ARTIFICIAL HEART OXYGENATOR OF BLOOD, ENERGYICALLY AUTONOMOUS.

ITALIAN PATENT DEPOSIT n.102018000005791DEL 28/05/2018 - looking for public and private interlocutors in the world (http://www.spawhe.eu/artificial-heart-oxygenator-of-blood-energyically-autonomous/)

Fifteenth open letter to International Judges and the United Nations

ABSTRACT

The artificial heart of man, proposed in this patent deposit, closes the circle of sustainable energy based on the only physical principle possible in every remote corner of the Earth: the bypass of the force of gravity and of the elastic pressure of the air that it can be realized everywhere, even in the man's chest, using pumps with the double supply separated until to the impeller, which science, industrialists and world legislators pretend to ignore in order not to admit that they have wronged the entire industrial and economic development. Everything would have been simpler, cleaner and cheaper if this invention had taken place a hundred years earlier, as it could have been. The artificial human heart is the miniaturized version of the autoclave system, already reduced, to make it enter the wells' shirts, to purify the water producing energy. Entering the chest of the man to purify the blood producing the energy needed by the brain is not much different from expected for the wells. They serve two mini parallel autoclave systems that replace the right and left atria ventricles . The two pumps that feed them, with the double supply separated until o the impeller, allowing the balance of the hydrostatic thrust in suction and delivery, allow to get the blood coming from the systemic circulation in the mini autoclave on the right and the one coming from the lungs in that left, bypassing the compressed air pressure. This system works autonomously because the mini autoclave ejects at the same instant the quantity of blood equal to the one that enters, due to the principle of impenetrability of the bodies, through a mini pump used as a turbine connected to a direct current generator. The energy spent by the pump motor is about a tenth of the energy produced by the generator. This allows us to have enough energy available to produce the amount of compressed air necessary to the autoclave and the management of an electronic control unit that with a three-word voice command: "rest, normal, fast" manages the flow and the blood pressure according to the physical activity that it carries out. Although it is the air pressure that circulates the blood in the pump used as a turbine, since the circulation is one-way, apart from air solubilized in the blood with purifying effects, there is no other consumption of compressed air because it is exploited statically and not even electricity to produce it. Although it is the air pressure that circulates the blood in the pump used as a turbine, since the circulation is one-way, apart from the solubilized air in the blood with purifying effects, there is no other consumption of compressed air and electric energy. As published on http://www.spawhe.eu, this solution was found by myself after many years spent trying to improve the purification systems of water and air and many patents filed in vain. However, the study served to ascertain that world science has identified single and incomplete scientific principles, which used singly have polluted and warmed the planet. Only with the invention of the pumps with the double power supply separated to the impeller, the undersigned has found the key of the problem. In fact, through it, the dynamic fluid used cold between water and air, especially compressed, would have produced energy protecting the environment, consuming only moderate wear of materials, with low operating temperatures, and air pressures used statically, which would circulate the incompressible liquid. This is the true principle of terrestrial energy that, unfortunately, has not been legislated by world science, which still ignores it, hoping that in addition to myself, no one notices it. Too late. They would have to admit their mistakes, before this energy, despite their silences, also entered the human heart.

DESCRIPTION

In the introduction of any patent filing it is normal practice to cite the state of the art of the sector concerned. But in this case there is little to say because pressurized hydropower does not exist in world industrial, environmental and energy systems. This energy that could be born at the advent of the industrial era is still today boycotted by the world authorities and the multinationals, which, having failed to identify it, have damaged the environment, the world economy, human health due to the pollution that produced uselessly, because the current energies can not be justified even economically, both in fixed and mobile versions. As demonstrated by this invention, the possibility of advancing the state of the art in the treatment of cardiovascular diseases has also been prevented by the absence of this way of producing energy. It should be clear that if we can produce free purifying energy in the human body, we can also produce it in every corner of the Earth, including deserts, poles and space, bringing the necessary ingredients: water and air.

With the current state of the art, the artificial heart, with oxidation and the production of autonomous electric energy, can not be realized because the pumps do not exist with the separate double power supply until the impeller, the blood can not enter the autoclave in low pressure; autoclaves can not work one-way to exploit static pressure without expanding the air cushion. In fact, if the air cushion is expanded, the energy gain that allows autonomy can not exist. Each expansion of the air cushion would result in a subsequent compression with an equivalent or higher energy expenditure, falling back into current systems. Without the use of pumps with the double power supply separated to the impeller, the principle of Henry can not be exploited to oxidize the blood in a continuous flow that passes through the autoclave. In fact, today autoclaves are not used to produce energy. They are used with the expansion of the air cushion to mitigate the phenomena of various motion perturbations and to reduce the number of hourly starts of the pump motors of the hydraulic systems that overheat.

Above all, doctors who have never read the articles published by the undersigned at http://www.spawhe.eu and intention will ask themselves the following question: how is this phantom pump with the double power supply separate until to the impeller? They will be amazed if I say that it is exactly the same as other centrifugal pumps. Only the supply of the pump on the suction side changes, which in the larger pumps can be divided into four parts. In the smaller ones, as in the present case, in two parts. La cosa importante è il fatto che la divisione deve arrivare dentro e al centro della girante in rotazione, radente ai profili delle palette in rotazione. The important thing is the fact that the division must arrive inside and at the center of the rotating impeller, grazing the profiles of the rotating blades. Without this change, if we feed the pump as we currently power it, with a single flow in suction and delivery, the pump's performance does not change much, even worse, having introduced a useless loss of load. If instead, we feed the pump differently, as it must be used, with two different pressures, we can use half of the pump inlet section to recycle the blood contained in the autoclave to the pressure of the autoclave and the other half to enter into it recycle circuit the blood with less pressure coming from the systemic system or from the lungs. It is obvious that who determines the direction of the flow is the direction of rotation of the impeller and since the two flows go in the same direction, the flow with the upper hydrostatic pressure helps to enter the one with less pressure. It would obstruct it if the power split did not reach inside the impeller, grazing the rotating blades. In fact if we imagine the rotation in slow motion we can understand that by rotating, the half-impeller that receives the flow in low pressure, in the next moment, having changed position, also receives the flow in high pressure, and at the next instant again the flow in low pressure, in a continuous cycle. In addition, all centrifugal pumps in the center of the impeller create a vacuum in the tube that feeds them proportional to the square of the impeller rotation speed; otherwise, they would not work to lift the liquid. Dividing the supply pipe in two equal parts, the vacuum takes place even if we have greater suction load losses, but with immense advantages, because

in the next phase of the impeller rotation, the fluid passage section expands, the speed decreases and the pressure increases. At the outlet of the pump impeller, we have the sum of the two flow rates and a single pressure. This is due to the Pascal principle. Someone more expert in hydraulics can assert that the flow coming from the side with less pressure is lower than that which is recycled internally to the autoclave. In fact, the side with greater static pressure has less pressure drop, but this fact does not really matter at the end of the operation. By increasing the pump rpm, we also reach the blood flow that the human body needs (5 - 15 L / min). The flow recycled internally to the autoclave has no external effects but improves the oxidation of the blood. By varying the revolutions of the pump, both the inlet and the recycled flow rate vary, but only the quantity of blood coming from the outside enters the pump inside the autoclave (2.1 - 2.2), which is not powered by any electrical energy, as it is used as a turbine. It is that which produces energy, expelling at the same time the amount of blood entered that is incompatible with the volumetric capacities of the small autoclave. But the expulsion takes place with the force of the small cushion of compressed air, and since it happens at the same instant of the water that enters, the air cushion can not expand and can not consume energy. It can only be produced by rotating the multi-stage pump impellers and the shaft connected to the generator (3.1 - 3.2). The liquid level excursion is regulated by the level sensors (10.1 -10.2). In fact, if the level is lowered, the revolutions of the motors increase (6.1 -6-2) which increase the flow rate of the pump which raises the level only with the blood coming from the outside. If the blood level increases the revolutions of the motors are lowered automatically. The system is managed by an electronic control unit (12) to which the following parameters are received:

the number of revolutions of the circulation pumps motors (6.1 - 6.2);

the signal of the high or low level of the sensors (10.1 -10.2);

The 4 - 20 mA signal of the pressure transmitters (13.1 - 13.2);

Since this value is the one that must be controlled by the electronic control unit (12) depending on the activity performed (rest, normal, fast), the pressure to be maintained automatically can be set by varying the revolutions of the motors (6.1 - 6.2) and the working pressure of the autoclave through the operation of the compressor (8) and the position of the level of the sensors (10.1 - 10.2). The three adjustments are necessary to perfectly center the points of best functioning that can also be identified by the storage of the energy absorbed by the motors of the circulation pumps (6.1 -6.2) and of the one produced by the current generators (3.1 - 3.2) in the three predefined working conditions, ordered vocally to the control unit. In fact, both the circulation pumps and those used as turbines, will have operating curves drawn at the different numbers of revolutions and pressures, traced in the phase of development of the final prototypes. The operating points with better efficiency for each rest position, normal, fast activity, will correspond to the lower absorption of the motors (6.1 -6.2) and the maximum energy produced by the generators (3.1 - 3.2).

Since the spaces are quite small, it is probably not possible to reach the maximum flow rates (25 L / min.) And the maximum pressures (180 mm / Hg), but stop at more moderate values (5 - 15 L / min. maximum pressures of 140 mm / Hg Considering that the pressures measured with the natural heart oscillate between the systolic and diastolic values, the artificial heart will avoid pressure peaks and low pressures, both of which are unwanted for different reasons.

According to the medical literature, the average blood flow in an adult person is about 5 L / minute while the pressure oscillates between the systolic value, equal to about 120 mm / Hg and the diastolic value of 80 mm / Hg due to the contractions of ventricles. These values increase under stress up to over 25 L / minute and pressure of 180 mm / Hg and decrease when you sleep. Arterial pressure is determined by three main factors:

the amount of blood that is released into the circulation during systole;

the viscosity of the blood (hematocrit);

Resistances offered by vessels (arteries and veins) to the passage of blood flow.

In the artificial heart designed as two small autoclaves that replace the right and left ventricles and ventricles, the blood flow is regulated by two mini-pumps with variable revolutions, equipped with a separate double supply up to the impeller, while the circulation pressure is provided by a mini electrocompressor placed outside, but in the future, it can also be installed in the ribcage, connected to an eternal air intake. We should not be surprised by this solution because the compressor will be very small, having to supply only the amount of air that dissolves in the blood. If we pressurize the mini autoclaves to 1.0 bar that correspond to 750 mm / Hg of mercury, we double the capacity of oxidation of the blood due to the law of Henry and Dalton with respect to atmospheric pressure. The phenomenon of solubilization of gas in the water is quantifiable in milligrams of water per liter of gas (nitrogen, oxygen, CO2, helium, etc) according to the law of Dalton, on the partial pressure of the gas and Henry on the solubility in water of the same. Below the main formulas that explain the concepts, without considering the merits of the calculations:

in a mixture of ideal gases contained in a volume V and the temperature T, the molecules of each gas molecules behave independently from the other gases; as a consequence of this is that the pressure exerted by the gaseous mixture on the walls of the container and on the water surface is given by: $p = \frac{RT}{V}\sum_i \eta_i$

where, R is a constant that that is 0,0821; η_2, … represent the number of moles of each component of the mixture. This law is valid under the conditions by which it is valid the ideal gas law is approximated at moderate pressures, but becomes more and more accurate as the pressure is lowered. By defining the molar fraction as the ratio between the number of moles of the ith component and the number $\sum_i \eta_i$ Total of moles present: $x_i = \frac{\eta_i}{\sum_i \eta_i}$ It is obtained that in a mixture of ideal gases, the partial pressure of each component is given by the total pressure multiplied by the mole fraction of that component: $p_i = \eta_i \frac{p}{\sum_i \eta_i} = r_i p$.

According to Dalton's law, the sum of the corresponding partial pressures must be equal to atmospheric pressure (1 atm = 101.3 kPa) and in fact:

Nitrogen: 79.014 kPa; Oxygen: 21.232 kPa; Carbon dioxide: 0.04 kPa; Argon: 0.8104 kPa;

other gases: 0.2127 kPa. Total (air): 101.3 kPa.

The Henry's law says that at constant temperature, the solubility of a gas is directly proportional to the pressure that the gas exerts on the solution. Reached equilibrium, the liquid is defined saturated with the gas at that pressure. This state of equilibrium is maintained until when the external pressure of the gas will stay the same, otherwise, if it increases, more gas will enter into solution; if it decreases, the liquid will be in a situation of supersaturation and the gas is freed back up to the outside when the pressures are again balanced. The speed, with which a gas enters or is free in solution, varies as a function of the difference of the pressures (external and internal) and is conditioned by its molecular composition and the nature of the solvent liquid.

To compare among them the solubility of gases in liquids, you may consider their absorption coefficient, which is the volume of gas at normal conditions (T = 20 ° C and p = 1 atm) and expressed in milliliters which was dissolved in a milliliter of liquid. In the table are reported the absorption coefficients in water of some gases at different temperatures at atmospheric pressure:

Gas	Temperatura		
	0°C	20 °C	30 °C
Elio	0.0094	0.009	0.0081
Azoto	0.0235	0.015	0.0134
Ossigeno	0.0489	0.028	0.0261
Anidride carbonica	1.713	0.88	0.655

In order to understand the meaning of the data in the table, for example, consider the value of 0.028 corresponding to the coefficient of absorption of oxygen in water at 20 ° C at atmospheric pressure. This means that in a vessel containing water at 20 ° C, the gas phase above the liquid contains oxygen to the partial pressure of 1 atm, in a milliliter of water is dissolved O2 equal to a volume of 0.028 mL. In a tank pressurized at a bar more than atmospheric pressure the amount of soluble oxygen doubles and becomes 0.056 mL.

The first principle of thermodynamics is a formulation of the principle of conservation of energy and states that: "The internal energy of an isolated thermodynamic system is constant". In other words it means that energy is transformed, not produced. This is also confirmed in the field of chemical energy, where The Law of Lavoisier, also known as the law of mass conservation, states that in the course of a chemical reaction the sum of the masses of the reagents is equal to the sum of the masses of the products. In other words, in the course of a chemical reaction, matter is not created and not destroyed.

The first principle of dynamic fluid has not been formulated by science, but for myself it denies the principles of thermodynamics and chemistry, because starting from the exploitation of the gravitational force and the position energy of a non-compressible fluid, energy can be create in any place where there is a liquid and a compressible gas, such as atmospheric air, including the inside of the human body, where there is blood and the air we breathe.

If we wish to formulate a general principle of dynamic fluid, we could say that: the electrical energy that an isolated dynamic fluid system can transmit outside its own system is proportional to the pressure of the compressible fluid acting on the incompressible liquid for the liquid flow rate. incompressible, the density of the same, the efficiency of the electric pump with the double power supply separated to the impeller, which introduces it into the system, and the efficiency of the pump used as a turbine that transforms static and kinetic pressure energy into electrical energy.

However, talking about efficiency in this system is quite improper because there is no consumption and transformation of matter, as happens in thermodynamics, chemistry and nuclear, but only the wear and tear of materials.

Obviously, in this dynamic fluid principle other systems also enter, such as electromagnetism that produces electricity in a current generator and uses it to run the motor of a pump and an air compressor, otherwise, the energy does not it can enter and exit the system from the dynamic fluid system.

However, no one can deny that this energy, based on different synergies, starts from the dynamic fluid system which, due to the principle of the impenetrability of the bodies, expels the incompressible liquid, introduced into a system originally pressurized by gravity. If gravity did not exist it would not have formed the thickening of the gases that make up the atmosphere, which is the simplest form of compressed air. Suffice it to say that we can produce anergy by installing a hydraulic turbine at the exit of artesian wells, where gravity and atmospheric pressure make the water out of the subsoil. Therefore we can also produce energy by exploiting an artificially produced pressure in an autoclave. If this has not happened until now and due only to the fact that the invention of the pump with the double separate power supply to the impeller has been missing, it allows to recover the liquid and to insert it with little energy expenditure in the pressurized system. After the invention of this pump, everything becomes simpler. Both in the gravitational system and in the artificially pressurized system, the energy coming out is higher than the energy spent to enter it, provided that it enters through the central point a centrifugal pump where it creates the depression and provided an internal recycling through the same impeller to the volume of water accumulated to balance the pressures at the outlet and inlet of the impeller. Therefore, the dynamic fluid system as described above becomes in fact a producer of energy, physically extracted from the environment without transforming matter, since both the liquid and the gas that pressurizes the environment return to the initial state.

The great silences of world science, public and private, confirm that the best energy is the only energy that has never been produced on planet Earth. Unfortunately, it also seems that nobody wants to produce it to avoid collapses in the world stock exchange. If we reflect carefully, it is also the most logical. In fact, it is known that matter occupies a space that cannot be occupied by another matter at the same time. This is the principle of the impenetrability of bodies. What has not studied the science in the many thousands of pages written on this topic is the fact that dynamic fluid is an elastic system, where for a few moments, the incompressible liquid for particular physical phenomena, such as the depression that is created at the center of an impeller of a pump, or that which is created through a hole made in the narrowing of a section that connects different fluids (venturi effect) the two materials can occupy the same space, while the elastic system (gas), expels a quantity of incompressible liquid from overflow, or from an outlet connected to a user of the liquid with less pressure, as in the case in question is the systemic circuit or the lungs of the human body.

This natural phenomenon, which can be created everywhere, has never been deepened and has never produced energy because in the autoclaves the elasticity of the compressed gas (air) returning to the original position gives back to the system the absorbed energy: "to each action corresponds an equal and opposite reaction ". In fact, the autoclaves of the hydraulic systems, attenuate the perturbations of various motion, but do not produce energy.

With the invention of the pump with the double feed separated to the impeller, the energy absorbed by the air elasticity is not returned in the opposite direction (action and reaction principle) but deflects the flow of the incompressible liquid to a circuit that it uses less pressure, conserving the original pressure of the compressed air, since the volume inside the autoclave of compressed air and liquid does not change. Only the excess liquid, which has entered the depressant at the center of the impeller, is transferred by the static pressure of the autoclave into the pump used as a turbine, which performs the following important functions:

- Reduction of the pressure to the value compatible with the activity performed by the human body (70 - 140 mm / Hg);

- Transmission of the motion to the current generator. Therefore, the dimensioning of the impellers must be carefully proportioned in the laboratory for different operating pressures and flow rates, also taking into account the weight of the current generator rotor.

As written above, the depressive effect is not sufficient to allow the blood to enter the autoclave if the pump does not recycle with the same impeller also the blood already present in the autoclave, in order to balance the pressures. Only in this way can an autoclave system be transformed into a producer of electricity in terrestrial applications, not yet understood by science and in the human body to replace the heart when it is aged and when it does not work.

In the artificial heart, the volume of compressed air must be reduced to a minimum in order to avoid that when the human body is disposed horizontally, non-solubilized air bubbles enter the pump used as a turbine which supplies the systemic circuit. Although it has been expected at the entrance of the pump turbine used as a filter (4.1 -4.2) that prevents the entry of air bubbles is better to use tuti measures to avoid that can be formed. Therefore, in such conditions, the level probes transmit an anomalous signal that prevents the control unit (12) from supplying the compressor and varying the revolutions of the motors (6.1 - 6.2) which vary the pump flow rate. When the person is in a vertical position, the level probes (10.1 - 10.2), working regularly, restore the optimal operating conditions.

In the context of these variations of flows and pressures following the curves of operation of the feed pump and the output turbine, through the electronic control unit (12) are established the optimum conditions of artificial heart function also in consideration of age and the patient's health and activity during the day.

Since the air is not consumed, apart from that, which dissolves oxygenating the blood, you have many hours of autonomy, so by the quick-connect sockets the compressor and the control unit can also be disconnected by taking only the stabilizer of tension in sealed version (11) and carrying out the activity at a pre-set speed of the pumps that will allow to make even moderate sporting activities, or adjust the speed of the two engines (6.1 - 6.2) to a minimum and simply go to sleep. However, the final objectives are to insert the mini compressor and the control unit inside the human body because the air flows are minimal and we already have the voice command in some computer functions. Therefore, if we can not command the heart with the current automatic functions, we can command it vocally at what speed it should work. Unfortunately, we are still zero year because both public and private science, to hide the errors committed, are ignoring the only energy that can solve this problem with the consent of politicians, legislators and economists.

If the artificial heart has not yet been invented like so many other sustainable inventions very important for human survival, for me it is mainly due to the absence of pumps with the double power supply separated to the impeller and the autoclave systems with the pressurized internal recycling. In fact, without the recycling of the pressurized blood inside the autoclave, the external blood could not enter. The only way is to use the same impeller to recycle water or blood, if we want to save the environment and human lives. These things if science continues not to understand them must include the International Judges and order the experiments of the inventors not heard by anyone. If we had used a normal pump, to let the blood enter the autoclave, the prevalence should have been higher than the pressure of the compressed air cushion, therefore the system would be an energy absorber like the current autoclave systems: the pump, although equipped with half the range should have had a more powerful engine.

In the limited space available in the rib cage, nothing can be achieved that resembles the human heart. Which is a particular muscle, which unlike the other muscles of the body, does not depend on the brain and spinal cord. The functioning of the heart does not depend on what is called "voluntary musculature" controllable by our will. The heart, unlike other muscles, is self-sufficient because it has its own stimulator that generates the electrical impulse that determines the cardiac contraction at a rate that does not depend on our will, but on our emotions and stimulators acting on the psyche. The stimulus that generates the contraction is electrical in nature and involuntarily originates from the control centers located in the central nervous system in the brain and in the spinal cord. It is transported from the central nervous system to the heart through the parasympathetic and sympathetic ways. The stimulator which is called the sinoatrial node produces the nerve impulse, which, like an electric shock, generates the contraction of the heart and of the valves at the same time. The transmission of the natural impulse takes place through invisible "electric wires" that branch off from the "sinus node" that represents the control unit of the conduction system, consisting of atrioventricular node, bundle of His, right and left branch. The electric wires reach every part of the heart muscle. The energy source of the human body is due to the metabolism, where thousands of processes that require energy occur continuously in the cells to respond to the needs of life. Energy can take different forms in biological systems, but the most useful energy molecule is known as adenosine triphosphato (ATP).

For myself, it is impossible to think that science can copy such a complex system, if with the current scientific and technological knowledge it continues to use fossil, chemical, biological fuels, wind pressure and solar energy and does not grasp much concepts. more simple as the compressed hydropower and miniaturization of its mechanical, hydraulic components, electromagnetic and electronic to make them enter the little space available in the thoracic cavity, between the two lungs. The proposed system has only two things in common with the natural heart but they are very important:

1. It does not need to be controlled by the central system, being energetically autonomous.

2. is divided into two separate implants such as the current right and left atria and ventricles, therefore the right implant can be connected to the veins coming from the systemic circuit A, with the output B connected to the lungs supply; while the left implant can connect to the veins coming from the lungs C, with the output connected to the power supply of the systemic circuit D.

In addition, it has more features than the natural heart:

Transferring oxygen to the blood independently of the metabolic system and the lungs helps to overcome other diseases, improves fatigue resistance and we will need less power to survive.

FIG. 1 shows the general scheme, the representation is symbolic. The two autoclaves, which are represented perfectly side by side, can also be arranged one behind the other and with different altimetry. The electric motors (6.1 - 6.2) and the direct current generators (2.1 - 2.2) can be arranged horizontally by means of bevel gearboxes with bevel gears and bevel gears, to reduce the height in height. FIG. 2 shows the magnification of the pump with the double separate power supply up to the impeller. The common legend is reported:

(A) blood entry from a systemic circuit, (A1) connection with quick coupling and external cap for first aid supply; (B) blood output to the lungs, (B1) quick coupling and external cap for first aid supply; (C) entry of oxygenated blood from the lungs, (C1) attachment with quick coupling and external cap for first aid feeding; (D) oxygenated blood output to the systemic circuit, (D1) attachment with quick coupling and external cap for first aid supply. (1.1 - 1.2) pressurized tanks in biocompatible material; (2.1 - 2.2) pump used as a turbine; (3.1 - 3.2) direct current generator; (4.1 - 4.2) filter against impurities, clots of blood and air bubbles; (5) electric pump with double separate power supply up to the impeller; (5.1) transmission shaft; (5.2) partitions

divisions up to the impeller; (5.2) partition divider in the pump body up to the impeller; (5.3) pump impeller; (5.4) pump diffuser; (5.5 - 5.6) double curve with separator partitions and transmission shaft passage tube; (6.1 - 6.2) 12 vdc motor with variable revolutions; (7.1 - 7.2) clapet check valve; (8) 12 V DC electrocompressor; (9) shut-off valve and check valve; (10.1 - 10.2) level regulator with capacitive probes; (11) 12 v DC electrical voltage stabilizer; (12) electronic control unit for power supply and system control; (13.1 - 13.2) 4 - 20 mA pressure transmitting probe.

The artificial heart based on the scientific and practical principles mentioned is the latest invention of the undersigned, who with this invention probably concludes the activity of inventor, because this invention shows that his reasonings expressed in twelve years of work, depositing forty patents against the current on the world's purification and energy systems were accurate. If they were not exact, he could not propose to replace the sick human hearts, endowing them with an autonomous, certainly not perfect, energy like that of the natural heart, but with a capacity for oxygenation of the blood that the human heart does not have, having the human body delegated these functions to other organs. However, this function becomes important when the other organs get sick and when the heart stops more than the time allowed to allow the brain without oxygen. Con la soluzione prospettata dal sottoscritto il cuore artificiale, ossigenatore, autonomo energeticamente, che entra nella cassa toracica per sostituire i cuori malati, è a portata di mano. This heart can double or triple the duration of human life in a few years, organizing a good maintenance service with doctors and mechanical and electronic technicians, without genetically changing man.

Medical science could not reach this solution alone, which as mentioned, has been well hidden for over one hundred and fifty years because no one could think that by putting together industrial inventions, environmental and general scientific principles legislated for centuries (Newton, Pascal, Torricelli, Pascal, Herz), with the only water and air one could produce energy and purification at the same time. Unfortunately, the sustainable global development that could lead to the identification of the pump with the separate dual power supply and the compressed hydropower was not there. It only happened virtually on the website of a pensioner (the undersigned) who on http://www.Spawhe.eu, published a series of sustainable inventions alternative to those carried out by the world's political and economic scientific power centers. These inventions, being alternative, no one financed them. However, being connected to each other according to a logic of global environmental protection, the undersigned, in the absence of funding, has assumed them functional, inventing subsequent inventions, without spending a euro or dollar of world taxpayers.

To understand the entire process that led to the emergence of this energy, the entire website http://wwwspawhe.eu should be read as a book, not from the new home page but from the old one, which describes the first environmental inventions started in 2006, which dealt with global purification.

The reasons why I dealt with the artificial heart are random. I was and am worried about a family member, who would need a new heart. Unfortunately, as is known, the world's availability is few, above all, for elderly people. I do not think of interfering with medical science if I consider the artificial heart to be a small plumbing that falls within my competence. Obviously, if I had not had a basic idea to support the artificial heart, I would not have thrown myself into this undertaking, having already decided not to propose any environmental invention anymore. In fact, this invention is inspired by a previous invention: the N. 1020160000111939 of 07/09/2016 which can be found on this web-site http://www.pawhe.eu/the-pressurized-submerged-hydroelectric/. This invention, called "pressurized hydroelectric plants submerged in wells with lifting and oxygenation", aimed to solve the very serious problem of pollution of groundwater from nitrates and arsenic. For myself, this problem can be solved by producing compressed hydroelectric energy in the wells. But to do

this, it was necessary to invent a small autoclave that could enter a well's jacket, so that it could oxygenate the water, simply by recycling it through the autoclave inside the well by means of a pump with the dual separate supply until to the impeller. Each passage of water through the autoclave enriches it with a percentage of oxygen due to Henry's law, moreover, producing energy at the expense of the Torricelli principle, thanks to the pressure exerted by the compressed air imprisoned with no exit routes in the part higher than the autoclave. In fact, the only possibility of oxygen-enriched water output is that which feeds the turbine that makes the current generator turn, reducing the water pressure to the atmospheric pressure level. In this case, the production of energy is a secondary effect of water purification, since to transfer the oxygen contained in the autoclave into the well's water it is necessary to consume the pressure energy, which can be dissipated unnecessarily in heat, or producing excess energy to the one needed to introduce new water into the autoclave. Obviously, if the output feeding the turbine is closed by a valve, the circulation outside the autoclave does not take place. It happens only the internal recirculation to the autoclave with the second power of the pump that does not have the prevalence required to compress the air cushion. This system is ideal for purifying the water producing energy proportionally to the pressure of the air cushion without consuming compressed air, apart from the one that is solubilized in the water that passes through the autoclave, while the circulation pump with the double separate supply until to the impeller always absorbs the same low energy, regardless of whether the water feeds or does not feed the turbine. In fact, if the turbine supply valve is closed, the water in the well does not enter the autoclave, but if the valve is open, only the amount of water coming out of the turbine enters. However, when the turbine supply is open, by varying the number of revolutions of the circulation pump we increase or decrease the quantity of water circulating in the autoclave and therefore also the quantity that passes through the turbine. Anything that would happen in the polluted wells could also occur in the human body using blood instead of water.

From this description, it is clear that this system is autonomously energetically, except for system failures and machine wear. On the other hand, the same circuit in different forms the undersigned has also proposed it on all world transport. The volume of compressed air does not change, therefore the air behaves like a spring, but due to the Dalton principle on the partial pressures of gases and Henry on the solubilization of gases, neglecting the effect of nitrogen which is neutral and of the high gases which are in negligible percentages, we have an important effect of the solubilization of oxygen due to the pressure that increases exponentially as a function of the same.

The undersigned deepening the cardio circulatory topic has found many similarities with the depurative system designed for wells, both because it was necessary a solution of very small size, both because, medical science, is already using traditional electric pumps, miniaturized battery powered . This solution offers medical science the opportunity to also improve the quality of life with energy autonomy and the additional oxidation of blood, which certainly cannot displease. I sincerely hope that medical science gives a moral slap to the sciences of industry, the environment and energy for the silence they have maintained on these solutions, realizing this solution that they still pretend not to understand. In the human circulatory cardio application, this circuit involves the increase of blood purification capacities in both the systemic and pulmonary circuits, but also the infinite energetic autonomy of the circuit, until to the wear of the motor turbine pumps and current generators.

Let's see the path of the blood by looking at fig.1:

1. From the systemic circuit the superior vena cava and the inferior vena cava carry oxygen-poor blood to one of the mini pump (5) feeds with the separate double feed up to the impeller, inserted in the pressurized mini autoclave (1.1) (which replaces the atrium and the right ventricle of the heart). The second supply of

the mini pump (5) internally recycling the blood present in the autoclave to the pressurized tank (1.1), allows to balance the pressure in the impeller and to make a first oxygenation of the blood due to Henry's law. Lightening the work of the lungs. The check valve (7.1) guarantees one-way flow.

2. From the right mini autoclave (1.1) exits through the blood through a mini pump used as a turbine (2.1) and a filter against impurities of blood clots and air bubbles (4.1) reducing the pressure, while a small dynamo (3.1) connected to the shaft of the turbine produces direct current electricity. The output of the mini right autoclave feeds the lungs where the oxygenation of the blood takes place;

3. The oxygenated blood from the pulmonary capillaries arrives in the lower area of the lungs, where the pulmonary veins feed another minipump (5) with the separate double feed up to the impeller, inserted in the pressurized mini autoclave (1.2) (which replaces the atrium and the left ventricle of the heart). The second feeding of the mini pump (5) internally recycling the blood present in the autoclave inside the pressurized tank (1.2), allows to balance the pressure in the impeller and to effect a further oxygenation of the blood due to Henry's law. Lightening the work of the lungs. The check valve (7.2) guarantees one-way flow.

4. From the mini left autoclave (1.2) the blood exits passing through a mini pump used as turbine (2.2) and a filter against impurities clots of blood and air bubbles (4.2) reducing the pressure, while a small dynamo (3.1) connected the turbine shaft produces direct current electricity. The output of the mini autoclave left feeds the artery called aorta, and from there it resumes its path within the systemic circulation.

We do not have to worry about the greater pressure contained in the autoclaves compared to the internal pressure of the human organism because this greater pressure exists only in the autoclave, the blood pressure measured at the exit of the turbines (2.1 - 2.2) after having exploited and reduced it will fall within the values normal human body. In fact, the hydraulic resistance of the turbine and the mechanical one of the current generator, well proportioned in the testing of the prototypes can give a precise regulation of the pressure, but the greater regulation will be made through the number of engine revolutions (6.1 - 6.2) of the pump of power supply with the double power supply separated up to the impeller.

Human blood is a liquid with a color ranging from ruby red to purplish red depending on the amount of oxygen bound to hemoglobin; has a viscosity about 4 times higher than water and a specific weight of 1.041-1.062 g / cm3. For the purposes of energy calculations it is important both the high viscosity that reduces the loss of load, and the density that increases the power absorbed by the pumps and produced in the turbines.

Assuming to use the blood with a mean density between the two implants 1,055 and that the pump used as a turbine and that of blood circulation have the same efficiency (0,60), that the flow rate of the pump is 10 L / min (0,166 L / s) load losses 0.2 m, the circulation pump absorbs 0.57 Watt (0.166 * 0.2 * 1055/102 * 06), while the turbine exploits the flow rate of 5 L / min (0.083 L / s) and the autoclave pressure of 10 m produces a power of 5.17 watts (0.6 * 0.083 * 10 * 1055/102).Considerando che abbiamo due mini impianti idroelettrici pressurizzati che lavorano in parallelo, abbiamo una potenza assorbita di 1.14 W e una potenza energetica prodotta di 10,34 Watt.

Therefore, without energy sources external to the human body we can manage a small digital electronic circuit (12), equipped with a voltage stabilizer (12 v DC), which feeds the mini compressor (8) to maintain constant pressure and blood levels in the autoclaves using the level regulators (10.1 - 10.2) and adjust the number of revolutions of the motors (6.1 - 6.2) of the pumps that regulate the flow rate of the blood. If we need a higher energy output, we should only increase the working pressure of the mini autoclaves and the capacity of the pumps with the motors (6.1 - 6.2), controlling the outlet pressure with the pressure

transmitters (13.1 - 13.2) arranged near the B1-D1 couplings, which depend on the operating curves of the pumps used as turbines (2.1 - 2.2), which as seen in Fig. 1 are shown in three stages having to lower the pressure from about 750 Hg to the normal pressure of circulation (80 - 140 Hg). However, the adjustments must not be done by the patient, but by the voice control control unit (12).

As mentioned above, the pressure of the mini autoclaves is limited within the autoclaves to produce the pressure energy for the circulation of blood (according to the principle of Torricelli and the dissolution of oxygen in the blood according to the principles of Henry and Dalton). But the outlet pressure can be established precisely only by verifying the operating characteristics of the pumps used as turbines. If we increase the pressures with the compressor (8) we also increase the pressures detected by the pressure transmitters (13.1-13.2); if we increase the flow of blood with the engines (6.1 - 6.2) part of the pressure is absorbed by the pressure drops of the pumps used as turbines and the pressure is lowered. But we may have an excess of disproportionate scope for human activity that takes place. Since the flow rates of the blood can not be measured in the human body, moment by moment, it is necessary to realize the optimal operating curves in the laboratory so that they are stored in the electronic control unit (12). At each pressure level measured by the pressure transmitters (13.1 - 13.2) corresponds an ideal number of revolutions of the motors (6.1 - 6.2) and automatically an optimum pressure level supplied by the compressor (8), depending on the pump test performance used as turbines (2.1 - 2.2). These can not be adjusted, unless we add an adjustable mechanical or electromagnetic brake to the current generator connected to them. If we use a mechanical brake, they dissipate energy, but if we use a heavier electromagnetic brake with a larger quantity of magnets, we produce more energy. This is a choice we have to make according to the energy we need to manage the artificial heart with maximum efficiency.

At the current state of the art these concepts have not been grasped in large industrial, environmental, urban, transport facilities, which instead of absorbing polluting energy for a fee could produce clean energy for free. Faced with this great world mystery that science does not seem to want to clarify, certainly, medical science could not acquire the compressed hydroelectric system by itself and use it to design a more rational artificial human heart than those designed to date in the world, certainly with immense expenses of private public research.

As in the industrial plants, after having realized the various prototypes of all the components necessary to carry out the search for the best operating points of the electric pumps with the double separate power supply, and of the pumps used as turbines, it must be tested in the factory testing laboratories. to the point in the phase of installation and testing of industrial, agricultural and urban sites on the means of transport and work, the same thing must happen even when installing a mini hydroelectric plant compressed in a patient's thoracic cavity, while facing different problems and using biocompatible materials, which fortunately, science and technology are identifying.

The scientific and technological world, which has not identified the primary clean source of global energy along with the legislators are making themselves silly with their silences, forcing the undersigned to patent the individual applications of compressed hydroelectric power while everyone pretends that it does not exist and therefore none finances it, like the previous inventions that led to the discovery of this energy. Being the artificial heart the fortieth patent, it can not be random, the isolation in which you find an inventor who seeks sustainable alternative solutions to the centers of power, for this reason I hope that, at least the medical science dissolve this silence and finance at the international level this patent deposit, recognizing the undersigned not the industrial property, but the sweaty copyrights, breaking the wall of silence of the research bodies and multinationals against private inventors.

In the artificial heart and in all similar industrial applications it is evident that the check valves (7.1 and 7.2) kept open by the one-way blood circulation would automatically close if the circulation pumps stopped. These can not be stopped otherwise the artificial heart stops. If this happens, it means that the motor of a pump does not work. But the problem is less serious than natural heart arrest because the other pump continues to function and the blood to the brain, albeit in smaller quantities, continues to arrive. The emergency medical staff from the control circuit (12), realizes which of the two mini autoclave systems does not work and already in the home rescue phase, can connect the internal cardiac circuit to an external artificial heart of the same blood group supplied ambulance. In the hospital the final repair operation will take place, without the patient risking his life. The study of this solution has led to think also for the natural hearts that will have greater chances of survival if you make the predisposition to the connection on the ribcage of four standard bypass attacks for all heart patients awaiting transplantation of a natural heart or an artificial heart, so that they can be rescued before the brain damage occurs by means of an external temporary artificial heart. In fact, we lose consciousness if oxygen does not get to the brain for eight ten seconds. If the absence of oxygen persists for over 4 - 6 minutes, the brain begins to die. Even if the heart can be reactivated, after this period the damages are irreversible.

Neurological, pneumocardiological medical science and the medical electromechanical equipment industry are not guilty of this delay in the advancement of the state of the art in preventing neurological death that renders heart resuscitation useless. Four minutes are very few to be able to intervene, and yet with the artificial hearts available and an efficient organization, four minutes could be enough. In fact, if we look at Fig.1 we can see that there are the positions (A1-B1-C1- D1) that in the legend are called "quick coupling and external cap for first aid supply". With these predispositions carried out surgically on all subjects at risk of heart attack, a blood circulation parallel to the heart can be organized immediately regardless of cardiac stimulation by cardiac massage or defibrillator. Certainly this solution is more efficient and safe than cardiac massages and external defibrillators, which only in 2-3% of cases are successful, when the heart has stopped for several seconds. When a heart is sick, it is necessary to think of the definitive substitution of the heart with a new heart, natural or artificial, but nothing excludes cardiac dysfunction. I think that the quality of life of men and women of the future will not be much worse if you have four holes with quick hydraulic couplings (already existing at the state of the art) on the chest hidden with skin-colored caps, considering that many people today they make tattoos in various parts of the body. When the artificial heart will be a reality, in every home there should be an artificial heart already ready for use with the blood group of the risk person equipped with standard quick couplings for connection to the connection points (A1 - B1 - C1 - D1) of natural or artificial hearts to be rescued. Four minutes are few but enough to save the life and the integrity of the brain of people who love each other if nothing is left to chance. But we must also think about children born with serious cardiac malformations that are destined to never become adults. I think that as soon as the predispositions can be made (A1 - B1 - C1 - D1) the child can live an almost normal life with an external artificial heart of small size and weight (without batteries) and when it will exceed the age of growth the implant can be installed totally or partially inside the ribcage. This will depend on the evolution that the state of the art will undergo in the coming years.

However, from the description of this patent filing, it should be clear that in the future the life of man and woman will lengthen greatly. Much of life will be spent with artificial hearts ever more perfect, not so much from the hydraulic and mechanical point of view, already quite defined by myself (even if the performance will improve continuously, especially using new lightweight and resistant biocompatible synthetic materials) but above all, from the management one. It will be very important to manage the functions of the artificial heart directly with the brain or at least with voice commands, without maneuvering a digital keyboard. The

small compressor and the control unit must also be miniaturized and inserted under the skin. This is not impossible because, as explained, the statically-used compressed air must not be expelled as it does in the pneumatic motors. Only the one that is dissolved in the blood is consumed as in the lungs. Probably, since the artificial heart improves the capacity of oxygenation, if necessary, it will be possible to slightly limit the space of expansion of the lungs to let everything enter the chest. This can be precisely defined after having made the first prototypes. I publish these things, coherently, with previous publications, hoping that the International Judges and the WIPO (World International Property Organization) understand what they have not understood until now. That is, that environmental, energy, health, and public utility patents must be treated differently from commercial patents, recognizing intellectual property and copyrights to inventors. The industrial property may concern the single pump, turbine, compressor, electronic control unit, if the manufacturers believe they have special requirements, which fall within the criteria of patentability.

It is not possible that the legislators the International Judges and the WIPO, continue to not understand that intellectual property must be separated from the industrial one if we really want progress. The artificial heart is the result of forty patents grown virtually following a purification process of water and air together, which gradually led first to realize global thermal plants that purify water and air, also neutralizing CO2. In the following phase it replaced the thermal energy with the hydroelectric energy with the recycling of water. This energy also produced hydroelectric desalination plants. In the even more recent phase it replaced hydroelectric energy with the recycling of water with the hydroelectric energy compressed in different versions (domestic, submerged in basins, in wells, combined with water recovery). From these last versions the artificial heart oxygenator was born, which is a miniaturized pressurized hydroelectric plant. The whole journey has cost twelve years of work without the world authorities of the environment and energy noticing anything. Probably, if I had insisted more tenaciously on the first patents concerning the cleaning of fossil energy, consisting of about twenty patents, I would not have had the possibility to develop the following ideas, the energies with the recycling of water would not have been born even virtually. not even the compressed hydroelectric to which the artificial heart belongs. What is the conclusion of my speech? It is very simple: if in twelve years of work of the undersigned world authorities of the environment and energy have not moved a finger in favor of these solutions, probably, the artificial heart on planet Earth would not have spoken even in a hundred years because we could hardly get there without going through all the previous inventions of myself. This is the truth, the world public bodies and the manufacturers of means of transport would never have made self-criticism to their progress in the state of the art. As they got to the battery-powered cars, they would have come to a battery-powered, non-autonomously energetic heart. What can a battery-powered heart or a battery-powered car serve if natural or nuclear catastrophes occur and man can be in extreme survival conditions, without any energy source (paid) available?

Secondo le statistiche mondiali correnti la classifica delle maggiori cause di morte sono:

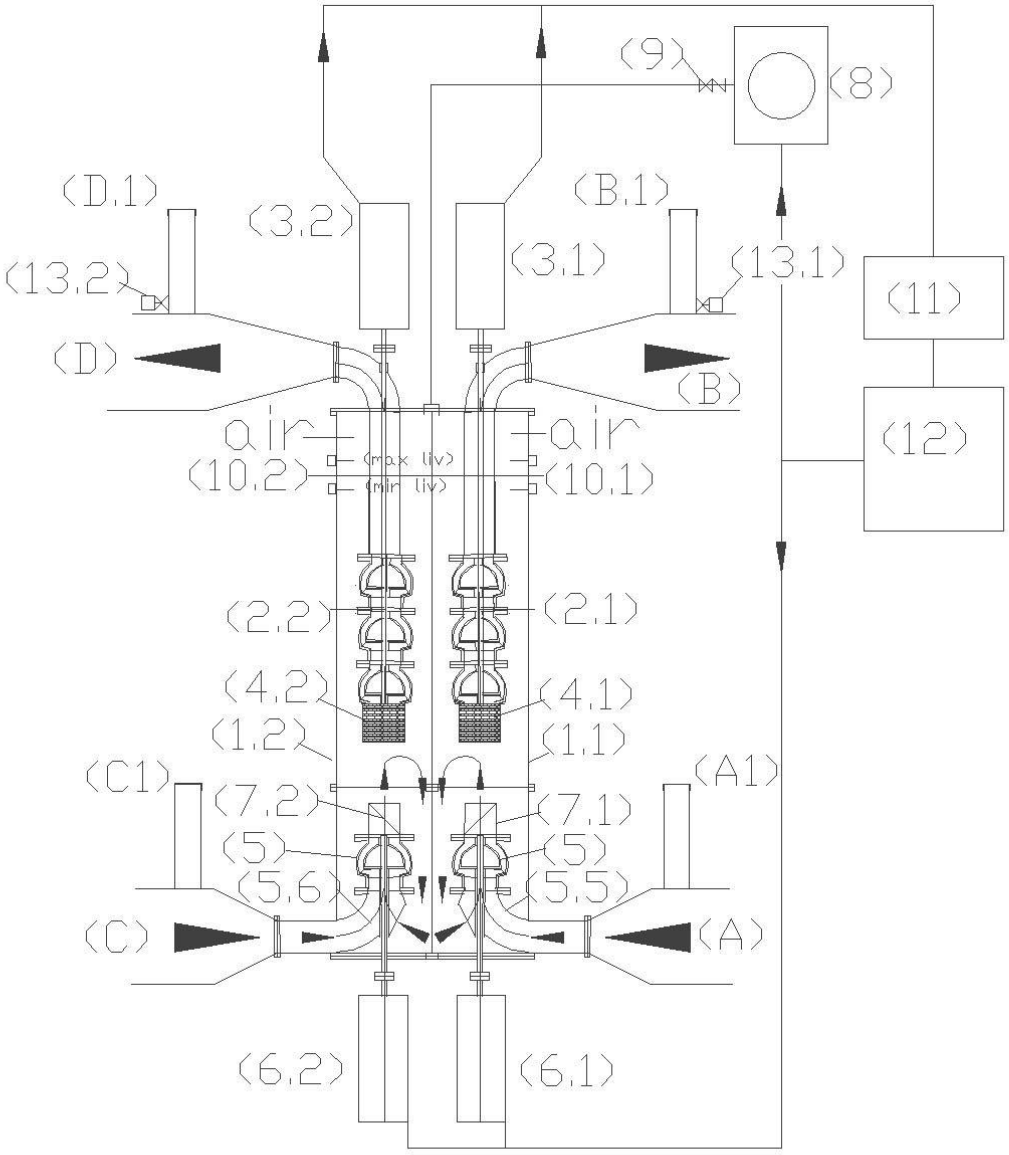
1. Cardiovascular diseases; 2. Tumors; 3. Cerebrovascular diseases; 4. Chronic respiratory diseases: 5. Accidents; 6. Degenerative diseases; 7. Diabetes and metabolic diseases; 8. Influenza, pneumonia and respiratory infections; 9. Kidney diseases; 10. Infections, AIDS and HIV.

I think that all these causes of death, directly or indirectly, will be drastically reduced, from the artificial heart and from the greater capacity of oxidation of the blood that will allow. Accident deaths will also decrease because the artificial heart will hardly stop and men will lose knowledge. If, in anticipation of possible accidental deaths, even healthy people are predisposed for connections on the A B C D ribcage to an artificial external heart of temporary survival, accidental deaths will be even less.

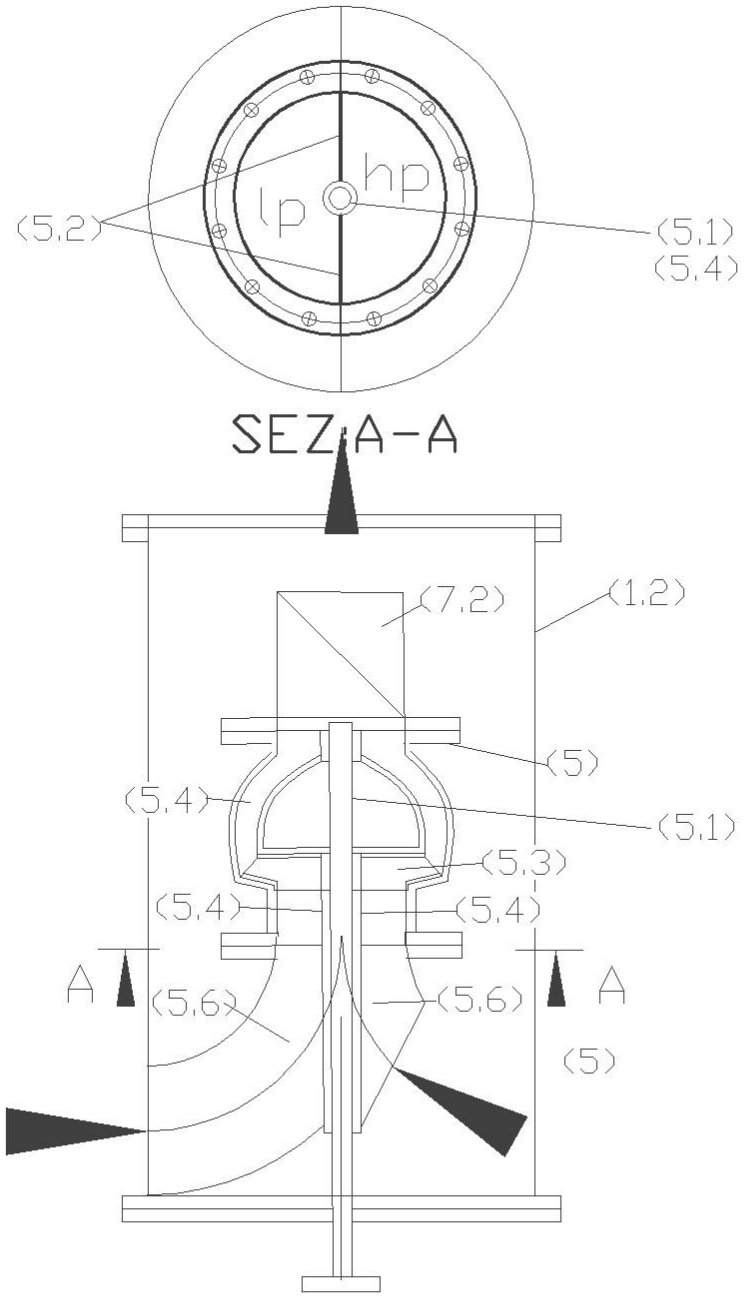
The compressed hydroelectric system, designed for environmental, industrial and energy applications, seems to be designed specifically for the human body. In fact, in the human body the circulation must never be interrupted for the whole life, even when we sleep. The only variation is the flow of the circulating blood, commanded by the neurological system to the organs that activate the physical movements, and the biological functions. The heart is a muscle that obeys these stimuli, which in our case, with the artificial heart, can be sent to a control unit that will translate them into a milliampere signal that will change the revolutions of the two circulation pumps in sync with double separate supply until to the impeller of the right heart and the left circuit. After all, environmental and human health problems are identical: oxygenation of water or blood, producing sufficient energy for the circulation of water or blood, and connecting to the human circulatory system, which is already perfect, but the increase in the possibility of oxygenation of the blood should not be underestimated, because people, especially elderly, who need to replace the heart almost always have other problems, such as pulmonary, hepatic, renal insufficiency, diabetes, hypertension, arteriosclerosis, tissue aging. Oxygen is life and this solution medical science can not underestimate it, also because in the most serious cases it will be possible to compress pure oxygen in small autoclaves. We must not underestimate even the possibility of using external links to the heart A1 - B1 - C1 - D1, not only in conditions of extreme survival, but also in ordinary conditions, to take intravenous medicines without martyring veins with needles, especially in hospital admissions.

With the artificial heart the reference of the heartbeats will be lost. The flow rate of the circulation pump is regulated by the revolutions of the DC motor, which will depend on the momentum produced by the human body. If this can no longer be controlled directly by the brain, as it currently happens without being aware of it, it will be possible to regulate by means of a voice command to the computerized control unit with three simple words: rest, normal, fast. These words correspond to the verification of the operating parameters of the artificial heart by the electronic control units, a gradual adjustment of the rotation speed of the pumps (5) and of the pressures. This process is much simpler than programming the work of robots that today work in factories. The only doubt to be resolved is that of deciding whether the compressor and the control unit must be hidden in the human body, or connected externally via electrical or fluidic quick-connect sockets. But this is an aspect that can be solved at a later stage, when the progress of the state of the art of all the applications connected to the artificial heart will be well defined. It will not be a problem to insert other probes measuring the characteristics of the blood that can be stored in the control unit and transferred with a special USB socket to a Smartphone, to view the general health of the patient.

Luigi Antonio Pezone


(9)
(8)
(D.1)
(3.2)
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(max liv)
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(C1)
(A1)
(7.2)
(7.1)
(5)
(5)
(5.6)
(5.5)
(C)
(A)
(6.2)
(6.1)

"FIG.1"



"FIG.2"

ARTIFICIAL HEART OXYGENATOR OF BLOOD, ENERGYICALLY AUTONOMOUS.

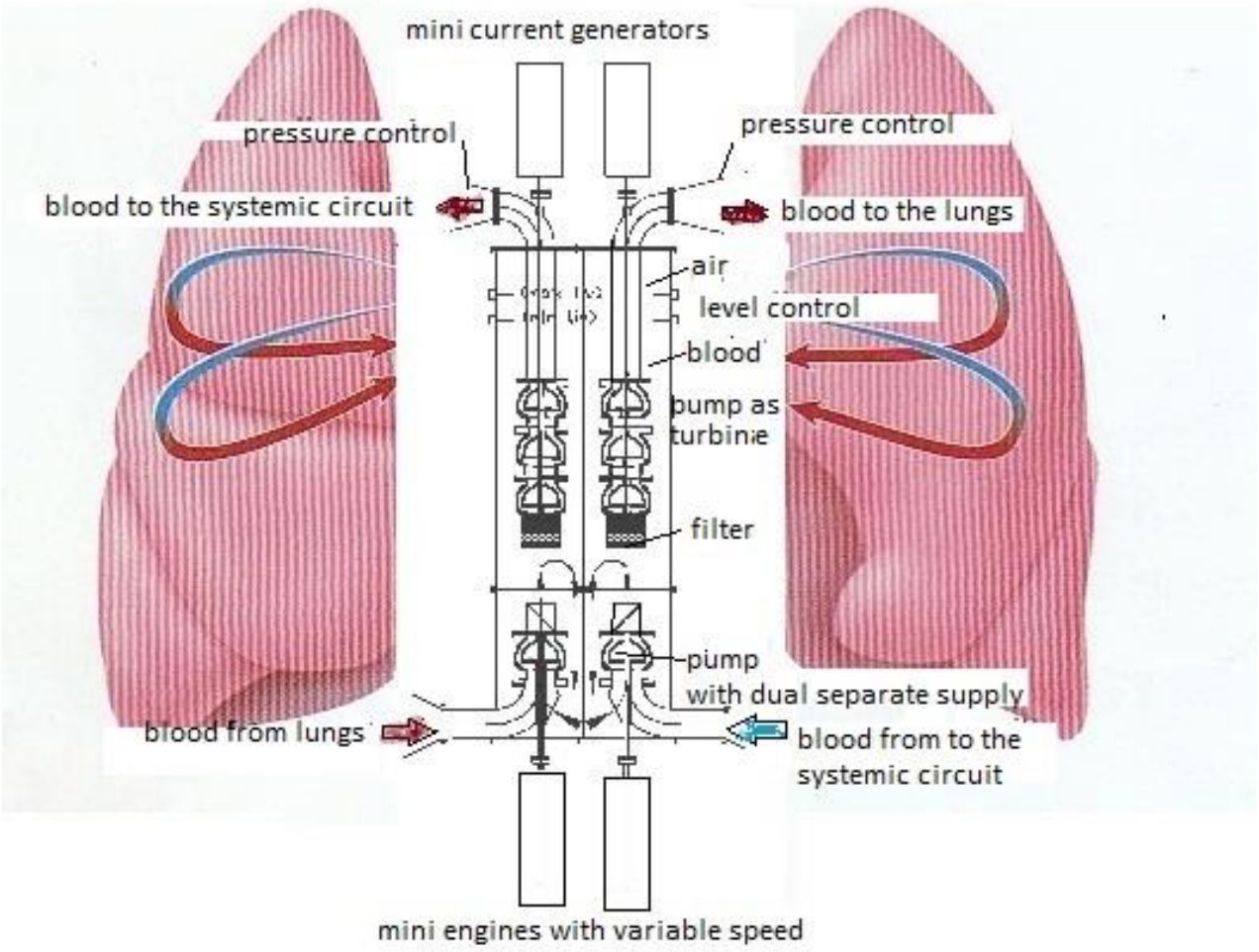


FIG.3