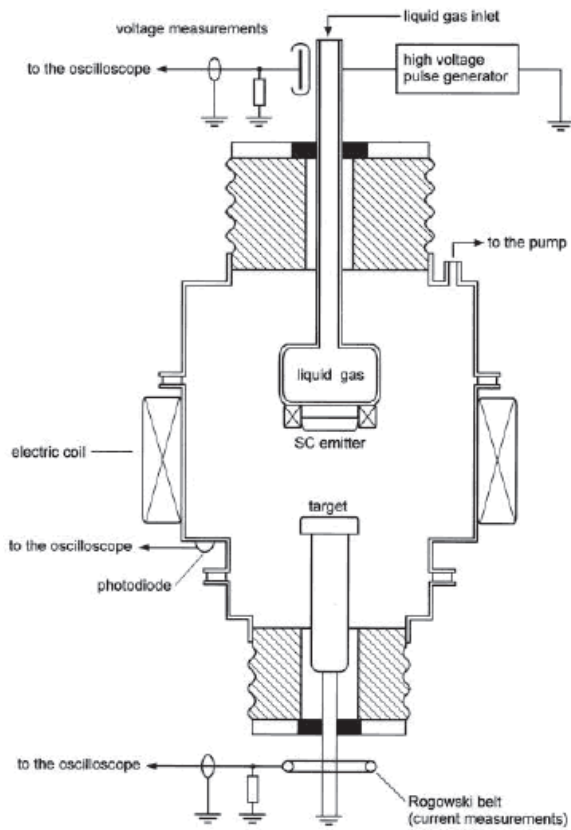


Fig.3

volume with any gas that is required. The distance of the discharge has been decreased considerably giving the possibility to reduce energy dissipation and to organize the discharge in a better way. The distance between the electrodes can vary from 0.15 to 0.40 m in order to find the optimum length for each type of the emitter. The discharge can be concentrated on a smaller target area using a big solenoid with the diameter of 1.05 m that is wound around the chamber using copper wire with the diameter of 0.5 cm. The magnetic flux density is 0.9T. A small solenoid is also wound around the emitter (Fig. 3) so that the magnetic field can be frozen inside a superconductor when it is cooled down below the critical temperature. The refrigeration system for the superconducting emitter provides a sufficient amount of liquid nitrogen or liquid helium for the long-term operation and the losses of gas due to evaporation are minimized because of the high vacuum inside the chamber and thus of a better thermal insulation. A photodiode is placed on the transparent wall of the chamber and is connected to an oscilloscope, in order to

provide information on the light parameters of the discharge. Given the low pressure and the high applied voltage, emission of X-rays from the metal electrode cannot be excluded, but the short duration of the discharge makes their detection difficult. Use of a Geiger counter and of X-rays sensitive photographic plates did not yield any clear signature of X-rays.

A precise measurement of the voltage of the discharge is achieved using a capacitive sensor that is connected to an oscilloscope with a memory option as shown in the upper part of Fig. 3. Electrical current measurements are carried out using a Rogowski belt, which is a single loop of a coaxial cable placed around the target electrode and connected to the oscilloscope. The old fashioned Van de Graaf generator used in the previous stage of this work was replaced by a high voltage pulse generator as shown in Fig. 4.

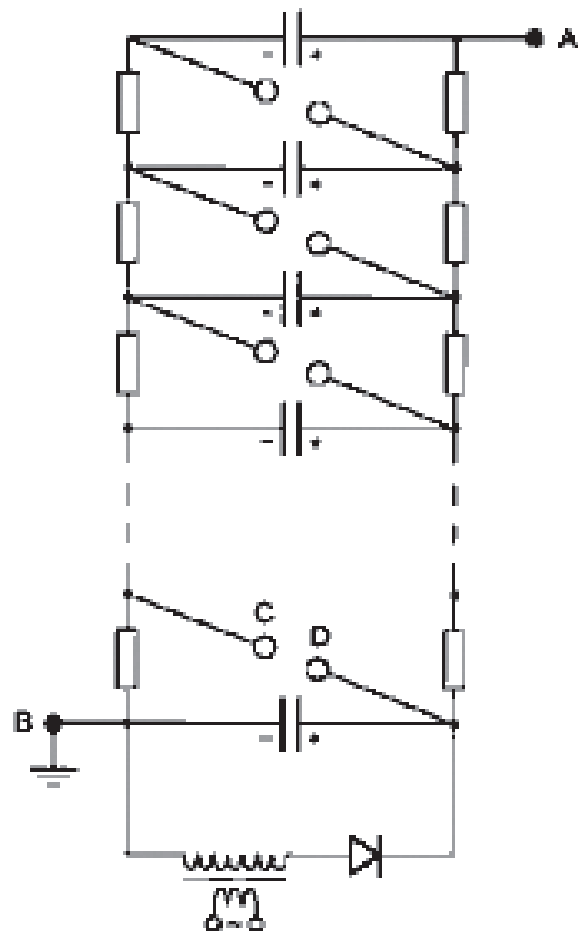


Fig.4

This pulse generator is executed according to the scheme of Arkadjev-Marx and consists of twenty capacitors (25 nF each) connected in parallel and charged to a voltage up to 50-100 kV using a high voltage transformer and a diode bridge. The capacitors are separated by resistive elements of about 100 kOhm. The scheme allows to charge the capacitors up to the needed voltage and then to change the connection from a parallel to a serial one. The required voltage is achieved by changing the length of the air gap between the contact spheres C and D.

A syncro pulse is then sent to the contacts C and D which causes an overall discharge and serial connection of the capacitors and provides a powerful impulse up to 2 MV which is sent to the discharge chamber. The use of such an impulse generator allows for a precisely controlled voltage, much shorter charging time and good reproducibility of the process.

Superconducting emitter, fabrication methods

The superconducting emitter has the shape of a disk with the diameter of 80-120 mm and the thickness of 7-15 mm. This disk consists of two layers: a superconducting layer with chemical composition $YBa_2Cu_3O_{7-y}$ (containing small amounts of Ce and Ag) and a normal conducting layer with chemical composition $Y_{1-x}Re_xBa_2Cu_3O_{7-y}$, where Re represents Ce, Pr, Sm, Pm, Tb or other rare earth elements.

Organization of the discharge and measurements of the effect

The discharge chamber is evacuated to 1.0 Pa using first a rotary pump and then a cryogenic pump. When this level of vacuum is reached, liquid nitrogen is pumped into a tank inside the chamber that contacts the superconducting emitter. Simultaneously a current is sent to the solenoid that is wound around the emitter, in order to create a magnetic flux inside the superconducting ceramic disk. When the temperature of the disk falls below the transition temperature (usually 90 K) the solenoid is switched off. The experiment can be carried out at liquid nitrogen temperatures or at liquid helium temperatures. If low temperatures are required, the tank is

filled with liquid helium and in that case the temperature of the emitter reaches 40-50 K. The high voltage pulse generator is switched on and the capacitors are charged to the required voltage. It takes about 120 s to charge the capacitors. The effects are measured along the projection of the axis line which connects

the center of the emitter with the center of the target. Laser pointers were used to define the projection of the axis line and impulse sensitive devices were situated at the distance of 6m and 150m from the installation (in another building across the area). Normal pendulums were used to measure the pulses of gravity radiation coming from the emitter. The pendulums consisted of spheres of different materials hanging on cotton strings inside glass cylinders under vacuum. One end of the string was fixed to the upper cap of the cylinder, the other one was connected to a sphere. The spheres had typically a diameter from 10 to 25 mm and had a small pointer in the bottom part. A ruler was placed in the bottom part of the cylinder, 2 mm lower than the pointer. The deflection was observed visually using a ruler inside the cylinder (Fig. 5).

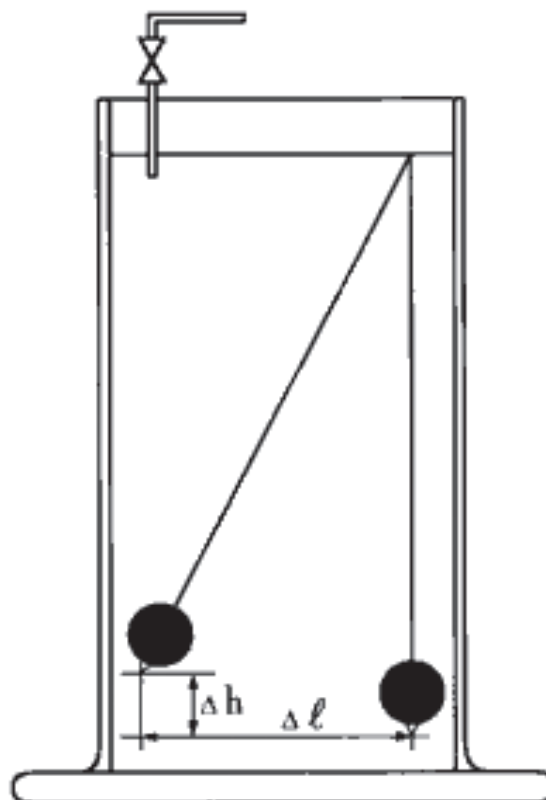


Fig.5

The length of the string was typically 800 mm, though we also used a string 500 mm long. Various materials were used as spheres in the pendulum: metal, glass, ceramics, wood, rubber, plastic. The tests were carried out when the installation was covered with a Faraday cage and UHF radiation absorbing material and also without them. The installation was separated from the impulse measuring devices situated 6m away by a brick wall of 0.3 m thickness and a list of steel with the dimensions 1x1.2x0.025m. The measuring systems that were situated 150m away were additionally shielded by a brick wall of 0.8 m thickness. In order to define some other characteristics of the gravity impulse - in particular its frequency spectrum - a condenser microphone was placed along the impact line just after the glass cylinders. The microphone was connected to a computer and placed in a plastic spherical box filled with porous rubber. The microphone was first oriented with a membrane facing the direction of the discharge, then it was turned 22.5 degrees to the left, then 45 degrees to the left, then 67.5 degrees and finally 90 degrees. Several discharges were recorded in all these positions at equal discharge voltage.

Results

Several unexpected phenomena were observed during the experiments. The discharge in the installation corresponding to the initial set-up (Fig. 1) at room temperature in the voltage range from 100 kV to 450 kV was similar to a discharge with non-coated metal spheres and consisted of a single spark between the closest points on the spheres. When the superconductor coated sphere was cooled down below the transition temperature, the shape of the discharge changed in such a way that it did not form a direct spark between two spheres, but the sparks appeared from many points on the superconducting sphere and then moved to the corresponding electrode. When the voltage was over 500 kV the discharge at the initial stage had a tendency to cause some glow with the shape of a hemisphere. This glow separated from the sphere and then broke into multiple sparks which combined into more narrow bundle and finally hit the surface

of the target electrode. Repeated discharges at high voltages caused damage to the superconducting coating and partial separation of the ceramic material from the metal sphere, as the refrigeration system was not efficient enough. Also the direction of the discharge was not always repeatable. The experiments were continued with the improved variant of the installation as shown in Fig. 2 and then with the final variant of the installation as shown in Fig. 3. This new configuration allowed to increase the reproducibility of the discharge and the superconducting emitter was not damaged with high voltage. With voltage lower than 400 kV the discharge had the shape of a spark but when the voltage was increased to 500 kV the front of the moving discharge became flat with diameter corresponding to that of the emitter. This flat glowing discharge separated from the emitter and moved to the target electrode with great speed. The whole time of the discharge as defined by the photo diode was between 10^{-5} and 10^{-4} s. The peak value of the current at the discharge for the maximum voltage ($2 \cdot 10^6$ V) is of the order of 10^4 A. It was found that high voltages discharges organized through the superconducting emitter kept at the temperature of 50-70 K were accompanied by a very short pulse of radiation coming from the superconductor and propagating along the axis line connecting the center of the emitter and the center of the target electrode in the same direction as the discharge. The radiation appeared to penetrate through different bodies without any noticeable loss of energy. It acted on small interposed mobile objects like a repulsive force field, with a force proportional to the mass of the objects. As the properties of this radiation are similar to the properties of the gravity force, the observed phenomenon was called a gravity impulse.

In order to investigate the interaction of this gravity impulse with various materials, several tests were carried out, with pendulums and microphones, as described in the experimental part. The deflection of the pendulum was observed visually (see Fig. 5) and the corresponding l value was measured as a function of the discharge voltage. The correlation between the discharge voltage and the corresponding deflection of the pendulum

as measured for two different emitters is listed in Tables 1, 2. Each value of l that is given in the table represents the average figure calculated from 12 discharges. A rubber sphere with a weight of 18.5 grams was used as material of the pendulum for the data listed in Tables 1, 2. The deflection caused an alteration in the potential energy of the pendulum which was proportional to h as shown in the table. A graphic illustration of this dependence for two different emitters is given in Fig. 6.

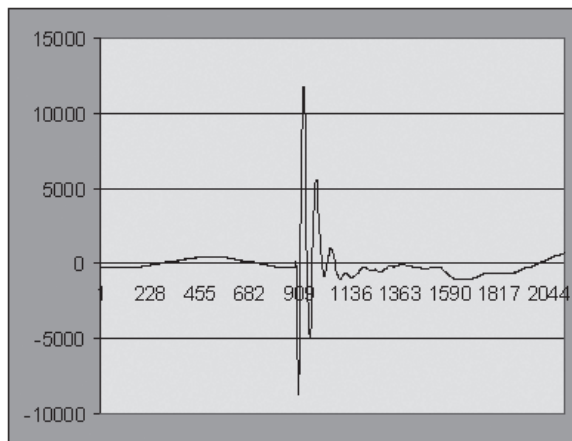


Fig.6

Both emitters, N. 1 and N. 2, were manufactured using the same OCMTG technology, but the thickness of the superconducting layer was equal to 4 mm for the emitter N. 1 and 8 mm for the emitter N. 2. Emitter N. 2 could be magnetized to a much higher value. The thickness of the normal conducting layer has a smaller influence on the force of the gravity impulse, but for better results the thickness should be bigger than 5 mm. It was found that the force of the impact on pendulums made of different materials does not depend on the material but is only proportional to the mass of the sample. Pendulums of different mass demonstrated equal deflection at constant voltage. This was proved by a large number of measurements using spherical samples of different mass and diameter. The range of the employed test masses was between 10 and 50 grams. It was also found that there exist certain deviations in the force of the gravity impulse within the area of the projection of the emitter. These deviations (up to 12-15% max) were found to

be connected with the inhomogeneities of the emitter material and various imperfections of the crystals of the ceramic superconductor, and with the thickness of the interface between superconducting and normal conducting layers. Measurements of the impulse taken at close distance (3-6 m) from the installation and at the distance of 150 m gave identical results, within the experimental errors. As these two points of measurements were separated by a thick brick wall and by air, it is possible to admit that the gravity impulse was not absorbed by the media, or the losses were negligible. The force "beam" obtained with the latest experimental set-up does not appear to diverge and its borders are clear-cut. However, considerable efforts were necessary in order to concentrate the radiation and reach a good reproducibility. As mentioned above, the direction emission always coincides with the direction of the discharge. In the initial experiments (with the Van den Graaf generator), the direction of the beam varied, depending on the direction of the discharge, as the sparks moved to different points on the superconducting sphere. Later it was found that the magnetic field created by the solenoid wound around the chamber is able to concentrate the discharge and to direct it to the same area on the superconducting electrode. The bi-layered emitters used in this experiment were mainly of two types. The first one was obtained after Stage 3 and had a structure typical for multiple-domain levitators with well crystallized and oriented grains of the superconducting layer. The second type was made by the material obtained after Stage 4 and consisted of densely packed non oriented polycrystalline structure in both layers. It was also found that the gravity impulse was to some extent proportional to the magnetic field inside the superconductor, which was created using a small solenoid during cooling down to liquid nitrogen temperature. Therefore, at recent stages of the experiment the solenoid was replaced by a powerful permanent NdFeB magnet (50 MOe) with a diameter corresponding to the diameter of the emitter and a thickness of 20 mm. This disk-shaped magnet was attached with one surface to the cooling tank and with another surface to the ceramic emitter. The response recorded by the microphone has

the typical behavior of an ideal pulse filtered by the impulse response of a physical low pass system with a bandwidth of about 16 kHz, attributed to the microphone (Fig. 7).

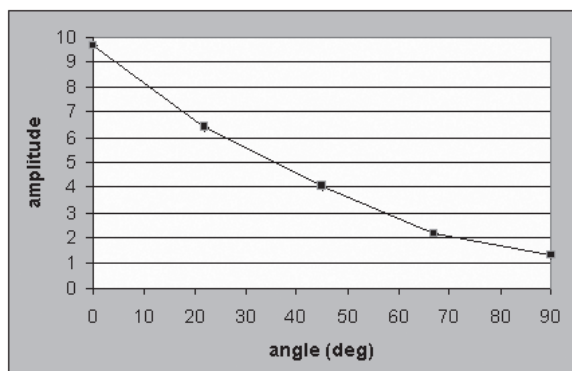


Fig.7

In spite of the filtering, the relative energy of the pulses can be measured as a function of the angle of the normal to the diaphragm respect to the axis of propagation of the force. Relative pulse amplitude with energies averaged over four pulses per angle are shown in Fig. 8 and are in agreement with a possible manifestation of a vector force acting directly on the membrane. No signal has been detected outside the impact region.

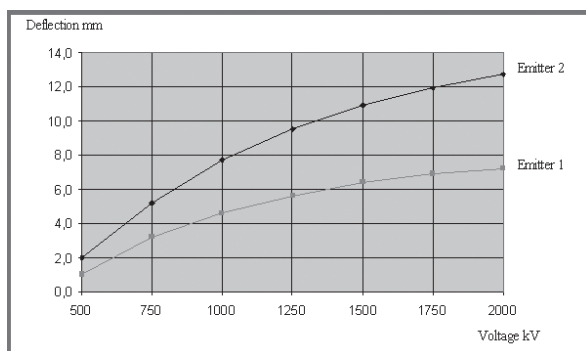


Fig.8



E. Podkletnov

Email: epodkletnov@hotmail.com

Editor comments:

According to the latest data received from Tim Ventura, (www.americanantigravity.com) new E. Podkletov's superconductor generator can produced force of several hundreds lbs. Podkletov said that the gravitational beam is generated by means of voltage pulse of 4-5 MV applied to superconductor of 4 inches diameter which is located in solenoid (it is necessary to create magnetic field). The pulses being created are powerful enough to perforate brick, concrete and to deform light metals "as if they were sledge-hammered" far from the generator. It is clear that most of future applications of this effect are military technologies and that is why we can suggest that the further publications on this topic will be closed. But now we have some open data about Podkletov's experiments and we can analyze them.

The experimental approach, as we can see, has been changed: in the latest version there is the impulse generator but there is no rotating superconductivity disc, and there is a high-voltage discharge (high current also), which being created between electrodes and at least one of the electrodes is in superconductivity state. It has been detected that the created wave can not be shielded.

*So, assuming that the gravitational waves created in Podkletov's experiments are longitudinal electromagnetic waves by their physical nature, we can draw an analogy between these experiments and Academician Ignatyev's work (see article in a given issue) on **aether flow generation** to create the propulsion force. Theoretical principles of longitudinal waves were considered also by Prof. K. P. Butusov and our company "Faraday Lab Ltd" developed some experimental projects to get the longitudinal wave from rotating electric circuit. We have some results as influence of longitudinal wave on radioactivity and we are interested to continue research with a customer.*

A. V. Frolov

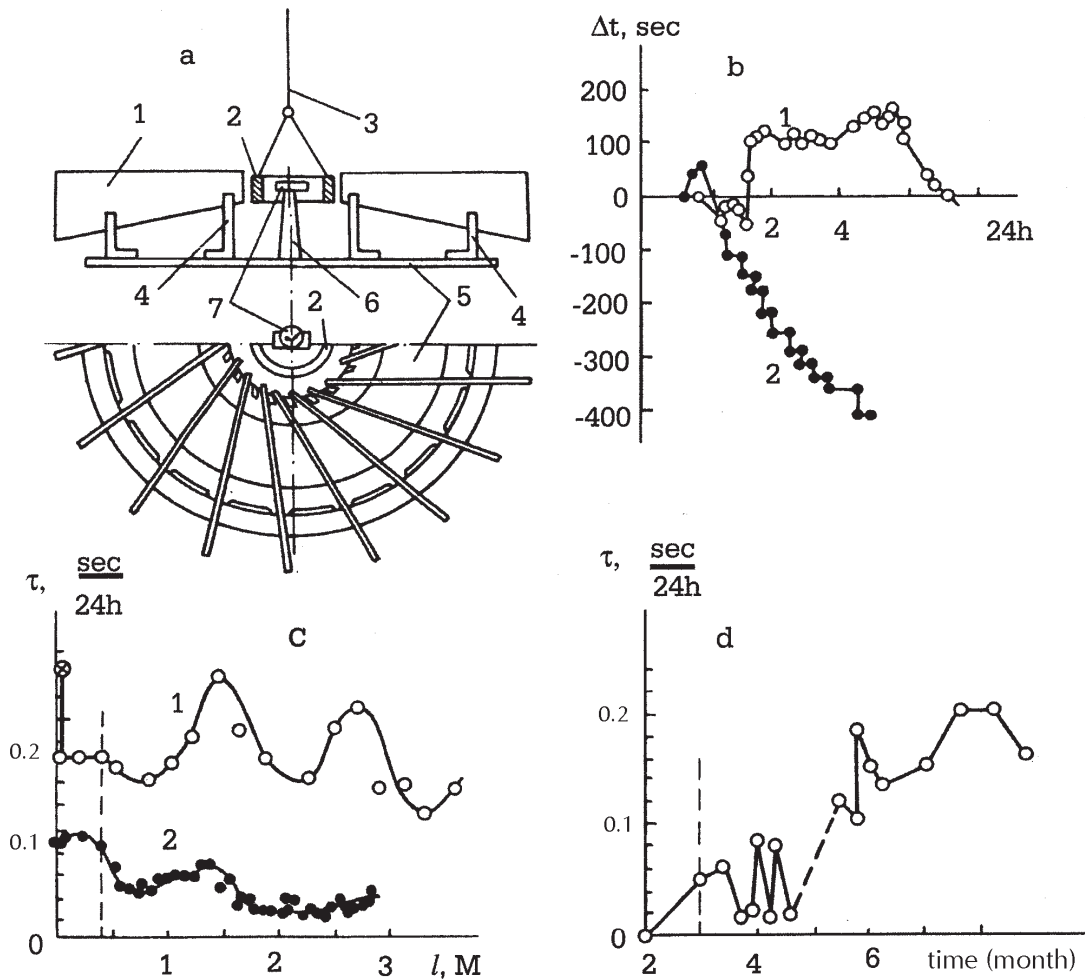
Experiments on changing of time

Description of the experiment from book by Albert I. Veynik "Thermodynamics of real processes", Minsk, 1991, page 576.

Editor: Many readers are asking us about some simple experiments on time control. We offer to repeat experiments made by Academician Veynik and we are looking forward to your articles with experimental data. According to definitions by Academician Veynik the operating principle of the device is based on an interaction with "chronal matter", which is obtained from environment and then it can be concentrated and re-emitted. The device (Fig.1) consists of plates of dimension 350x70x21mm. The plates are installed on the textolite disc (5) of 735 mm diameter. The plates (1) are held up by supports (4). The ring (2) has an external diameter of 70 mm, thickness 7mm and height 14mm. The suspension of 2.6m length is fixed to the ring (2). 70 plates have been used in this device. They have been installed tangentially as it is shown on Fig. 1. The chronometer (7) is installed in the center of ring (2). The experiments has shown that in the center of device the acceleration of time rate is about 0.2 sec per 24 hours.

This device has some medical-biological effect so it is dangerous experiment. Also it was mentioned by the author that the effect has some after-action, i.e. the effect can be detected in the same place after the device was relocated away. This effect can be explained from the aether-dynamics point of view. The device create the aether vortex. Density of aether is changed by this way. This vortex can exist long time without device.

Alexander V. Frolov



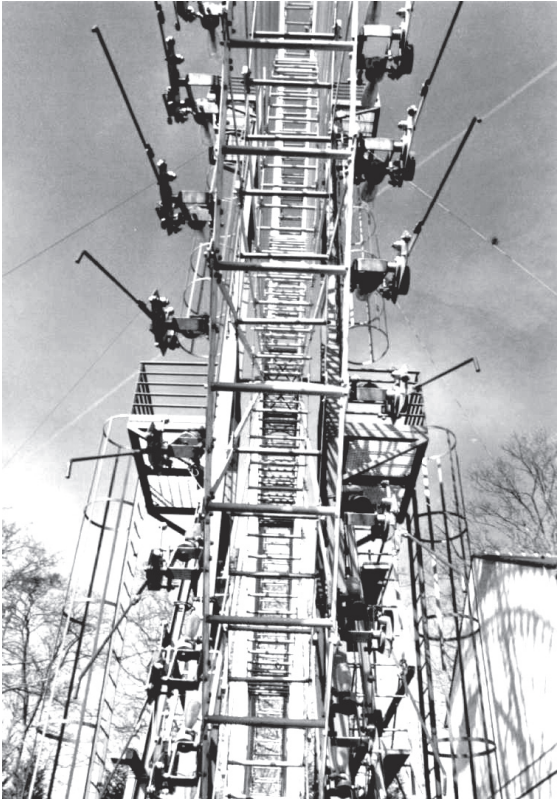
Mechanical Perpetual Wheel

of 18 meter diameter
by Aldo Costa

<http://nseo.com/aldocosta>

According to the inventor, it is not a kind of “wind engine” as his motion can be clockwise or anticlockwise as requested. It is claimed as a self-running wheel with 18 meters diameter! The wheel comprises 236 small “machineries”, including spins. “The perpetual movement is the physical transformation due to the reversible system without energy; it requires a close revolution circuit from the rule of the inversed square. The interaction from the specialized links allows the positive masses to obtain the inverse charge to relate the right place at the right time, which creates the center of gravity”.





Faraday Lab Ltd is interested to get contacts with professional designers to start calculations, computer model and to build similar device.
Please contact by email office@faraday.ru or fax 7-812-3803844

THE NEW RQM IMPULSE CONVERTER

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Technical Report

The New RQM Impulse Converter with
digital energy technology
as a precursor to RQM energy technology
From Dr. sc. nat. Hans Weber

The prospective, long-awaited RQM energy technology is a new, clean, electromagnetic nuclear resonance coupling using the known and powerful oscillation energy of the atomic nuclei, a new energy source which has remained unknown to physics until now. This technology is based on a completely automatic, intelligent and adaptable electronic instrumentation and control system, which serves to process clearly defined energy packets in fractions of microseconds. We have now fulfilled these demands and reached this goal. The electronic system developed in the RQF laboratory is now successfully in use. The new method works.

With that, the RQM energy solution moves within reach. The completion of the development of this method still requires financial means in the range of 3-6 million CHF or 2-4 million EURO, in order to reach this important goal at full speed with a greater number of scientific and technical employees.

The new RQM impulse converter, which converts a normal direct current into an alternating current, is distinguished by a precise sine wave, free from harmonic vibration and independent from the load to be operated. This is possible because of the newly developed RQM impulse technology, which dimensions the energy packets and transfers them to the

load in such a way that the voltage remains an exact sine shape, even under inductive and capacitive loads. This is made possible with an inductive temporary storage (so-called RQSp = Raum-Quanten-Speicher=space-quantum storage), which transmits charge packets according to the voltage required by the load. The RQM impulse technology can also be realized with a capacitive temporary storage, but in that case magnetic charges (voltage pulses) are transmitted, according to the required power. This kind of technology is not possible using resistors, since these switching elements do not store electrical energy (only heat). However, wave guides are an exception to this, and they produce outstanding results particularly at very high frequencies. The RQM impulse technology with capacitors and wave guides will be later explored in greater detail in a theoretical work.

The RQM impulse technology is different from conventional power electronics particularly because no unnecessary energy flows into undesired channels, due to the precise dimensioning of the necessary energy packets. This is not possible with the conventional technology of chopping direct current and electric-wave filters, because conventional DC/AC converters, when they are used in solar or photovoltaic systems, load the network unnecessarily with harmonic vibrations. In contrast to that, the RQM impulse converter serves to free the network of harmonic vibrations. The new electronic system was previously optimized with regard to the number of semiconductors and output efficiency. After the optimization, it was determined that the new product produces almost no electromagnetic pollution.

This new technology has various uses. As a result of the hyperbolic output characteristic, it is particularly attractive in electrotraction with three-phase asynchronous motors, because in the case of low voltage, the necessary power is automatically released upon acceleration and

when a certain rotational speed is reached, the necessary output voltage is automatically set, without requiring an adjustment. Only the power consumption must be controlled.

A perfect sine curve is generated in photovoltaic systems with network feed, which stabilizes rather than strains the network.

Fundamentals of the Resonance Coupling for Direct Conversion of Resonance Energy into Usable Electricity

The new RQM energy solution uses the third option for nuclear energy. This is the only alternative to nuclear fission and to nuclear fusion, which taps the nuclei without altering them and without producing radioactive emissions, so-called resonance energy conversion.

It is known that each nucleus is a dynamic structure, which can be represented as a tiny drop of liquid, which is rotated around a point of equilibrium, namely a spherical shape. For Deuterium, the oscillation appears as a tiny dumbbell of hydrogen, whose length (distance of the proton from the neutron) is fitted to a sine shaped oscillation. The frequency of this oscillation, which is supported by a space-quantum medium, is approximately 10^{21} Herz. The relationship between the frequency and energy of an oscillation is now:

$$E = h/ef$$

whereby the energy is emitted directly in electron volts with the constant $h/e = 4 \times 10^{-15} \text{eV}$. For visible light, the frequency is approx. 10^{15}Hz and thus the energy is a single eV. For the oscillation in the Deuterium nucleus, an energy of about 4MeV (4 million electron volts) results from equation (1). Deuterium is stored in a piezoelectric crystal and aligned with an electromagnetic pulse (the patented RQM core) for short intervals of time. The crystal begins to oscillate at its natural frequency according to the rhythm of this pulse, whereby the energy of this oscillation is excited by the nuclear oscillation of the Deuterium. Electrical energy can be taken directly from the piezo effect and converted into the necessary form. This results in a piezoelectric usable electric power of $P=40 \text{ kW/cm}^3$.

So, a usable power of 40 KW can be consistently taken from an active volume of only 1cm³.

The effect of the Deuterium is catalytic, no expenditure, no wear and tear, no pollution as with fuel cells. It will be possible to implement this new development in nanotechnology, such as with microscopic gates, e.g. the space-quantum energy is tapped in the nanorange.

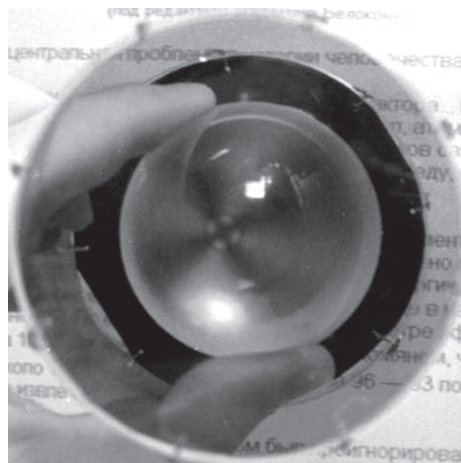
This new technology offers a way out of the nuclear and fossil fuel dead-end. Although it is only a tiny effect today - it was no different with the discovery of nuclear fission by Hahn & Strassman - nuclear resonance coupling has the potential to replace nuclear fission.

The management of the conglomerate points out that the energy solution proposed above is still viewed very critically, even rejected, because the new mechanisms are still not well known (or not known at all). It is necessary to have courage in making decisions, without asking the experts of conventional technology.

Sapphire resonators

A complete article about Alexander Kushelev's was published in "Ogonyok" magazine, #01-02, 1999.

Alexander Kushelev (Moscow, Russia) believes that if a resonator is manufactured very precisely (i.e. it has a high quality factor) then it will generate radiation by itself without any energy consumption, just because micro vortexes of the ether will resonate in this resonator of extremely high quality and will be emitted from it as ordinary electromagnetic waves. The author demonstrated some experiments.



News from Faraday Lab Ltd

We are looking for customers to develop further investigations
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Atomic hydrogen recombination

1. The objectives are as follows:

- The development of a scientific conception presented by Irvin Longmure more than 80 years ago;
- The investigation of hydrogen dissociation and recombination to get a new high-efficient heat source;

2. The customer

- The customer is Mr Nicolai Moller, Spectrum Investments Ltd company (UK).
- The Contractor is Faraday Lab Ltd.
- According to the agreement, the intellectual property (the patent) belongs to both parties in equal parts 50-50;
- The equipment was manufactured in Russia and measurements were made by Faraday Lab Ltd. in St.Petersburg, Russia.

3. The Project:

- A special gas filled tube with a tungsten cathode was produced.
- Recombination of hydrogen atoms produce excess heat output.
- The gas is not consumed during the process.

4. Theoretical backgrounds:

- The discovery by Academician Alexandrov #13 of 1962 (Russia).

5. The novelty of this invention

- The discovery by Mr Alexandrov is applied here for the molecular level: collision of oscillating tungsten atoms with hydrogen molecules lead to great kinetic energy high enough to provide dissociation of the hydrogen molecules.

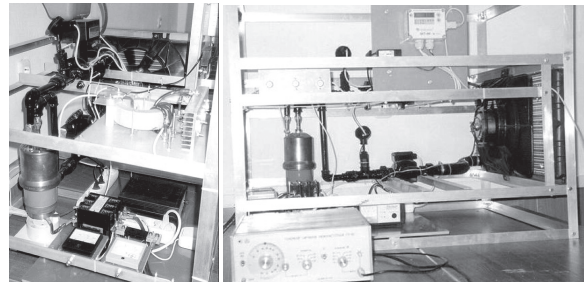
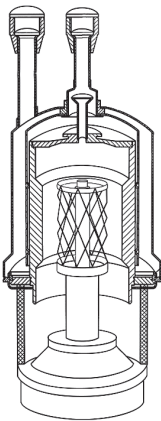
6. The gas-tube

- The basis for this tube is a conventional vacuum diode with a cathode of 1KW income power.

- Heat output measurements are based on the water cooling system operation.

7. Experiments

- Heating of the tungsten cathode results in accelerated motion of hydrogen molecules that are the main heat carriers from the filament to the tube body and they provide high-efficiency



conversion of electric energy into heat energy.

8. Effects

- For pulse current of heating the efficiency was measured as 125-225%.
- Also it was found out that the glow discharge between the anode and the cathode produce excess heat output.

9. Some suggestions on reactionless effect:

- The excess heat output is due to the fact that the gas molecules receive excessive kinetic energy.
- This principle can be used to produce a new propulsion unit for spaceships and other vehicles.

10. Conclusions

- The theoretical maximum efficiency of this method is about 83 to 1 (tungsten-hydrogen).

11. The prospects of the project

- Collaboration with partners who can design and manufacture gas-filled tubes equipped with tungsten filaments is necessary.
- It is possible to study new principles for creation of propulsion force.
- The patent application in Russia was filed on February 11, 2004. International patenting is necessary.

Temporal technologies

Physical Properties of Time

1. Goals

- Aether-dynamics approach to space-time engineering for development of advanced aerospace propulsion technology.
- Investigation of influence of the aether density on radioactivity.
- Research on influence of the aether density changes for possible medical applications.

2. Partners

- Alexander V. Frolov of Faraday Lab Ltd, Russia Customer as author.
- Vadim A. Chernobrov, Russia, author and Contractor.

- Intellectual property: 80/20 agreement between the Customer and the Contractor.



Alexander V. Frolov (left) and Vadim A. Chernobrov (right)

- All equipment produced in Russia, measurements were organized by Faraday Lab Ltd, St.Petersburg.

3. The Idea

- The rate of any process of existence of matter in space-time is considered as function of energy density in space.

- The spatial density of energy (aether density) can be changed and controlled by a special electromagnetic and other methods.

4. Theoretical backgrounds

- Experiments and theory by N.A.Kozyrev, Russia: any entropy changes processes are generating the wave of energy density.

- H.E.Puthoff on the vacuum engineering for space flight application.

- Magnet field as aether flow.

- Modeling of magnetic quazi-monopole as a way to changes of the aether density.



5. Novelty

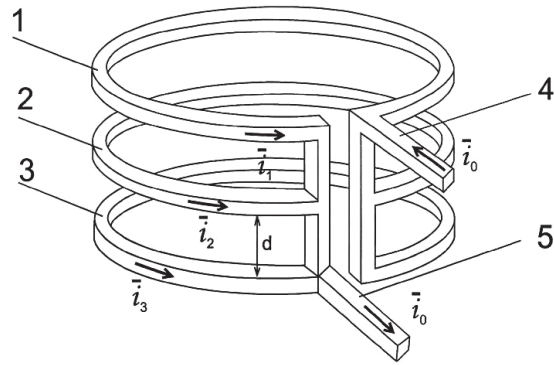
- At the first time some method was proposed to control temporal parameters of any physical processes (including process of existence of any matter) by means of changing of energy density in space.

6. Device

- Magnet quazi-monopole was designed to realize this method and it was tested.

7. Description of the Device

- Experimental unit: Spherical frame and 20 emitters.



- Each emitter create longitudinal waves to the center of the device for current pulses in the coils.

8. Emitters

- Each emitter is 3-layers coil. Current pulse produce axial wave of energy density due to spatal shift between layers.

9. Positive results

- About 5% deviations from usual time rate were measured. In other words, one 60 min hour in the center of the device was measured as 57 min or 63 min. Notes: magnet method is considered under critical objections due to possible magnetization of any equipment.

10. Idea on The Advanced Propulsion

- This principle can be used to create a new advanced propulsion method. It is assumed that aether density gradient is resulting to propulsive force like aerodynamical force, which is result of air pressure gradient.

11. Conclusions

- Experimenting with magnets to get changes of the aether density is not reliable.

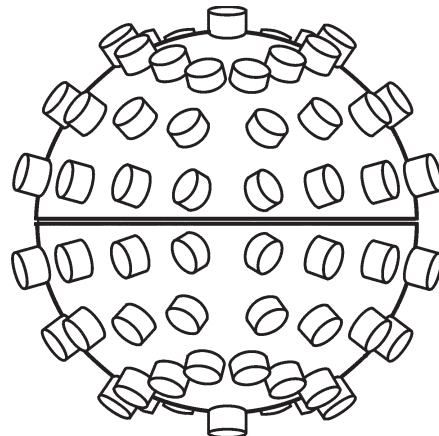
- Other processes (including electromagnetic methods) can be investigated to create changes of the aether density.

12. Patenting

- Russian patent claim filled April 9, 2003.

- Preparation for international patenting is necessary.

- Practical applications are: influence on radioactivity and advanced propulsion method.



Electric Propulsion Technology

1. Goals

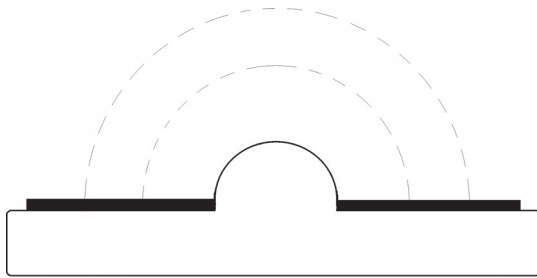
- Development of T.T.Brown's ideas.
- Experimenting to create advanced aerospace propulsion technology.

2. Author

- Alexander V. Frolov of Faraday Lab Ltd, Russia as the Author.
- Russian Patent claim filled Febr. 20, 2004.

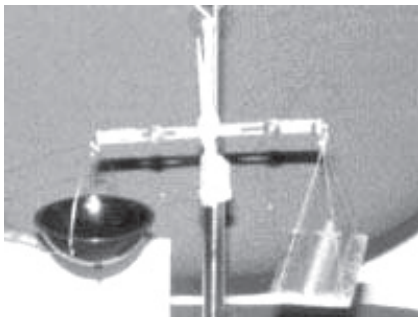
3. The Idea

- Electric interaction (attraction of two charged plates) can be used to get co-directed forces for the both plates.



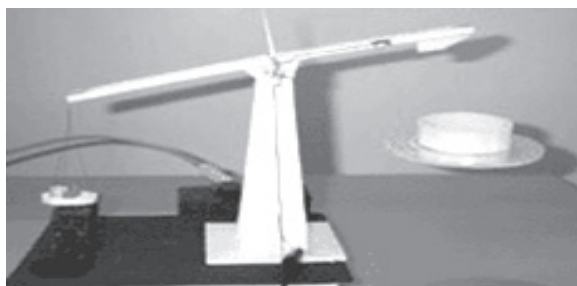
4. Experiments

- Experiments were started in 1998, Russia. Propulsion force was detected and demonstrated.



5. Confirmation

- Experiments in France, Jean L Naudin laboratory.
- Zoltan Losonc, Hungary.



This design is named as "Frolov's capacitor"

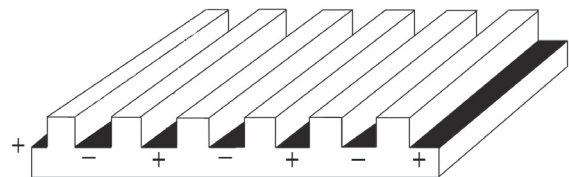


6. Conclusions

- The technology can be used for creation of aerospace propulsion units.
- There is no significant air ionization to consider the force as result of reactive ions flow.

7. Development

- Investigation on the best materials for the capacitors to create effective and low cost propulsion units.
- Miniaturization of the capacitors to get film or plate as battery of such propulsion units.



- Preparation for international patenting.
- Production and sales.

Development of these directions require business partnership with interested companies, which have own corresponding technological facilities and serious marketing strategy for such innovative products. Financial partnership is secondary aspect.

**Contacts: Alexander V. Frolov
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7-812-380-3844
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 - MEG Over-unity Electromagnetic Transformer by T.E.Bearden and Flux-machine, A.V. Frolov
 - Fuelless Energy, N.E.Zaev.
 - Symmetrization of Maxwell-Lorentz Equations. Experimental Methods Of Generating Longitudinal Waves in a Vacuum, K. Butusov
 - Vortex Heat Generators, Eugene Sorokodum.
 - Experimental Investigations Based on the Model of Electromagnetic Solitary Waves (solitons), M. V. Smelov
 - N.Kozyrev's Ideas Today, Dr. Shikhobalov.
 - Kozyrev on the Possibility of Decreasing the Mass and Weight of a Body Under the Influence of Active Properties of Time.
 - Longitudinal Thermomagnetic Effect, Dr. Alexander M. Mishin.
 - An Introduction to Gravity, L. Price and M. Gibson.
 - A Physical Model of Experiments Carried Out by E. Podkletnov, V. Roshin and S.Godin, A. Rykov
 - Scalar Wars, T.E.Bearden
 - The Problem of Electron and Superluminal Signals
 - Gravitational Electrolysis
- 2002, №3 (6)**
 - Large-Scale Sakharov Condition, D. Noever and C.Bremner
 - Matter As a Resonance Longitudinal Wave Process, A.V. Frolov
 - The Time Machine Project by Alexander V. Frolov
 - Kozyrev-Dirak Radiation, Ivan M. Shakhparanov
 - Electrical-Vortex Non-Solenoidal Fields, S. Alemanov
 - Physical Mechanism of Low-Energy Nuclear Reactions, V.Oleinik, Yu. Arepjev
 - The Evolution of the Lifter Technology, T. Ventura
 - On the Influence of Time on Matter, A. Belyaeva
 - Ageing-Preventive Bio-Heater, A. Belyaeva
 - Fundamental Properties of the Aether, A. Mishin
 - The Influence of the Magnetic Blow-Wave Field I. Shakhparanov.
 - Nikola Tesla and Instantaneous Electric Communication, V. Korobeynikov
 - A Unified Theory of Gravity, I. Kuldoshin
 - New Sources of Energy from the Point of View of the Unitary Quantum Theory, L.G. Sapogin, Yu.A. Ryabov, V.V. Graboshnikov
 - Antigravity Force and the Antigravity of Matter. A. K. Gaponov
 - A Capacitor, Which Possesses Energy of an Atomic Bomb (Review of Gaponov's research)
- 2002, №4 (7)**
 - Gravitonics, S. M. Poliakov, Oleg S. Poliakov
 - Experimental Research on a Gravity Propulsion.
 - The Beamship Technology, Russell Anderson
 - Commercial Antigravity, Tim Ventura
 - Action Without Reaction. Yuri N. Ivanov
 - New Possibilities of Vortex Devices, S.A. Lisnyak
 - An Investigation of Electric Energy Transmission Processes in non-Metallic Conducting Channels, D.S. Strebkov, A.I. Nekrasov, S.V. Avraamenko
 - Microcosm–Universe-Life, A.G. Shlienov, E.L. Petrov
 - Hypothesis of a Theory of Everything, Jack P. Gibson
 - The Charge and Mass of a Photon, D. Kh. Baziev
 - The Homopolar Motor: A True Relativistic Engine, Jorge Guala-Valverde, P. Mazzoni, R. Achilles
 - Weight Reductions Caused by Bucking-Field Permanent Magnets, William C. Simpson
 - Nuclear Waste Decontamination Technologies, M. Porringa
 - Experimental Investigations of the Change in the Radioactive Isotope Half-Value Period in the Local Volume of Cause-Effect Relations, Igor A. Melnik
- Tilley Electric Vehicle
- The Problem of Time: Force as the Cause of Change in the Course of Time, Valentin P. Oleinik
- Time, A. Michrowski
- Time as a Phenomenon of the Expanding Universe, Shulman
- Experiments on Thermo-Gravitation. Review
- 2002, №5 (8)**
 - Frolov's Asymmetrical Capacitors
 - The Electrokinetic Apparatus by T.T.Brown
 - Nikola Tesla's Later Energy Generator Designs, Oliver Nichelson
 - High-Efficiency Electrolysis, Alexander V. Frolov
 - New Results of Development and Testing of a Single-Wire Electric Power System, Prof. Dmitry S. Strebkov, Eng. Stanislav V. Avramenko, Dr. Aleksey I. Nekrasov, Eng. Oleg A. Roschin
 - Shauberger's Engine? by Eugene Arsenyev
 - The De Aquino ELF Gravitational Shield, T.Ventura
 - Ferrites and Generation Of Free Energy by Means of Ferromagnetics, Nikolay E. Zaev
 - Key Concepts for the Conversion and Control of Gravitational Energy, Glenn M. Roberts
 - Analysis of the Additional Energy Formation Processes in Vortices and Vortex Heat Generators, Dr. Alexey M. Savchenko
 - Kuldoshin's Transformer, Review
 - Disappearance of Inertia Force Mechanical Resonances and Free Energy Work, Arkady P. Kuligin
 - The F-Machine, Vyacheslav I. Boryak
 - The LUTEC Magnet Motor-Generator
 - How to Build Electrical Solid-State Over-Unity Devices, William Alek
 - The "Time" Seminar in Moscow State University
 - A Vortex DC Motor
 - Valerian Sobolev's Discovery. Review
 - Review on the Tilley Electric Car, E. Mallove
- 2002, №6 (9)**
 - Some Experimental News, A.V. Frolov
 - On the Possibility of Controlling the Course of Time, V.P. Oleinik, Yu.C. Borimsky, Yu.D. Arepjev
 - Spontaneous Polarization of some Glasses and Direct Current as an Inexhaustible Energy Source, L.G. Sapogin, Yu.A. Ryabov
 - New Fuelless Space Power Engineering, V.D. Dudyshev
 - Electrodynamic Explanation of Ball Lightning, S.B. Alemanov
 - The Nature of Torsion Fields, V.V. Uvarov
 - Matter, Space and Time in Aether Field Concept, A.M. Mishin
 - Reidar Finsrud's Perpetual Mobile in Norway, John Pasley
 - Physical Quantum Vacuum is a Source of Electromagnetic Energy, P.M. Shalyapin
 - Instantaneous Electrical Communication, V.I. Korobeynikov
 - Investigation of a Single-Wire Electric Power System, D.S. Strebkov, S.V. Avramenko, A.I. Nekrasov, O. A. Roschin
 - Fuelless Monothermic Engine (Invention by Y. Volodko)
 - On Viktor S. Grebennikov's Discoveries. Review
 - Experimental Study of Properties of Time. Review
 - Bedini Generator, David Mason
 - Article Update for An Introduction to Gravity, Lew P. Price
 - The CIP Engine Principle, Robert L. Cook
 - The Machine of J. Newman, Michael Williamson.
 - What is the ROM Technology? Review
 - Experimental Data on Time Control by Acad. A.I. Veinik
 - The Space Power Generator by P. Tewari. Review
- 2003, №1 (10)**
 - Testatika. A Review of a Well-Known Electrostatic System.
 - Plasma Electrolysis. Ph.M. Kanarev.

- What A Cold Fusion Is? E. Storms
 - Technical Introduction to LENR-CANR (Low Energy Nuclear Reactions). E. Storms
 - It all Started in 1989... (History of Cold Fusion Development). P. Hagelstein
 - A Science Tutorial (Cold fusion). T. Chubb
 - LENR (Low Energy Nuclear Reactions)
 - On Electrogravitation. A.V. Lemeshko
 - Avalanche-drive Propulsion Device. M.L. Filho
 - Unusual Permanent Magnet Motors. T. Valone
 - Hydrogen Energetics. A. Pashova
 - On the Longitudinal Electromagnetic Waves. A.V. Frolov
 - Space and Terrestrial Transportation. T.C. Loder
 - Commercialising the "Searl Effect".
 - Interesting Publications of the Last Year.
 - "Lifter" Project
 - New Electric Fire Technology. V.D. Dudyshev
 - New Effect of "Cold" Evaporation. V.D. Dudyshev
 - Conceptual Hurdles to New Millennium Physics. D. Reed
 - Resonant Phenomena in AC Current Circuit.
- 2003, №2 (11)**
- Minato Wheel. E. Vogels (Sweden)
 - Mechanism of Drive-Free motion. S.A. Gerasimov
 - Production of Ball Lightning.
 - Electric Discharge. G.D. Shabanov, O.M. Zherebtsov
 - Free Energy. A.V. Frolov
 - Some General Properties of Matter and Energy Sources. E.D. Sorokodum
 - Commercial Exploration of Space. Review.
 - Hydrogen Energetics. Ph.M. Kanarev.
 - Heater Producing Healthy Effect. A.L. Belyaeva
 - Inertial Propulsion Device. V.E. Senkevich
 - Unlimited Accelerated Nonreactive Motion. Review.
 - Revolutionary Current. S.K. Baliyan (India)
 - Tilley Electric Vehicle. Review.
 - Application of Motor-Generators. A. Akau
 - Electric Vehicle in Russia. Review by A. Pashova
 - The Richard Clem Motor and the Conical Pump. R. Koontz.
 - Spontaneous Flow Heat Pump. J.-L. Brochet
 - Registration of Gravitational Waves. V.N. Petrov
 - High-Energy Hyper-Low-Frequency Electric Field. Yu.V. Ivanko.
 - To the Question of Work Performed by the Electrostatic Field. A.V. Frolov (Russia)
- 2003, №3 (12)**
- Designing of a Time Machines. Vadim A. Chernobrov (Russia)
 - Control of Temporal Parameters of Physical Processes. A. Frolov.
 - Etherodynamics as a New Field of Physics. V. Atsukovsky.
 - Electromagnetic Gravitational Interaction, V. Ya. Kosyev
 - Medium For Existing of Matter in Nature. Anatoly V. Rykov.
 - Adams Motor. Sergey S. Abramov (Russia).
 - Field Transformation in the Model of Extended Space. Dmitry Yu. Tsipenyuk (Russia).
 - Joe Flynn's Parallel Path Magnetic Technology. Tim Harwood.
 - Flux-machine and Its Analogues. Review
 - Russian Patents on Alternative Energetics.
 - Gravitational Spaceships. Gregory R. Uspensky
 - On Velocity Of Drive-Free Motion. S.A. Gerasimov
 - Electromagnetic Self-Action. S.A. Gerasimov, A.V. Volos
 - Uranium Photoaccumulator. Anton I. Yegorov
 - Teleportation. Alla V. Pashova (Russia)
 - "Mass Defect" in Home Conditions. P.V. Sherbak.
 - Aether as Unified Field. Alexander M. Mishin
 - Global Energy. Philip M. Kanarev (Russia)
 - Fusion Processes Of Molecules Of Oxygen, Hydrogen And Water. Philip M. Kanarev (Russia)
 - Plasma Energy Power Generation. Bruce A. Perreault.
 - The Marcus Device Controversy. Tim Ventura
 - Systems of conversion of thermal energy to mechanical one. Review
- 2003, №4 (13)**
- Single-Wire And Wireless Electric Power Transmission. N.V. Kosinov and others (Ukraine)
 - The possibility of almost complete transformation of thermal energy into mechanical one. S.N. Doonaevsky (Russia)
 - Inventor Club. Review. Vector Propulsion Engine (Electromagnetic Version). A. S. Tukanov (Russia)
 - Inertial Dynamic Generator. S.N. Schmidt
 - Latent Potential Energy of Electrical Field. V.D. Dudyshev
 - Energy from Air. M.P. Beshok
 - A Parade of Gravitational Aircrafts. V.A. Chernobrov
 - Energy from vacuum. Review
 - Meeting of Nobel Prize Laureates in Saint Petersburg
 - Perpetual Motor With Magnetic Elements.
 - Who Needs A Controlled Thermonuclear Fusion?
 - Fuel cells. Edwin Cartledge (USA)
 - Free Energy. Thomas F. Valone (USA)
 - Secrets of Nicola Tesla's Experiments.
 - Alternative Cold. Review
 - High-Efficiency Technology of Magnetic Cooling. E.N. Tishina (Russia)
 - Interference Disc Electric Generator. Alan L. Francoeur (an announcement of the future article)
 - Howard Johnson and his Motor. Review
 - Bogomolov's Centrifugal Generator.
 - Magnetic Motor. A.V. Vydrin (Russia)
 - "Omega" Anomalous Hydrogen Reactor
 - Gravitational Shielding. Harald Chmela (Austria)
 - The Concept of Magnetic Gas
- 2003, №5-6 (14-15)**
- Novozhilov's Motor, Y. Novozhilov, Russia
 - Self-Action in the case of Magnetic Rotation, S. Gerasimov and others, Russia
 - Capillary Motor, I. Elshansky, Russia
 - Gravity-Heat Energy System, V. Sukhanov,
 - Modern Perpetual Mobile, Review
 - Free Energy and Antigravitation, (Spin Wave Lasers), Ines Espinosa, USA
 - Mechanical Analogies, Y. Ivanko, Ukraine
 - Cell of Fine-Plasma Electrolyse, Ph. Kanarev,
 - Smith's Generator, Review.
 - Strategy of Over-unity Devices Marketing, R. Wood, USA
 - Hutchison Effect, Mark Solis, USA
 - Heat Energy Conversion by Means of Non-Linear Dielectric, A Ries and others, Brasil
 - Gates' Motor, A. Akau, USA
 - "Cold Electricity", A. Akau, USA
 - Gravity Conversion Rotary Device
 - Torsion Technologies, China
 - Antigravitation, B. Smith, USA
 - Electric Levitation, MacLeod, Canada
 - Perpetual Mobile, V. Likhatchev, Russia
 - Interference Generator, A. Francoeur, Canada
 - A New Paradigm of Time, D. Reed, USA
 - On the Rotating Permanent Magnet System,
 - Patents on Inertial Propulsion Systems
 - Bogomolov's Experiment With Spring Drive
 - History of Perpetual Mobile
 - Perendev's Company, Review
 - Matveev's Electrical Generator, Russia
 - Perpetuum Motor With Magnets, France
 - Hydrogen Power Engineering, Review
 - News on Hydrogen Fuel Cells
 - Electric Discharge as Part of the Over-Unity Device.
- 2004, №1 (16)**

- Torsion Technologies Are Technologies of The XXIst Century, A.E.Akimov, Russia
 - The Antigravitational Platform, Review
 - Potapov's Vortex Heat Generator, Yu.S.Potapov
 - Fuelless Air Combustion, Alexander V.Frolov
 - A Free Energy Generator, Zoltan Losonc
 - Society for Development of Free Energy Technologies (GFE, Germany)
 - The "Confined B-field" Homopolar Dynamotor, J. Guala-Valverde, and Pedro Mazzoni, Argentina
 - A Hydroelectric Heat Generator, F.M.Kanarev
 - Conversion of Environmental Energy, B.M.Kondrashov, Russia
 - The World of Free Energy, Peter Lindemann, USA
 - The LUTEK Free Energy Generator, Australia
 - Pulsed Direct Current for Light Circuits, Gary Magratten, USA
 - Patent Applications on Thermo-Gravitation
 - An Electrogravitational Engine
 - "BREEZE 5000" Wind Energy Installation, T.A.Pungas, Russia
 - Silicon-Based Power Engineering
 - A Method of Extraction (Restitution) of Energy, V.F.Markelov, Russia
 - Asymmetric Capacitors, Alexander V.Frolov
 - Force on An Asymmetric Capacitor, Chris Fazi
 - The Working Principle of Frolov's T-Capacitor, Zoltan Losonc, Hungary
 - A Precession Free Energy Generator, V.I.Bogomolov
 - On The Way To A New Astronautics, A.V.Perfiliev
 - An Energy Converter, Review
 - What Ever Happened To Black Light Power? Patrick Bailey, USA
- 2004, №2 (17)**
- The Techno Maestro's Amazing Machine Kohey Minato.
 - A Thermomagnetic Engine, Yu. Novozilov, Russia
 - A System of Effective Energy Conversion, Yu. Novozilov, • News from Prof. Kanarev, Russia
 - U.S. Will Give Cold Fusion Second Look, Kenneth Chang
 - Life After The Oil Crash, M. Savinar, USA
 - Movement From Nothing, P.Ball, USA
 - Vortex Heat Generators, Review by N. Ovtcharenko
 - A Thermogenerator And A Liquid-Heating Device, R. Mustafaev
 - Energy Generator, G.N.Ryabusov, Russia
 - Ethanol For The Hydrogen Economy, S. Clifford,
 - To The Stars, W. Scott, USA
 - Many Faces of the Electron, A.Akau, USA
 - Vortex Heat Generators by Yu. S. Potapov
 - Tesla & Schauburger Technologies, F. Germano,
 - The Nature Of The Electron, L.Price, USA
 - The Gravity Conversion Device
 - A Device For Converting Potential Energy, A.I.Doronkin,
 - A Manual for Designing Ether-based Engines, G.Ivanov,
 - How To Calculate the Efficiency, V.I.Korobeinikov, Russia
 - Commercializing The "Searl Effect", Review
 - Wallace Minto's Weeel
 - Original Ideas of William R. Lyne,
 - The Magnetic Field Rotator, A.Sidorovitch
 - Newman's Motor
 - Road To Hydrogen, Press Release
 - The Waterjet Turbine, Edward Neurohr, Germany
 - The Homopolar Transfer of the Mass Charge, V. Dudishev, • Electron-Positron
 - Is A Revolution In The Fundamental Sciences Possible? V.Andrus, Ukraine
 - In Memory Of Eugene Mallove
 - Esoterica As A Catalyst For A New Era In Physics, D.Reed.
- 2004 #3(18)**
- Commercialization of alternative energetics,
 - Potapov's molecular engine and water vortex heat generator.
 - New Products: Autonomous electrostation with molecular engine.
 - Magneto-hydrodynamic motor, S. Gerasimov,
 - Inertial drive, E. Linevitch, A. Ezov, Russia.
 - The Earth as electromotor-generator, V. Dudishev,
 - High efficient method to obtain hydrogen and oxygen from water, V. Ermakov, Russia.
 - Inertial generator, V. Gilchuk, Russia.
 - Chemo-electrical gravito-electrolysis by V. Studennikov's way, A. Makarov, Russia.
 - Sun water pump, Yu. Novozilov, Russia.
 - Semiconductor electromagnetic energy transformer, A. Zerniy, Ukraina.
 - Prof. Alfred Evert's research, Germany.
 - Prospects for Breakthrough Propulsion from physics, M.Millis, USA.
 - Phenomenon of direct transformation of magnet field energy, V. Dudishev, Russia.
 - Electrostatic generator, USA patent 4,897,592
 - Vortex drive, Alexander V. Frolov, Russia.
 - Magratten's magnet pulsed DC motor-generator.
 - Over unity propulsion of zero potential casing asymmetric capacitor system, Nassikas A.A.
 - On the nature of electrical force interactions, Alexander V. Frolov, Russia.
 - New products: Water vortex heaters, prices and technical data.
 - Antigravity Secret, Tim Ventura, USA.
- 2004 #4 (19)**
- Alternative energy. Yu.S.Potapov
 - Fuel less motor by Kondrashov
 - New about Tilley car
 - Bessler machine
 - Water instead of oil. N.V. Kosinov
 - Nature of time. L. Price.
 - Magnet motor. A.E.Rumin
 - Transformation of magnet energy. V.D.Dudishev
 - Calvin drop machine. Yu.N.Novozilov
 - Vortex technologies. A.Akay
 - Time control by means of scalar waves. G.Roberts.
 - Electromagnetic engine by Ignatyev
 - Electromagnetic drive. R.Cornwall
 - Magnet motor. A.A.Kalinin
 - Global energy sources. Ph.M.Kanarev
 - High efficiency electrolysis by Stanley Meier
 - Water vortex heat generator (product for sale)
 - Autonomous power plant (product for sale)
 - Magnet motor TS2000
 - Ball lightning. N.G. Shabanova and G.D.Shabanov
 - Antigravity research
 - Time control experimetal device
 - Perpetuum mobile of 18 m diameter
 - RQM technology