Aerospatial pressurized hydroelectric transport system with turbofan and compressed air injection

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ABSTRACT

The current state of the art of land and space transport has been conditioned by the absence of a sustainable, renewable, efficient energy system with small dimensions, which can be fitted on such means as alternatives to thermal energy. This system state of the art does not exist. But, virtually, there is the pressurized hydroelectric power, invented by the undersigned and not yet realized anywhere in the world. To give more weight to this type of energy, the same inventor invented this flight system that, in addition to thermal engines, eliminates the fuel tank, turbines, transmission shafts. If tomorrow will be developed other more efficient systems to produce the mobile renewable energy on air transportation, compared to pressurized hydroelectric system, the flight system claimed will be equally valid, as it is certainly efficient, environmentally, economically and against accidents. In fact, fuel, in addition to being polluting, expensive, is also a burden and a source of danger, being able to ignite and even burst into flight. In the hydro-electric pneumatic aircraft, we can also afford energy waste because the energy produced with water and air costs only the wear of the machines that produce it. But the whole system also

benefits the safety, the capacity to transport and the autonomy of flying, which, with in that system, would have no limits. It is, in essence, to divide the means of transport internally, into three areas where are located, passengers, energy production and compressed air storage. While on the outside, and on all sides of the aircraft, in the shape of a parallelepiped, horizontal and vertical thrust tunnels are incorporated, incorporating electric multi stage turbo fans, arranged in series and spaced by section extensions that add to the push of the ‘Air for horizontal lifting or translation due to Newton’s third principle. In these tunnels, as needed, we can introduce atmospheric air, compressed air, or both. It seems that only in this way can we navigate in the atmosphere and space with the utmost security, going and returning with the same starting aircraft. Obviously, to navigate in space we have to know how to administer compressed air or even produce it in large spaceships and artificial satellites. While it is true that the buildup of air increases the weight of the aircraft, it is also true that once you leave the atmosphere, the weight is canceled. What matters is that, with the compressed air, inserted, at low pressure in the push tunnels instead of the atmospheric air, we can change the direction of travel, and slow down the rate of entry into the atmosphere on the return journey. While in land flights it may be used to increase the vertical take-off thrust, to compensate for the voids of air. With the proposed energy system they will be

Very unlikely the flight incidents that today leaving no escape for passengers and crews. If they were to happen, the compressed air discharged across a few meters from the impact final act as a parachute, saving many lives.

DESCRIPTION

Bernoulli’s principle states that, for each increase of the velocity of a fluid, simultaneously there is a decrease in pressure, and for each speed reduction there is an increase in pressure; While the third principle of Newton states that every action always corresponds to an equal and opposite reaction. These principles are the basis of the principles of energy conservation and can not be neglected, especially in the flight systems of the present and the future. . Unfortunately, science and technology that have neglected clean and sustainable forms of energy in terrestrial applications could not really use them in terrestrial and space flight systems.

Today, with the name turbofan, is indicated a type of reaction engine that, unlike a normal turbine engine, uses two separate air streams: The first flow, said hot flow, crosses all the stages of the engine, namely: the air intake, which has the function of routing the flow by generating a first compression of the air slowing it down, in the successive stages through the fan, the compressor, the combustion chamber, the turbine (multi-stage), and the exhaust nozzle, where all the propulsion is exercised. The second cold stream, on the other hand, runs through only the fan and the jet output nozzle mixed with warm and cold air in the atmosphere. In these systems, only aeronautical and hot-air combustion chamber, it is always the gas turbine, which is knocked on the same shaft, to transmit the motion to the fan that aspirates atmospheric air and introduces it to the compressor, which feeds the combustion chamber. This system consumes much more fuel than conventional heat engines to produce more power through a high speed of the compressor and fan turbine, all of which are mounted on the same shaft. The speed can exceed 40,000 rpm at the take-off stage. In the current aeronautical turbochargers, both turbines and compressors are multi-stage: each stage has a rotary rotor with a series of stator pallets, where rotors increase the speed and the stator’s brakes increase thrust pressure, up to to the desired operation point. Obviously, the number of stages and the size of the compressor and fan turbine depends on the power rendered and absorbed by the aeronautical thermal turbofan, which uses about 75% of air extracted from the outside by the compressor compressed air, while the 25 % of the total volume that is ejected from the reaction nozzle is composed of combustion gases. Due to the high combustion temperature, the rooms are made of high quality nickel alloy, able to withstand temperatures well above 1200 ° C. Even the turbine combustion engines of helicopters operate in the same way, but by downloading the fumes that contribute to the horizontal thrust and transmitting mechanical motion to large propellers that support the entire weight.

Substantially, the current state of the art of terrestrial and space flights, there is only the thermal energy, even if from the physical point of view different principles are used to lift and move marry in the atmosphere and in vacuum. In the helicopters, the big propellers push the air downwards, so it aspires to an air mass from above, and pushes it down a certain speed down. Consequently, there is a depression over the propeller and a pressure increase at the bottom. The pressure difference raises the helicopter, which by another horizontal thrust propeller also moves the helicopter horizontally. But the system is not very stable, since the upper propeller rotation tilts the helicopter in on one side only and therefore, it is necessary a propeller tail of smaller dimensions which rotates in the opposite direction to balance the flight attitude. In addition, helicopters can not reach high altitude, since when the air density decreases, the power is not enough to keep the navigation altitude.

Aircraft flying is also based on the pressure difference between the upper and lower surface of the plane’s body, especially the wings, but to save energy, the gravitational force is circumvented by means of the kinetic energy developed horizontally by turbofan Heaters that gradually, starting from the slopes of airports, allow you to gain heights higher than helicopters within certain limits. Certainly they can not get out of the atmosphere. The flight costs are very high, despite the fact that the force of gravity is shifted through its strain and aerodynamics, reducing fuel consumption to a maximum.

From a small network research (http://www.focus.it/technology/innovation/quanto-fuel-consuma-un-aereo-di-linea), with a little approximation, it is estimated that a Jumbo jet on a route of about 6,000 kilometers (eg Milan-New York) consumes more than 63,000 liters of kerosene, an average of 19 liters per nautical mile (1,8 km), about 158 for each passenger (400) . For every seat, it is also produced 4000 Kilos of carbon dioxide. Short routes have, in proportion, higher fuel consumption because 1/3 of the fuel is burned during take-off. In long flights, however, the ratio drops to 1/8.

All this can not be considered a boon to science and technology, which has not sought sustainable energy solutions. As can not be a source the low safety of flight systems, they can not check instant for instant the flight plan and cannot handle a failure on a thermal engine, despite the high technology developed. While with pressurized hydroelectric system and electrical turbofan in series and parallel with compressed air injection, it may be possible to obtain even more than a turbofan out of use, and manage security equally in the trim flight and landing maneuvers. Therefore, as far as aerodynamics is important, the problems to be solved are, above all, energy, environmental, flight safety, and load capacities of aircraft traveling to the atmosphere and space. With thermal energy, it is not going anywhere, both economically and environmentally, and in terms of flight autonomy.

Instead, if we can produce electricity inside the fuel-free aircraft, we can physically interact with the outside by electric motors, to move the body itself to the ground, into the atmosphere, or into the water, by turning wheels For the ground, or turbofans for the flight, or marine propellers. There is no need for thermal, nuclear power to start and endure the motion of the fluids over time: it is sufficient to couple the properties of non-compressible water and the compressible air. Indeed, most importantly, the thermal energy, the most commonly used, represents a useless transfer of energy from cold to hot, which implies more disadvantages than benefits: fuel costs, energy consumption for cooling, the production of gaseous chemical compounds, which to be neutralized, require other sewage plants, which can not be realized as not to increase still more the cost and weight air transport. To the contrary, it is not the heat that produces energy, but the pressure produced by the combustion gases that push on the cylinders of a piston engine, or turn a turbine, or exit quickly from a reaction nozzle. We can avoid thermal energy by using cold compressed air pressure and imprisoning it in a tight volume forcing it to work as a compressed spring while under such force circulates incomprehensible water that expels from overflowing Feeds a hydraulic turbine with the force of the air cushion without consuming it. In this way, we solve the greatest energy and environmental problems of our time by harnessing ordinary physics, with maximum efficiency and minimal expense. Once this system is also transferred to the means of transport, with lightweight and lightweight materials we can turn the ground wheels, marine propellers and electric turbofan on the aircraft.

The undersigned, inspired by the current aeronautical systems, used for helicopters and airplanes, conceptually modified them to feed them by means of the hydro-electric generator with recycled pressurized water with compressed air, which I have already proposed to be used in all fixed and mobile energy applications, studying the various solutions on a case-by-case. In fact, for mobile versions, it has already proposed mounting this system on cars and other means of transport by directly propelling the wheels with variable-speed electric motors. While in this case, the turbofans electrification is needed, eliminating combustion chambers and gas turbines, which are now turning the airplane heat turbofan and the helicopter blades.

In current systems, the push generated by combustion gases is increased by the push generated by turbo fans. In the proposed system, which does not use fuels, the air pressure is increased by intubating the electrical turbofan spaced by section extensions, so that the individual thrusts add up without dispersing the air until it is released into the atmosphere. In other words, the thrust path, especially, for the lifting of the aircraft extends, compressing the air inside the tunnel to get it out with greater thrust and especially lifting. To meet the total thrust capacity are realized many horizontal and vertical parallel intubate lines, involving higher flow rates of air and more overall power, but more evenly distributed around the surface of the aircraft, both vertically and horizontally, both in order to allow a greater load capacity, both to balance the unbalanced loads of the masses, both to carry out the maneuvering of the aircraft, through the diversified thrust based on the number of engine revolutions in the ventilation tunnels. Obviously, this system, like the present ones, can not be used to circulate even in space, without any air density that allows to apply Newton’s action and reaction principle.

However, the space is not completely empty, because the absolute vacuum does not exist, but contains a very low particle density, especially hydrogen and helium plasma, electromagnetic radiation, magnetic fields, and neutrons. But by injecting small compressed air into vertical and horizontal thrust tunnels, and by supplying multistage turbochargers in series, we can create a lesser vacuum degree at the opposite end of the tunnels and apply equally the NEWTON reaction principle. Obviously, compressed air should be used sparingly for not to consume accumulating capacity in the spacecraft. Therefore, at the end of the last compression stage of the air by multistage turbofan, we can spill a portion of the compressed air, pass it through a dryer (19) and feed the compressor that reinserts it into the tanks.

Therefore, for the application in a vacuum, they were added to the whole of the spacecrafts of the compressed air tanks, which would consume the air as thrust gas to move into the void between orbit and the other with the same system usable on earth without fuel. Notwithstanding that, as soon as the aircraft falls within a space, where the atmosphere and present, stops the compressed air supply and resumes navigation with the atmospheric air, which can also recharge of the consumed pressure from flying in a vacuum. This vacuum navigation system should envisage artificial greenhouses that would produce oxygen and nitrogen, in space to replenish compressed air spacecraft. This would be technically possible because there is already chlorophylline photosynthesis and virtually there is also the pressurized hydroelectric power that could infinitely feed the artificial greenhouses, consuming only material wear.

However, the introduction of compressed air inside the thrust tunnels can also be very useful in land flights to stabilize the flight when crossing areas with high turbulence and air gaps, detected by special pressure sensors. In addition, on the Earth, compressed air can be summed up to normal ventilation to increase first-off lifting force from the ground, commonly referred to as static friction. In fact, the performance of a propulsion increases when the speed of the driving air moves closer to that of the moving aircraft.

The two factors most influencing the thrust performance are the speed W with which the fluid leaves the propulsion and the flight speed of the aircraft V: the more W is greater than V, the less the propulsive performance, which is determined by the Relationship: 2 / [1 + (W / V)]. When the aircraft is stationary, a much higher force is needed. In fact, a body persists in its state until an external force changes the state of quiet. As V increases the propulsive yield increases (theoretically it could become equal to 1 (100%) if V could increase to equal to W). Bearing in mind that the propulsion yield depends on W / V, while the thrust is given by the formula: M * (W-V), Where M is the mass flow through the turbofans in the unit of time, it is noted that for high propulsion yields, with low specific consumption, while keeping the thrust too high, the air mass to be accelerated compared to the velocity Of the same. This is why lighter helicopters also lift vertically while planes take advantage of kinetic energy developed by thermal heaters mounted horizontally under the wings and rolling friction of takeoff carriages to climb the floating atmosphere in the air. In fact, helicopters with respect to their weight to lift, smoother air much higher than airplanes. If airplanes had more energy available, they would fly like helicopters or spaceships in science fiction films, where no one ever thought the energy could be produced with compressed air and water.

However, having a greater amount of energy available, as mentioned, only costs the wear of the materials that produce it, it is preferable to increase the amount of air circulating in order to have a higher load capacity and navigation controlled by the engines and Fan pressure, without relying on floating in the air, and kinetic energy, which can not always be controlled, either due to technical failure or atmospheric disturbance. Equally, it is preferable to have a large amount of horizontal and vertical electric turbofans to support loads even at low speeds during take-off and landing phases. The costs of these electric turbofans would be amortized in a short time by the lack of fuel costs and the simplicity of the machines.

By intubating in series more electric turbofans, which at each stage increase the pressure of about 1.15 to 1.2 the pressure of the previous stage, gradually the total push pressure in vertical or horizontal at the end of each tunnel of Pushed by section extensions to recover even more pressure, thrust pressures, three to four times higher than atmospheric pressure, multiplied by the airflows of each ventilation tunnel and the yields will allow you to calculate with good approximation Lifting masses and speeds of navigation even without thermal energy. But what counts is the fact that it will be possible to control the total thrust of each push tunnel according to the number of synchronized turbochargers.

In other words, we must no longer imagine the means of air transport with an aerodynamic form of energy saving (because the energy produced by water and air does not cost much), but as a cube or parallelepiped, that moves in space traveling vertically, horizontally or diagonally to the effect of the forces in the field resulted. The forces are produced by a large or small amount of ventilation tunnels, alongside the transport means on the outside (to increase the total thrust a few tunnels can also cross the inner zone of the aircraft) depending on the total weight to be transported and the speed that you want to achieve. The electric power supplying the electric motors of the turbofans is produced internally to the aircraft by means of compressed hydroelectric plants, working in parallel, so that for any failure of a plant, the same power grid can be powered with other plants, under reduced performance, without endangering the lives of passengers and crews.

In other words, this solution is a reaction system but it works like helicopters, creating an air depression in the upper area and pushing the air off the bottom and the opposite side of the thrust through the well-distributed ventilation tunnels, That can even cross the aircraft internally, creating, in fact, around the aircraft a cloud with different pressure from the surrounding environment, traveling in the atmosphere or in space.

If we hypothesize that vertical thrust tunnels also act as support of the entire aircraft, and ending with a metal frame (14) that passes the air, as shown in Figures 1 and 2, And that keep the air outlet cones suspended to about fifty inches from the ground, to win the necessary force at the first detachment from the ground, We can take advantage of the air rebound boost with the ground itself, which can be increased by the compressed air outlet from the tanks, which immediately after takeoff, during normal flight, aspirating air from the atmosphere restore the original pressure, with hydroelectric power produced inside the aircraft.

This energy solution that would respect Bernoulli’s energy conservation principles and that of Newton, in order to receive the thrust needed to sustain and travel in space, does not exist because there is no energy system suitable for small, bulky and potentially energy-efficient mobile production. It may seem strange, but in the state of the art, despite so many studies on nuclear energy, hydrogen, plasma, Lorenz currents, the only clean electricity that could be used immediately on air and space transport, that the pressurized hydropower with compressed air, achievable with current technology. Which, instead, it does not exist even for other terrestrial applications, because no country in the world has invested only one euro or dollar on that energy, which is a free gift of nature, to which we must add only a rational design of plants that correctly take into account the compressibility of air and not compressibility of water. On this energy, world science, public and private, is silent for not taking responsibility for its mistakes.

The simplicity of the way to produce pressurized hydro-electric power with compressed air that can be fitted on cars also demonstrates that the hydraulic applications sector has serious responsibility for global warming because it has the solution at hand and has not sought it, making increase energy less efficient and polluting systems, complicating mechanical systems for transmitting motion on all land transport, airplanes, marine, submarines, since the electrical transmission coupled to the electronic inverter regulation is 100 times cheaper and more efficient than the one mechanics.

The thermodynamic industry has done as much as possible, but environmental miracles can not be done if the basic principles that can be exploited to produce sustainable and environmentally compatible energy are wrong.

In fact, if you want to undertake space travel, we do not only need energy but also systems that produce water, oxygen, nitrogen, and food in space. Space travel, especially exploration, will last for generations. Whole families of volunteer explorers could choose to live the whole life on the spaceships, for the spirit of adventure and love of science. It is useless and damaging to continue to experience incomplete solutions. Various satellite launch experiments and rocket probes have created thousands of bodies that orbits around the earth, which can damage future spaceships with thousands of people aboard who could in future navigate and land like ordinary planes, And even more safely, checking at every moment the speed of entry and exit from the atmosphere. Before launching space systems that are unable to return to Earth with their own energy, I believe that I should study “spaceships greenhouse” which should serve as a base for the reproduction of a terrestrial system with artificial light that produces Carbon cycles, oxygen, and nitrogen, necessary for human life. The most logical solution is to try to produce energy with these elements, which would be an energy, protecting the environment. Men who would live in these greenhouses traveling in space should not even have the feeling of living in space, being such pressurized greenhouses at atmospheric pressure. In fact, it would be difficult to pressurize them differently, as they were built on the earth after the construction would be hermetically sealed and shipped in space with all men, animals, equipment, spare parts, laboratories, workshops, but above all artificial ponds, digesters decomposers of organic substances, linked to superimposed biological ponds, greenhouses of overlapping agricultural production, depurative greenhouses with oxygenated and alkalizing artificial rains. Finally, many full of compressed air tanks to navigate through space. These solutions are all technically possible, and are described on the website http: www / spawhe.eu, but at present, they have not even been realized on the Earth planet because science has never bothered to completely close the organic and inorganic cycles that open. Terrestrial flight systems are also an immense source of environmental pollution. If science had bothered to close in particular, the carbon cycle, making such studies would have noticed for a long time that you can produce energy by recycling water and Pressurizing it with compressed air. Moreover, fossil energy costs much more than the energy produced in this way and that even this energy, solubilizing oxygen in water (according to Dalton and Henry’s laws), would also save a lot of costs for purification, bringing oxygen where existing purification plants can not get.

In the space, with complete cycles, none of the two elements would be consumed, since the air that would come out of the system, such as that produced by the general system, would remain in the greenhouse, increasing the internal pressure, so we will need many reservoirs for the accumulation of nitrogen, oxygen, CO2 and lower gas products, as these excess gases could be compressed, accumulated in such tanks at maximum permissible pressures, and transferred to space navigation devices, both to allow the breathing of the crews, To be used as cold propellant gas in non-combustible electric turbofans.

In any small or large environment of the greenhouse there might be an autonomous energy production plant that distributes water and produces heat and cold that operates with different operating pressures. All the excess energy produced by these plants would be put into the general network that supplies the propulsion system and produces purification and oxygen and nitrogen pressurized. Considering that the critical pressures and compressed air temperatures are 3769,290 kPa and -140,6 ° C, respectively, there are wide accumulation margins and oxygen and nitrogen, even in the vacuum surrounding the spaceship. Although the average vacuum temperature is-270 degrees Kelvin, the compressed air would come in the form of steam, which is always a gas, conveyable from the turbofan in the desired direction, satisfying the Newton principle of action and reaction. Of course, with this system, small space exploration means, similar to Figs. 1 and 2, which in the space would have many hours of flying autonomy, depending on the volume of compressed air accumulated. In land use, they will have an infinite service autonomy, without having to go to any airport, needing no fuel and maximum flight stability by compensating for air gaps with air injection of air that characterize current flight systems based on floating wings and big helicopter blades.

In the current state of the art, all spatial propulsion systems use thermal energy produced by a fuel that produces a gas coming out of the drain quickly, producing the reaction that moves the spacecraft. Electric motors also use gases produced chemically by means of different elements (xenon, bismuth, cesium, lithium, hydrogen), which with a thermal cycle and the gas coming out of the exhaust produces reaction displacement. The main difference between electrothermal propulsion and only chemical combustion propulsion systems is the mode in which the thermal energy is supplied to the propellant. While, for the undersigned, even in space, the energy system produced with water and air would be cheaper and more practical. In fact, to secure the return to Earth of spacecraft, the gases that are used today as propellants should be produced on the same spacecraft in special laboratories. It’s natural to ask: on a spaceship, where would they take all the ingredients they need? Instead, the ingredients to produce nitrogen, oxygen and CO_2, are the same of compressed air, which can produce producing human consumption and recycling it. Even if the percentage of the components that will compress will not be exactly equal to that of the atmospheric air, the propulsion system will also work without chemical laboratories and with low operating costs. In fact, if the thermal energy is not cheap on Earth (although no one has noticed it, including NASA, how can it be convenient in space? Even where it would lack the essential elements to produce it, even if it built up artificial greenhouses.

The FIG. 1 and 2 show the maximum plant necessary provision to a terrestrial and space flight system, where they are visible, in particular, the external provision of energy thrust tunnel (14 and 16) containing the vertical and horizontal turbofans (17). It can be noticed the absence of the trolley with the wheels for take-off and landing maneuvers, as these aircraft would move more or less like helicopters, lifting vertically and leaning on the landing bases by means of support frames (15), mounted under the vertical thrust tunnel air cone trunks (14). These aircraft have no need even of the directional flaps and rear rudders or tail propeller helicopter, because the horizontality trim of the aircraft and the flight direction is regulated by controlling the speed of the motors by means of inverters and Control panel operated by a computer (11). In fact, it is sufficient to vary the directional rotation of the right or left directional motors to turn the aircraft to the right or left, as it is sufficient to slightly change the revs of the lift motors to balance the unbalanced loads existing inside and outside the aircraft.

The interior of the aircraft is symbolic, being divided into three sectors: passenger areas, power generation and compressed air accumulation, which, according to the use of the aircraft, can be reduced, expanded or eliminated. They can also be arranged in height on different planes.

Observing these two figures, one can assume the immense degree of safety of flights. In fact, if we count the number of thrust tunnels, in the example shown, we have fifteen vertical and four horizontal, with three turbochargers each. In total, in this simple symbolic application, we would have fifty-seven turbochargers (13) that would be nothing more than multistage fans powered by electric motors, through inverters, with frequency variations, which could spin up to about 15,000 rpm. I which, all together, probably, would cost less than the current thermal turbo fans that require combustion chambers, gas turbines, transmission shafts, reduction gearboxes and complicated balancing systems of the aircraft in flight, in order to save energy necessary for flying. While the cost of fuels and pollution they produce should ask us what are the causes that have prevented logical and rational reasoning to entire generations of inventor scientists and researchers worldwide? Would not it be more logical to focus research on a system that produces sustainable energy and not polluting and powerful with acceptable dimensions, and then to give free rein to the inventions of land transport, sea and air? Mobile pressurized hydroelectric power is based on ordinary physics. It could be invented together with thermal motors, because it is also simpler in operation. With inventions of inverters, computers and control electronics, today it would be much more manageable, economical than thermal energy, regardless of pollution. What are the reasons behind the silences of world public science on this kind of energy, which still does not find interlocutors? I think that the main cause of these delays in the global development of technology is due in particular to the inability of world public bodies to seek synergies beyond the parties, experimenting with prototypes that transversally translate the technologies developed into individual sectors. In other words, world public research does not play the coordinating role of science and technology that it should play, by selecting the best solutions in the common interest. Public research organizations behave like private companies, develop their own energy solutions in individual industries and patent them to profit, instead of developing collective and global solutions in the common interest, making them available to everyone, reserving only property intellectual. As it has been structured forever by world society, it is obvious that private companies can not study transverse solutions, having to fight commercially with competing companies, all specializing in individual sectors. At best private companies can improve technology, quality, and productivity to be competitive. While, today, it is necessary to start from scratch in basic energy and environmental design, to seek new, more sustainable development models, exploiting all the technological advances that have taken place and putting them together rationally. This can not happen until the energetic systems, that today have very low yields, change. No one could think that the most cumbersome of the energy systems, the hydroelectric system, which today requires large dams and large basins, could be miniaturized, until it came into the hood of a car, if studied differently and paired with compressed air. Only reasoning crosswise to science and technology, as it should make a public science, could be designed this new way of producing sustainable energy, with highest yields also applicable on transportation and this flight system, that to be reliable should not save energy. In fact, it does not use almost anything of the current terrestrial and space flight systems, nor even of the current energy systems. No one should be sorry to travel in the atmosphere and space without polluting and consuming money for fuel and lubricating oils and with the utmost security from the current way of flying in the atmosphere and space. According to logic, economics and environmental protection, so it should have been for land transport, but the hydroelectric engine mounted on the car had no comments from public and private science. They have been silent on all other revolutionary applications in all areas of energy, purification, water distribution, desalination, urban heating and air conditioning systems, to the protection of the waters of the basins and groundwater, which could be simply by producing Energy in a sustainable way. The story of industrial progress has been written by legendary characters who step by step have improved boilers and heat engines of all kinds, also bringing us into space. Asking everyone to resume the same path with compressed hydroelectric motors, or another clean and powerful energy, when invented, is not denying the story of progress. But simply correcting mistakes led to global warming and an unsustainable economy for the majority of the world’s population. We can not understand morally, technically, scientifically, economically, silence, above all, the public science, that are accompanying these patents utilities and protective of the environment.

Below is the legend of FIG. 1, 2, 3,4 concerning a generic small aircraft incorporating the essential elements of the system described, where Figures 1 and 2 are respectively the longitudinal and transverse sections on the compressed air tanks, while Figures 3 and 4 respectively are an enlargement of a diagram of a single hydro pneumatic current generator and a single pump with the double separate supply until to the impeller:

(1) autoclave pressurized tank; (1.1) level regulator with capacitive probes; (1.2) safety valve; (1.3) manometer with shut-off valve; (1.4) motorized valve flow control with position transmitter; (1.5) pressure or flow transmitter; (1.6) minimum level probe in the start system; (2) pump used as a turbine (pat); (2.1) alternating current generator; (2.1.1) bushing with sealing ring; (2.1.2) angle diverter with conical gears; (2.1.3) transmission shaft; (2.1.4) transmission shaft protection tube (2.1.5) double curve with septa crossed separators in low pressure (LP) and high pressure (hp); (2.1.6) septa separators of flow; (2.1.7) closed type; (2.1.8) Diffuser of the pump; (2.2) motorized valve to supply turbine with flow adjustment; (3) water transit tank at atmospheric pressure and containment pat; (3.1) motorized valve to feed pressurized water network; (3.2) motorized valve bypass supply at low pressure; (3.3) air valves; (3.4) Water level control with capacitance probes; (3.5) motorized valve for water supply at low pressure; (3.6) maximum level probe in the start system; (4) electric pump to supply in low pressure (5) electric pump with double separate

supply until the impeller; (6) pump drive motor, with variable speed, controlled by an inverter; (7) double curve with septa crossed separators in low pressure (LP) and high pressure (hp); (7.1) septa to flow separators; (8) check valve. (9) flow diverter stub pipe; (10) electrocompressor; (11) electric command and control framework; (12) Compressed air storage tanks; (13) Compressed air distribution network; (13.1) Solenoid valve on off with air pressure regulators; (14) Vertical push tunnel; (15) Support of vertical thrust tunnels; (16) Horizontal push tunnel; (17) multistage electric turbofan; (18) Removable panel for maintenance; (19) air dryer.

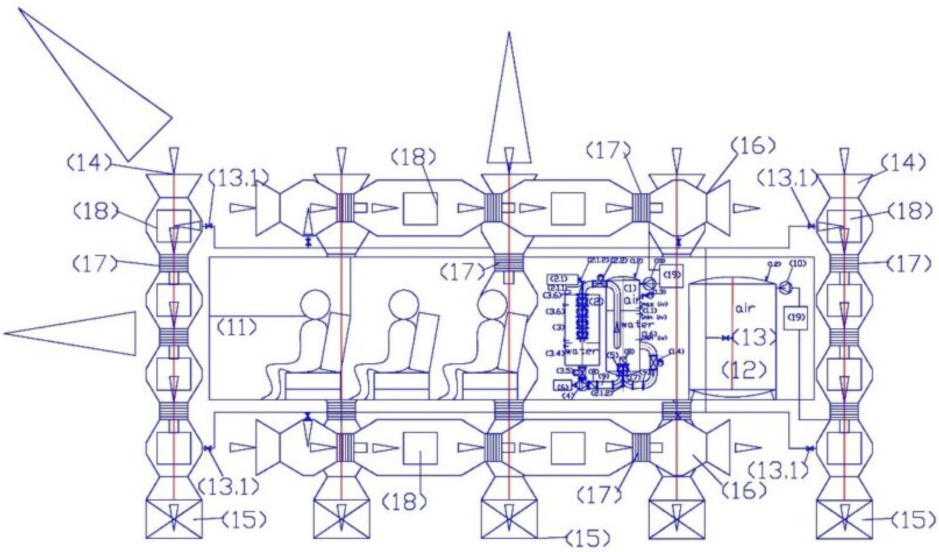

Fig.1

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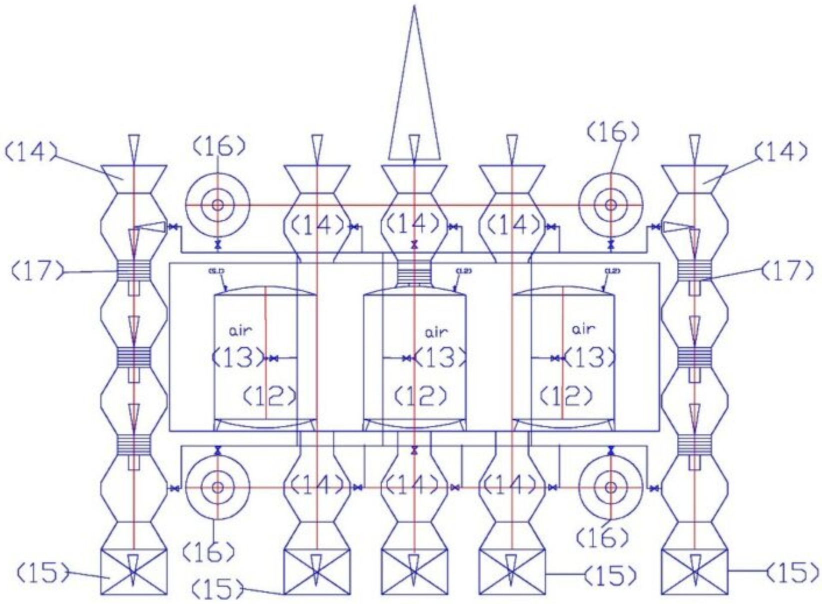
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Fig.2

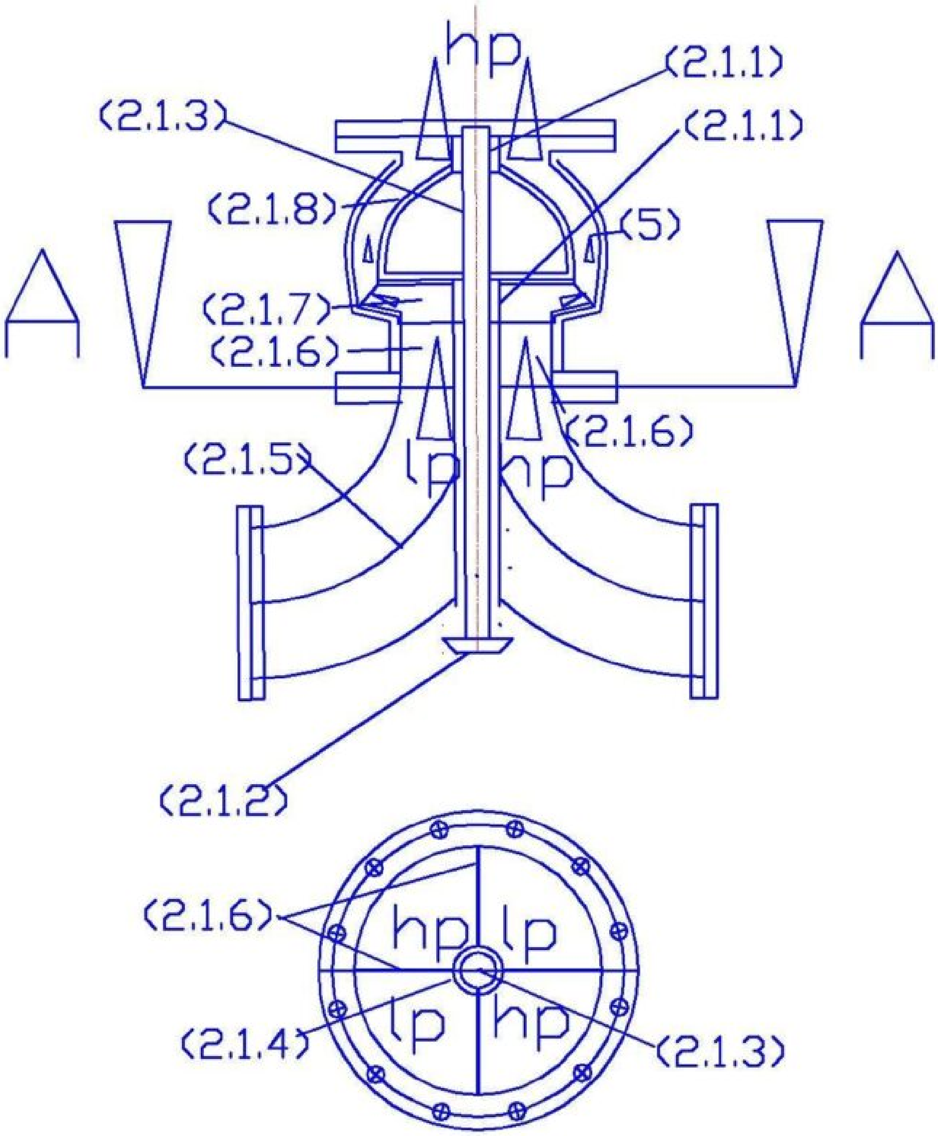
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Fig.3

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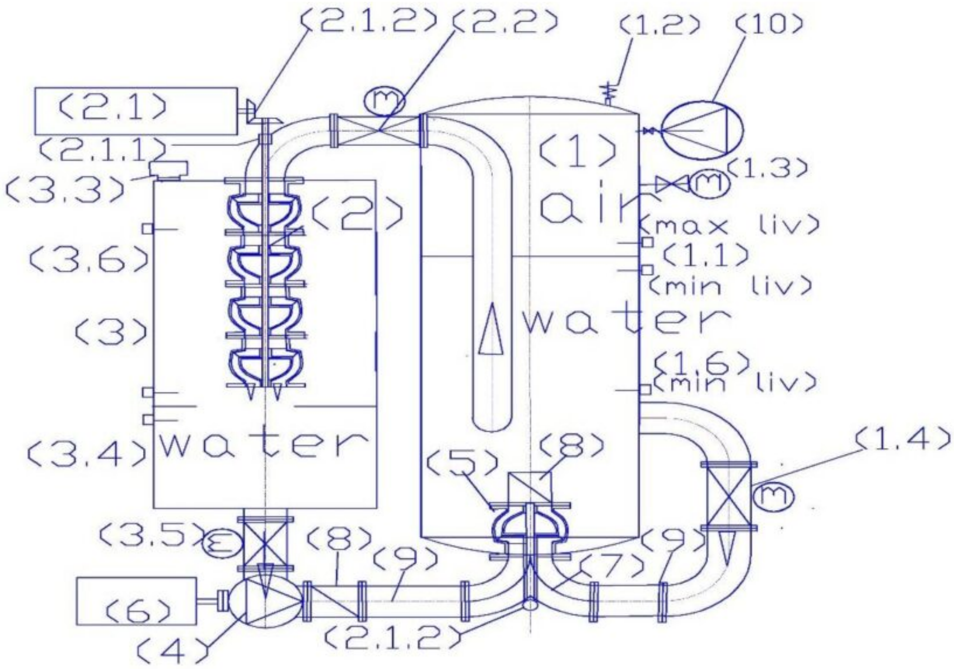

Fig.4

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The heart of this plant, like any plant that is based on the production of hydroelectric power with water recycling, is the pump with the dual power supply until the impeller (5). To understand the functioning of how this type of pump, it can be observed FIG. 3, and imagine the center of the impeller supplied by four sectors separated by 90 degrees cruise. Two are supplied in low pressure and two high pressure, possibly arranged diagonally to balance the hydraulic thrust on the bearings. Furthermore, observing the FIG.1, Inside the aircraft, it is necessary to make a distinction between the static and dynamic pressure of system. The static pressure is the pressure supplied by the compressed air cushion and with the valve (1.4) open, spreads on the right side of the pump with double separate supply also entering into the impeller. The dynamic pressure, or kinetic energy, is that which circulates the water inside the tubes and autoclave. In open circuit on the left side of the autoclave. To circulate the water is sufficient to open the valve (2.2) and the air pressure circulates the water in the turbine, but the air pressure decreases as it expands the volume of air and the water comes out from the circuit. While to circulate the water on the right side of the pump with the double separate supply up to the impeller, it is necessary to open the valve (1.4) and to move the pump since the static pressure already fills the entire circuit, also coming into the impeller, but without the movement of the pump the water is not circulating for obvious reasons. However, it is sufficient to provide the pump the prevalence of a few cm of water column to overcome the pressure loss of the check valve, since the static pressure does not oppose the kinetic energy developed internally to the stored volume of water. So, we can have a static pressure of 40 bar and a dynamic pressure of 0.5 bar. But the movement on the right side (looking at FIG. 4) does not produce energy, being only an internal recycling in the stored water volume. To produce energy we must use the circuit on the left side of the autoclave passing through the pump used as a turbine (2) and insert with a low energy cost the water free of static pressure in the autoclave tank, that the current state of the art requires a pump with a prevalence that wins the static pressure and the pressure drop, then a higher prevalence to 40 bar. This is the reason why hydropower with water recycling has never been produced. With the pump with double separate supply until to the impeller we can achieve this application with a very low energy cost that seems impossible, because coming from the suction side of the pump that is already full of water statically pressurized from the autoclave, we get around the opposition of pressure hydrostatic, as if it were an internal circulation to the pressurized volume of water. In fact, the suction pipe of the pump, which comes from the left side (open) and from the right side (closed) is divided into four fixed and separate sectors (as seen from FIG.3), therefore, when the impeller rotates, advances towards the autoclave the water present in the impeller and produces in each quarter of the sector of the supply pipe a depression which favors the entry of water into the impeller both from right side, both from the left side. As soon as the inlet water is involved by centrifugal acceleration towards the periphery, produced by the fins of the impeller which is proportional to the square of the angular velocity, and in the radius of rotation, according to coefficients that depend on the type of impeller But the important characteristic of the pump with the dual separate power supply is one that the rotation forces the impeller to receive in succession in the same quarter of the impeller, the water sucked from the four separate sectors. Not simultaneously, as is the case with pumps that have only one power supply. Therefore, the water of open circuit (no static pressure) and the water of the closed circuit (with the static pressure of the autoclave), alternates in the same location and with the same direction (toward the impeller exit). This functioning implies that the flow rates are added together, while the total pressure (static plus dynamic) spreads in the entire outlet section, according to the principle of Pascal. Obviously, since the static pressure is only transmitted from the right side of the system, for not having drops in pressure in the pump with the dual separate supply, the passage sections must be dimensioned, for the transmission of the entire flow rate and pressure. This simple modification of the pump allows us to retrieved with costs infinitesimal the water that has produced energy in the pump used as a hydraulic turbine (2) which is located on the left side of the system and reinsert it in the pressurized water recycling of the tank circuit, without that occurs the pressure drop due to the expansion of the air cushion, which occurs in normal autoclaves, whose restoring, would require energy both from the pumps that the compressors.

In fact, the autoclave system was not born to produce energy, but to limit the number of starts of the pump motors, by providing for a few minutes to the hydraulic system, which consumes water, the volume of water stored by means of the expansion of the cushion of air. It ‘obvious, that the same system can be used to produce energy if the water exits the autoclave circuit (to produce energy) and go back simultaneously by another input, without changing the internal volume. Obviously, the return of water to pressurized autoclave must not be with the force of a multistage pump, which consumes more energy than it produced, giving reason to skeptics who ironically call “perpetual motion” hydropower with water recycling. Skeptics have been right only because it lacked the invention of pump with double separate supply until to the impeller. In fact, if the separation of the flow does not reach inside the impeller and if this is not rotating, the system can not work, relying on the dynamic pressure to bypass the static pressure. In the hydropower system of the car the valve (2.2), which feeds the pump used as a turbine, must be strictly closed when the plant is not in operation, otherwise they are not the conditions for starting the system.

In the hydroelectric plant of aircraft FIG.4, we expand the air cushion only in the starting phase of the hydraulic motor, to reduce battery costs for starting and possible three-phase UPS group. During normal operation, the water coming out from the autoclave is perfectly in a quantity equal to that which enters into the left mouth of the pump with the double feeding until the impeller, because the pressurized tank (1) being completely full of water and air, allows entry in its interior only the same amount of water that exits through the valve (2.2). Because, the right port of the pump with the dual separate supply (5) is used only to the pressurized water recycling from the air cushion (the same pump works with a very low prevalence merely to recycle the water within the same volume Without lifting it or winning the pressure of the compressed air pillow). Therefore, by adjusting the speed of the motors that supply the pumps 4 and 5, we also adjust the flow of water passing through the turbine and the energy produced by the individual power generators. The pump (4) serves to overcome the valve discharge losses and special parts (3.5, 7, 8, 9) and balance the flow between the right and left side of the pump 5, it can not provide more flow than the output from the valve 2.2 All these adjustments are possible by first setting the limit of oscillation of the water level in the two side by side tanks, either by means of adjustments of the valves, both of the speed of the pump motors, while the decrease of the air pressure is regulated by a pressure switch that drives the compressor at the minimum variation. Thus, at rated operating conditions, not happening the variation of volume of water in the pressurized tank, do not happen the expansion of the air cushion, therefore, no power is consumed to compress the air cushion (As happens in existing autoclaves). However, the water that comes out from the autoclave also receives the pressure required to produce energy in the turbine. Obviously, the energy absorption can not be eliminated completely, but it consumes only a very small percentage of the current energies that absorb the hydraulic systems that need to raise the water or compress the air cushions. Since the drive motors of the variable speed pumps, this system can produce the energy that serves to a means of carrying a full load, no load, in the various phases of operation, simply by pressing the acceleration pedal of the vehicle. In fact, the control unit (11) distributes the flow of energy to the electric circuit of the of transport aircraft, which, in the case of Fig. 1 and 2, is mainly composed, from fifty-seven motors and valves of the same power generators and heating and air conditioning of the aircraft. The general starter batteries of the plant is slightly larger than the current batteries of the means of transport, being powered by a three-phase UPS. They only have to open valves 2.2 so that the turbines will start rotating, allowing the alternators (2.1) to produce the power to run the pumps motors (4 and 5), then the valves (1.4 and 3.5) and finally the heating and air conditioning systems. Only in the end the electric turbofans (17), first those located in the vertical thrust tunnels (14) and then those of the horizontal thrust tunnels (16).

To realize the hydroelectric plant, the choices can be many, but let’s take advantage of a pressurized air cushion of 400 m of water column and an electric pump used as a turbine with a capacity of 12.5 L / s. Assuming the yield is 0.70, applying the formula $Pu = \eta * Q * Hu / 102$, we have an energy output of 823,5 KW (0,70 * 300 *400 / 102).

Assigning to the pump with double separate supply a prevalence of 1.0 m and a 0.6 yield, the power absorbed by the same, which leads a double flow of that which passes into the turbine, calculated by the formula: 1 * 600 / 102 * 0,6 = 3,52 KW. While the additional circulation pump (3.6), with a flow rate equal to half, suppository with the same yield and prevalence absorbs half of the energy calculated for the double feed pump (1,76 Kw). Therefore, total energy absorption would be only 5.28 KW (3.52 + 1.76). In this case the relationship between energy expenditure and yield is 156 (823,5/5,28).

In fact, the load losses in the valves, in the turbine, the special pieces and losses at the outlet, are all absorbed by the dynamic pressures that develop in the pipes that feed the pump under a positive hydrostatic pressure, from both sides, while in discharge not we appreciable losses of load, not exceeding the water level (which is incompressible). No wonder with this result, whereas compressed gases are accumulators of more powerful energy, flexible and cost of electrical energy storage.

In the phase of steady state operation, the air cushion, controlled by the regulator (1.1), does not expand, thus all the water returns into the autoclave through the two inlets of the pump with double separate supply. In fact, the double separate supply until to the impeller, allows to have very similar flow rates by means of the adjustment of the valves (1.4, 2.2, 3.5) and the revolutions of the pump (4), despite the difference in static pressure existing on supply. Therefore, we can estimate that 50% of the total flow of the pump with the dual separate supply (5) passes from the right side (that is a simple recycling) and 50% from the left side (through the pump used as a turbine), producing power . In fact, the turbine discharge the water in the tank (3), from which, the low-pressure pump (4), the check valve (8), the stub flow diverter (9), the double curve with separator baffles, feeding the left side of the pump with double separate power supply (5). The energy expenditure provided to the pump (4), estimated hereinafter, is not that which would be required if we had used the usual hydraulic and electric circuits and to return the water into the autoclave, but only the one to reach the ‘ water in the pump impeller with dual supply. Who will bring the water inside the autoclave is the circuit on the right side of the pump, where the static pressures on the suction and delivery, are in balance and thus the direction of the water flow depends only on the rotation of the impeller. Consequently, also the water that comes from the left side fits into this flow, not only because the impeller is common, but also because the partitions (2.1.6) arriving lap the profile of the impeller, act as anti-return valve Furthermore, the rotation does get into every fourth of the cruise sector shown in FIG. 3 in water succession in high and low pressure (hp + lp) that having the same direction are added together, they do not contrast, also in accordance with Pascal’s law which states that the pressure expands in all directions (when it is static). When there is a unidirectional flow, conditioned by the rotation of a pump, the walls of the pipes and check valves the dynamic pressure is forced to expand in the direction of flow.

As written above, even if it seems impossible, this system produces energy without consuming water that recirculates between the two tanks. Instead, it consumes a small amount of compressed air, which solubilized in the water of the autoclave, is released into the atmosphere when the water is vented to atmospheric pressure in the tank (3), but this phenomenon is quantifiable in milligrams per liter of gas water (nitrogen, oxygen, CO2) according to Dalton's law of which is provided below the main formulas (extracted from the scientific literature) and personal considerations that explain the concepts, without considering the merits of the calculations:

In fact, 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: where, R is a constant equal to 0.0821; , … 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 Total of moles present:
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: .

In essence, for each gas present in the air is possible to calculate what percentage is solubilized in water at the working pressure, but for practical purposes, the energy that will spend to compress the air will be a small expense, since the air compressed, not ever coming out from the volume of the tank (1) has only small pressure fluctuations, and once it reached the saturation point not dissolves more air. One that is consumed is due to the lower water solubilisation of the gas, at atmospheric pressure. In fact, when the water passes through the tank (3), provided with air vents, releases a small portion of air, which becomes insoluble to the atmospheric pressure, which comes through the vent (3.3). But, obviously, the transit times in this tank are very narrow and the complete air expulsion process can not occur, because, immediately falls into the water tank (1) where the gas can not escape from the surface of ‘water, returning again to the maximum solubilization conditions.

Obviously, to maintain constant water levels of the two tanks is required a computerized management of the degree of opening of the motorized valves (1.4 – 2.2 – 3.5), of which, at least the one that feeds the turbine must be powered at 24 volts DC, having also be operated in the initial system start phase, when the plant does not produce any energy.

It may seem strange that this system so important for the development of terrestrial and spatial air transport, involving many technologies, without the pump with the dual power supply separate until the impeller (5) it would not have been possible to tink. In fact it would not be possible to circumvent the pressure of the autoclave (1), and it would not be possible to produce energy. But it is also important to the way in which it feeds the pump that has to start from a certain distance from the pump, so that in the inlet section of the pump have four separate streams of which two high pressure (hp) and two low-pressure (lp) , possibly arranged diagonally. In order that this separation of the flows can take place it is necessary to start from the flow diverting (9) logs since the double curve with separator baffles (7), must already receive the channeled flow in the correct position, so that it can cross them, feeding the four internal areas to the impeller in the correct way. Then, the half-curves of the particular (7) using only half of the passage section, already arranged diagonally, that flow in only one input section of the pump already divided into four sectors without flow interruption up to the fins of the impeller, which in this the application will be closed. In the plant proposed the head of the pump to be assigned to the pump with double separate supply, serves to overcome the resistance of the check valve (8) and to to include, together with the water recycled, all the water that comes out of the open circuit (which passes through the turbine) back into the reservoir (1). Therefore the pump with double separate supply (5) carry out five functions:

1. permit the water low pressure of the left side, thrust from the pump (4), to enter in the impeller of the dual separate supply pump until the impeller (5);

2. permit the circulation water in the high static pressure on the right side which do not circulate without the rotation of the impeller, since the pressure upstream and downstream of the pump it would not be in static equilibrium;

3. permit the sum of the two flow separated in the rotating impeller (which do not come together, but succeeded one another in each quarter of the input section for each revolution the impeller);

4. permit the expansion of the total pressure coming from the right side in the pump body according to the principle of Pascal (Although the static pressure is in equilibrium, the dynamic produced by the pump with the dual separate supply, allows the circulation of water within the volume of water accumulated with a small head of the pump, since the pump delivery and the suction coincide at least on one of the two suction mouths. Therefore, the dynamic pressure produced by the pump is added to that static and expands in the flow direction, pushing also the water coming from the left side of the pump with separate supply, which alone would not have the force to enter and to cross the autoclave.

5. permit to overcome the pressure loss of the check valve (8) with the head of the pump that depends on the type of impeller and pump body used.

If these five operations take place, as written above, it does not vary the volume of water inside the pressurized tank. Therefore, we should not restore the pressure of the air cushion, and being the shortest paths, we have no appreciable fixed pressure drop, apart from the ones we produce spontaneously for adjusting the flow rate and levels through the choking of the valves during start-up and of slow speed and torque. None of these functions requires a precise load loss, apart from the check valve (8), which depends on the speed of the water and at the maximum can be up to 0.5 m, therefore in the indicative calculation of the absorbed power of the pumps (4 and 5) during normal service has been provided for the prevalence of 1 m water column, estimating an average absorption, respectively of 1,76 and 3,52 kw, that is not the installed power, but the average consumed, having the pumps variable speed also face major and minor absorption conditions. However, the value is indicative of the fact that with a small energy consumed by the plant, you can develop and consume energy much higher than using different hydraulic regimes and the energy storage unit which is the air cushion. This system is not covered under any theory of scientists as Euler, Bernoulli, Newton, Stokes, Leibniz, Heisenberg, Carnot, Fick, Hamilton, who in so many have legislated laws on energy conservation refers to isolated systems, mechanical, hydraulic, thermal, chemical, physical. It can be said that the hydro engine is a practical application that respects these principles, but at the same time it exceeds the limits creating an open system that transfers energy from one system to another, without arriving at the mass energies much more powerful, but difficult to control by man, begun, starting from the Einstein studies.

Industrial applicability.

The production of electric renewable energy on board any means of transport is the best solution from an economic point of view, regardless of the environmental aspects, because it also simplifies mechanical design. In fact, being able to position the energy producers wherever you want, all current heat engines can be replaced by electric motors. Not only the transmission of electric power costs much less of the mechanical transmission, eliminating shafts of transmissions, reduction gearboxes, thermal stresses of the materials, but it is also more easily adjustable by means of the control electronics and inverters.

Science has long been trying to produce energy with small footprints, but has so far failed to focus mainly on nuclear energies and various manipulations of matter. While for the undersigned it is easier to exploit the energy of the water ejected from position always filled with hydraulic circuits, provided that, the circuits are designed so as to exploit various hydraulic regimes: Favoring energy saving in the recovery phase of the water and favoring the production of energy at the stage of water outlet from the plants. In fact, it is necessary, in particular, to debunk the myth of bulkheads and weights all of which have hydroelectric power, which was wrong from the advent of the industrial era, exploiting only the most apparent energy, which is that with the Hydraulic jump. As shown in FIG. 1, hydroelectric power on mobile systems, can occupy the spaces currently occupied by fuel tanks that do not serve. If we consider the weight of fuel, thermal engines, cooling systems and mechanical transmissions, we can not say that by producing hydroelectric power on board the aircraft we weigh the flight system. If the system becomes heavier and bulky it is due to the fact that we increase the load capacity and safety of flights, taking advantage of the low cost of energy.

The benefits are enormous because pressurized hydroelectric power consumes no fuel but only material wear, as is the case for the one produced by exploiting the water position of the water basins. Taking advantage of the artificial pressure of compressed air, with smaller dimensions, we get the same results. In fact, we produce energy with the pressure of an air cushion that can not expand expels excess water from an ever-filled hydraulic circuit that feeds a hydraulic turbine. Therefore, we take advantage of static pressure, as in the natural basins it takes advantage of atmospheric pressure. As there is no thermal stress, do not get stressed even the materials.

If we assume that the aircraft of FIGS. 1 and 2 has in the allocated energy production space, three pressurized hydroelectric power generators with a water pressure of 300 L / s pressurized at 40 bar as calculated in the description, we can assume that it has Approximately 2,455 Kw [(823,5 – 5,28) * 3], and therefore about 43 Kw for each of the fifty-seven turbofans planned for the aircraft, which will never work together and at maximum speed. The maximum absorption we can have is in the vertical take-off phase with the forty-five lifting turbofan motors on which the whole energy could be concentrated up to the expected horizontal transport dimension where the rotation of the turbofans would be reduced and the Would put those horizontal thrusters that require less energy, not having to counteract gravitational force but only friction with the air. Then in the lifting phase we could have about 54.5 KW per motor (2455/45). If recycling 300 L / s in a turbine allows us to produce about 818 kw we can assume that there is enough 1500 liters of water and that the entire recycling plant weighs about 2500 Kg. Let’s take a little calculation to lift against the force of gravity 2500 kg at a speed of 50 km / h (transforming the weight force in Newtons and the speed in m / s, with system hypothesized cautiously with an overall yield of 25%. By not lifting directly, but through the air circulation in the turbochargers, with all the physical phenomena involved) according to the expression F * s / t, we will have a spending power of 86.8 Kw [(25000 * 50.000 / 3600) * 0.25 / 1000], which is about 10% of the energy produced. The remaining 731 kW can be used to lift the aircraft and passengers. If these are the proportions between the energy produced and consumed for lifting the aircraft in the worst operating conditions, we can also suggest using the complete system of compressed air tanks in the Earth environment to increase the safety and efficiency of the aircraft flights. In fact, during take-off, instead of exploiting only the energy produced by the turbo fans, we can add that energy to the emptying of pressurized tanks that would release the air from the same output as the vertical thrust tunnels. In addition, by supporting the vertical thrust tunnel (14) with the supports (15) that let the air, which bounces on the ground back towards the aircraft, still more we increase the efficiency of the take-off lifting. After take-off, the compressed air tanks would be pressurized again by taking atmospheric air during the flight to use it as a parachute in the event of a flight accident or to slow down the coupling down with the reduction of turbofans revolutions. But this flight system is advantageous because if we need a higher load capacity, a new energy production group is added to the appropriate space for energy production, which is added to the other existing ones, or replaces a group with another more powerful, without changing the thrust engines, as would be the case in current flight systems. If, on the other hand, vertical or horizontal thrust motors are not sufficient, they increase the number of such elements, which, as written, surround the whole aircraft and can also cross vertically as shown in Figures 1 and 2. . Obviously, in larger spacecraft, there could be many tunnel crossings with more turbofans than those represented in the drawings, not only vertical but also horizontal with immense load capacity, bringing in large quantities of compressed air tanks to ensure the return trip on Earth. Notwithstanding that, as written in the description, oxygen, nitrogen and CO_2 could also produce in specially equipped greenhouse spaceships for human life in space. Also in this case the pressurized hydropower with compressed air would be valuable because it dissolves oxygen in water contributing to the purification.

What’s important is that both on Earth and space, we would not need fuels or even radioactive materials, we would not emit pollutants, and would have a safety flight hundreds of times higher than current flights.

It is not necessary in this patent warehouse to get into the details of energy calculations for flying into the atmosphere and space, since the variables are many and any energy needs result is always outweighed by the low cost of energy produced by recycling of pressurized water with compressed air. This solution becomes more and more convenient by increasing the water flow, since if it is true that the output produced is proportional to the pressure of the air cushion that is not consumed, it is also true that it is proportional to the water flow that is not consumed either. Circulating with low prevalence of the pump within the volume of water accumulated in the pressurized tank increases even more the convenience ratio between the energy consumed and produced to produce energy. This ratio in the calculated example, with only 300 L / s and 40 bar of static air pressure, is already 1/156, and, as said, can increase a lot. I do not know if the nuclear energies so much desired by the official science can activate these results, as well as oxygenating the water. I only know that until now, the results have been pretty disappointing despite the many hundreds of billions of expenses worldwide. These solutions, which cost only one euro or dollar to any world taxpayer, come from experience, not from theories. By bringing together the different technologies and looking for synergies between scientific principles and machines that carry out different jobs. Looking for natural and technological conditions that nobody has been looking for transversally, because everyone is trying to exploit only one science and one technology at a time, while in nature they have been the synergies between different physical, chemical and biological principles to create life on Earth, starting with photosynthesis. We men, to these principles we can add mechanical, electrical, electronic, computer technology, possibly without opening thermal cycles, which can not be closed, especially in mobile systems. It is no coincidence that these solutions do not exist after more than one hundred and fifty years of industrial development because we have not yet closed the thermal cycles in the major fixed thermal plants, although as we can see on http: www.spawhe.eu, we could have done so, realizing the plants in the right place and the right size, modifying the chimneys and continuing the CO_2 cycle with water in limestone greenhouses. If science, industry, global legislation, they did not clean the thermal energy in the fixed installation, which is easy to clean, how could we think that would solve the problem on mobile systems, transport and land work, marine and space?

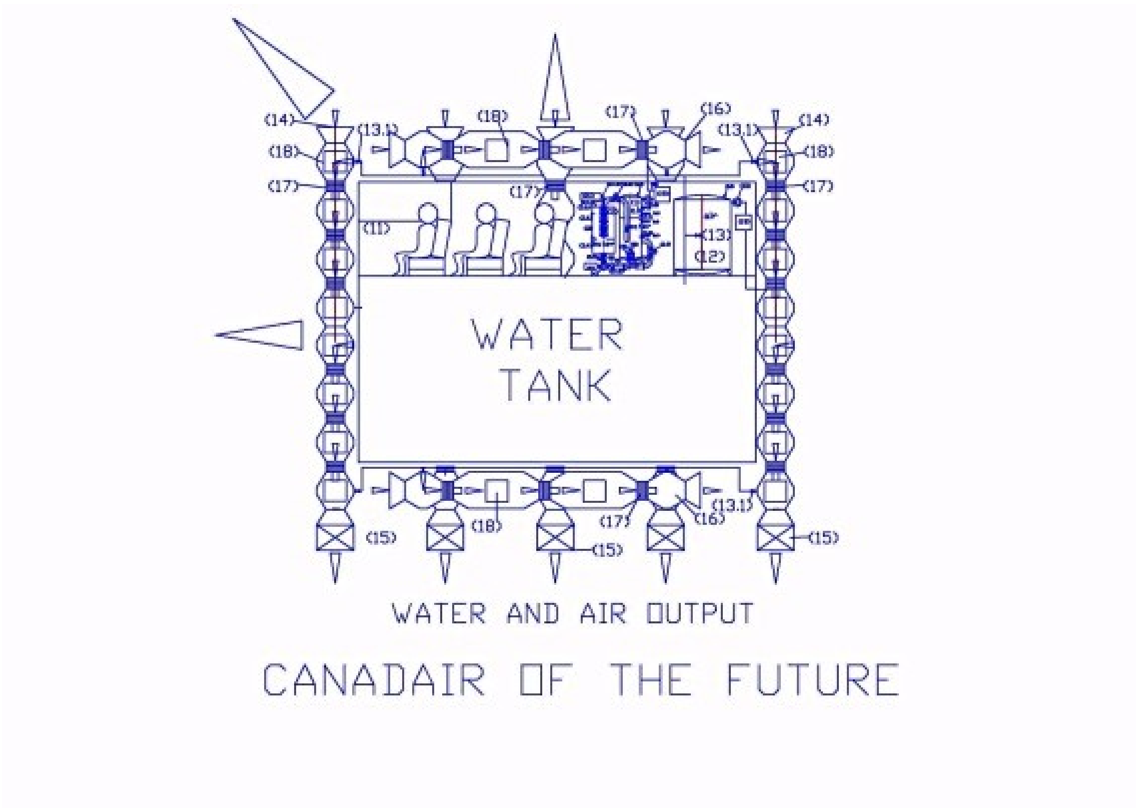
Working in watertight compartments, various sciences and various technologies, they never put together hydraulic pumps and turbines in the same hydraulic circuit and even did not use single-sided autoclave air cushions without expanding them, which is the only way to produce energy without consuming it all in the same plant, in an attempt to recover the water In the wrong way, that is, without the pumps with the dual power supply separate until the impeller. These technical considerations neglected by the world-class leadership at all levels, as written, can also lead to a sustainable terrestrial and space air transport system, despite the high energy needs that are needed. Suffice to think that the ratio of energy consumed calculated in the example above refers to the same system that uses different water circulation regimes. It does not take much to understand that if air cushion air expands, as it expands into existing autoclave plants, it consumes energy. In order not to consume it was necessary in the invention of the pump with the dual separate power supply up to the impeller, because it creates the connection between two hydraulic schemes of water circulation, one of which is open and the other closed. The open circuit produces energy in the hydraulic turbine and the pressurized closed one saves it. The electricity produced in the cold process, which does not need any other transformations, can be applied directly on the blades of the turbine which produces electricity and spins the turbofans. But there are other margins for the lightening of electrical systems in particular (motors and alternators), increasing the operating voltage of the electric power supply of turbofans. As there are wide margins for the lightening of the materials with which the pumps are built, the turbines and hydraulic rails, which are today made of steel and cast iron for exclusively land use. This means that from a sustainable energy point of view we are still at earth zero earth, because we have not yet come to produce electricity by recycling water in a profitable manner. While with regard to air and space transport systems are not there yet in year zero, because when the world will understand that this is the best way to produce powerful and sustainable clean energy, we need to lighten all the materials that make power plants, Not so much to save energy, it will cost almost nothing, but not to bring unnecessary weights into space. It is not possible that everyone understands the most difficult concepts of the theory of relativity, of quantum mechanics, and theoretical physics, and at the same time, the entire world science, including the spatial, which is at the forefront, does not include the proper coupling in the plants of uncompromising water and compressible air that, from an energetic point of view, would have avoided economic and environmental disasters, including global warming.

With regard to the vertical and horizontal thrust tunnel, incorporating axial turbofans in series, is a solution completely original, since such solution in industrial applications do not need, being in other applications sufficient centrifugal fans and blower which do not need very high prevalences. Only in the future aeronautical and spatial sector can this application be stated, where the thermal axial turbofan are affirmed, which are much more powerful, but as written, they turn by the gas turbines with chemical and fossil fuels, which are not compatible with the Economy and the environment.

The thrust tunnels will become important only if they generate abundant electricity on aircraft. In fact, having a greater amount of energy but less potent without the gas combustion chambers, it will be necessary to increase the prevalence of the multi-stage axial fans by placing them within tunnels that are intersected by section extensions, which, by slowing down the speed, allow To sum up the pressures, while the airflows sum up by working in parallel many tunnels horizontally and vertically depending on the speed to reach and the load to be carried. Surely there are limits to the speed we can achieve because of the opposition of gravity, air resistance and air compression losses in the various compression stages and the tunnel itself. There are no limits to the loads we can lift into the atmosphere, if we have an energy source that uses air and water without consuming them and only uses a small percentage of the energy that it produces to raise its weight. The thrust tunnels become even more important at high altitudes, when the atmosphere is reduced in density and vacuum, because the density reduction can be compensated by either increasing turbo fan motors’ speeds or by injecting compressed air into Same tunnels that do not disperse anything until they leave the atmosphere. Of course, in the vacuum, everything must be entrusted with air injection, which, to save its quantity, is made at low pressure by means of pressure reducing valves which compresses into the tunnels, increasing the density and creating the reaction force. We do not know what are the energies of the future for NASA, because up to now, for propulsion, has always used very powerful thermal energy, which, apart from the cost and the pollution they produce, have, above all, a poor flight autonomy because fuel consumes very fast, especially in the launch phase, where, instead, the compressed hydroelectric power consumes nothing, taking the air out of the atmosphere. Therefore, the energy problem arises in the next phase, when air outside the spacecraft is lacking to create thrust in tunnel with turbofans. Therefore, the solution is to bring the compressed air at the maximum pressure allowed by physics, which is to the liquid state, which in the tunnels turns into steam, where the turbofans, even at low revs, could create impulses, more or less long, to change the navigation directions they serve.

As long as Newton’s principles remain valid, thrust tunnels are a logical invention to travel in the atmosphere and space with cold-powered electricity, maximizing atmospheric gases or storing them in tanks, in case the trip is spatial. Even if, instead of pressurized hydroelectric power, another type of cold electricity is used that does not produce high-pressure gas or steam, thrust tunnels would also be equally useful. But in the state of the art, other cool energies can not even be considered for this application, being bulky and low-yielding.

Obviously, changing the energy source, also changes the way of designing air transport systems. As can be seen from Figures 1 and 2, the thrust tunnels will constitute the carrier structure of the aircraft, in particular, those arranged vertically. In fact, if the energy does not cost almost nothing, it is not advisable to save it, but use it to support loads and control the aircraft during all maneuvers (by means of the variation of the electric turbofan speeds). They will not serve the take-off and landing trolleys. It should withstand the loads directly through the vertical ventilation tunnel (14), without relying on the kinetic energy and the lift of the wings of the aircraft. Therefore, at least such tunnels and their supporting supports, it is best to make them in chrome-nickel steel that is three times more resistant than aluminum alloys. While the materials used in the construction of the rotating parts of turbofan will be carbon fiber and kevlar, which even in non-thermal parts of current turbofans are replacing steel, being lighter with the same resistance.



The figure above represents a canadair of the future. The fires that this summer (2017) are devastating many countries, and in particular Italy, France, Portugal, should give pause to the powerful of the earth. In fact, if it is wrong to the world’s energy system is wrong the whole history of humanity, which is warming the planet and increasing fires, but it is also wrong the way to fly and to put out fires. It is logical to be stationed at fixed locations on Canadair long enough on the source of the fire, no disperse water where does not need. This can not be done with the current energy system because the canadair would not have the vertical push to counteract gravitational force. However, it could be done, if the energy to keep flying the canadair cost nothing (apart from the wear of the materials that make up the plant). Assuming that the electricity cost very little to produce it on board aircraft with recycled water and compressed air, air transport would become the cheapest means to move large volumes and weights, including fire water, as they would not use other infrastructure such as, Roads, railways, galleries, ports. If we consider the road traffic encountered by firefighters, it is better to use the airplane system also to extinguish urban fires. This system does not require landing tracks. It is more practical to lower small Canadair from the top, which contains, in addition to water, also CO_2 tanks which is also useful in extinguishing fires. In urban centers instead of using escalators and pumping water from the bottom, the canadair would be flush with fire and would quickly and accurately fire water and CO_2 on the fire, without dangers for firefighters, road accidents and explosions of the fuel tanks of the air transport vehicles in the burned areas.

Best regard

Luigi Antonio Pezone