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Converter of Hydrogen Bonds Energy of Water Molecules into Kinetic Energy and Generate Electrical Energy.

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Converter of Hydrogen Bond Energy of Water molecules into Kinetic Energy and Generate Electrical Energy.

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Abstract: This system depends on the expansion that occurs due to creating hydrogen bonds when the water freezes. This could occur when the temperature decreases to -4 below zero and the ice (water) starts to expand (this energy is not nuclear energy, but it is atomic energy) because it occurs due to the formation of hydrogen bonds among the water molecules via hydrogen atoms. It can also destroy hard rocks if it forms inside them. The diagram shows the pressure vessel with some details of this convertor, where the pure water should be put, while the size of the frozen water will expand due to the formation of hydrogen bonds among H_2O molecules.

Introduction: The potential energy Hydrogen bonds [1] could be transferred to a kinetic energy to all sides and directions of the spherical pressure vessel, because the Hydrogen bonds will form to all directions, the actions and reactions of all dimensions forces of this kinetic energy will concentrate to the center of the spherical pressure vessel, where rubbery spherical vessel is there for this purpose which contains alcohol, the energy will press on the rubbery spherical vessel from all directions then the fluid inside the rubbery spherical vessel (alcohol) will remain in a liquid phase, because it has a low freezing temperature, therefore the fluid (alcohol) will flow through gate the down and will push the piston down and the transmitted arm inside the tube strongly to generate a kinetic force to turn gears and the gearbox via transmission arm, the gearbox will increase the velocity to have the sufficient rotations per minute RPM to be capable to generate electricity via the electric generator which is already installed directly with the gearbox (gear box contains two steps the first to organize single direction rotation and the second step is increasing the velocity of rotations).

DOI: converter of hydrogen bonds energy, pressure vessel, mechanism of the system.

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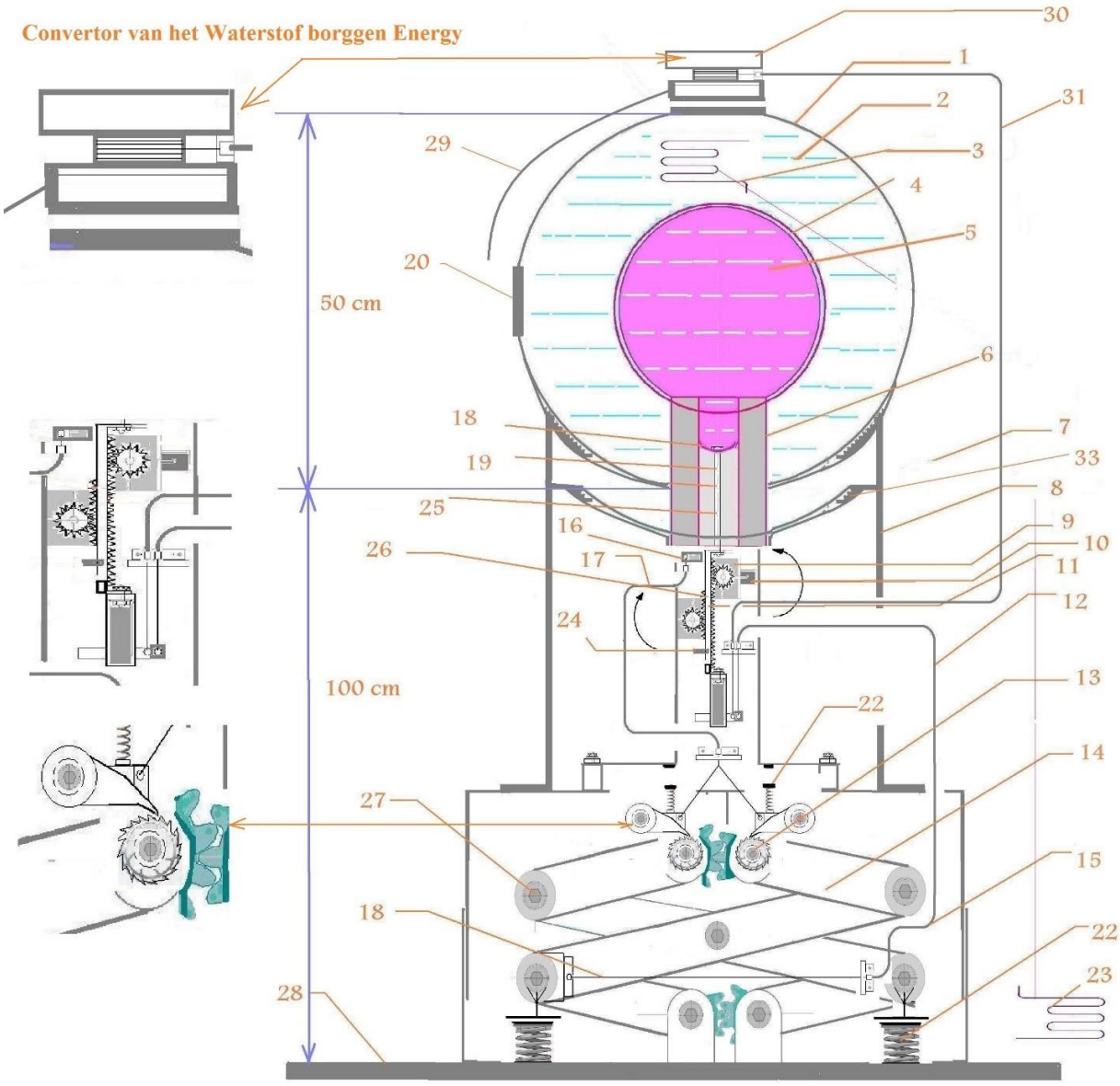

Illustration 1. Shows the Hydrogen bonds convertor.

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1.	Pressure vessel.
2.	Pure water.
3.	Tubes of alcohol recycling.
4.	Rubber vessel.
5.	Pure alcohol.
6.	Cylinder and piston.
7.	External body.
8.	Internal body.
9.	Gearbox.
10.	Electric generator.
11.	Alcohol pump.
12.	Steel wire to energy transfer.
13.	Mechanic lock of the lifter.
14.	Mechanic Lifter.
15.	Stabilizer of steel wires.
16.	Trigger of opening lifter locks.
17	Steel wire to energy transfer.
18.	Rubber Piston.
19.	Bar of energy transmission.
20.	Safety valve of presser vessel.
21.	Iron rings to support rubber ring.
22.	Rings of impacts Absorption.
23.	Alcohol cycle tubes.
24.	Arm of the Gearbox.
25.	Piston bar.
26.	Alcohol pump.
27.	Screws.
28.	Base.
29.	Rotated ice remover arm.
30.	Ring of rotated arm.
31.	Steel wire & rotated ice remover arm.
32.	Heat insulating body.

Table 1. Names of parts of the Hydrogen bonds convertor.

This converter could also use a raising system that works automatically, as soon as the expansion size of the ice is within the highest limits, the transmission arm will begin to pull the steel wire to compel the lifter to raise the pressure vessel over the ice surface of the ice pool, allowing the pressure vessel to get some warmer circumstances to make the frozen water (ice) in the pressure vessel liquidize again to return (to the downside) to the frozen pool water. This operation should be done in a closed cycle and continuously.

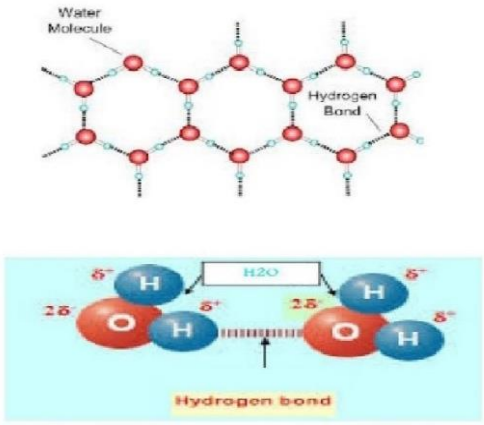


Illustration 2. Shows the Hydrogen bonds among water molecules.

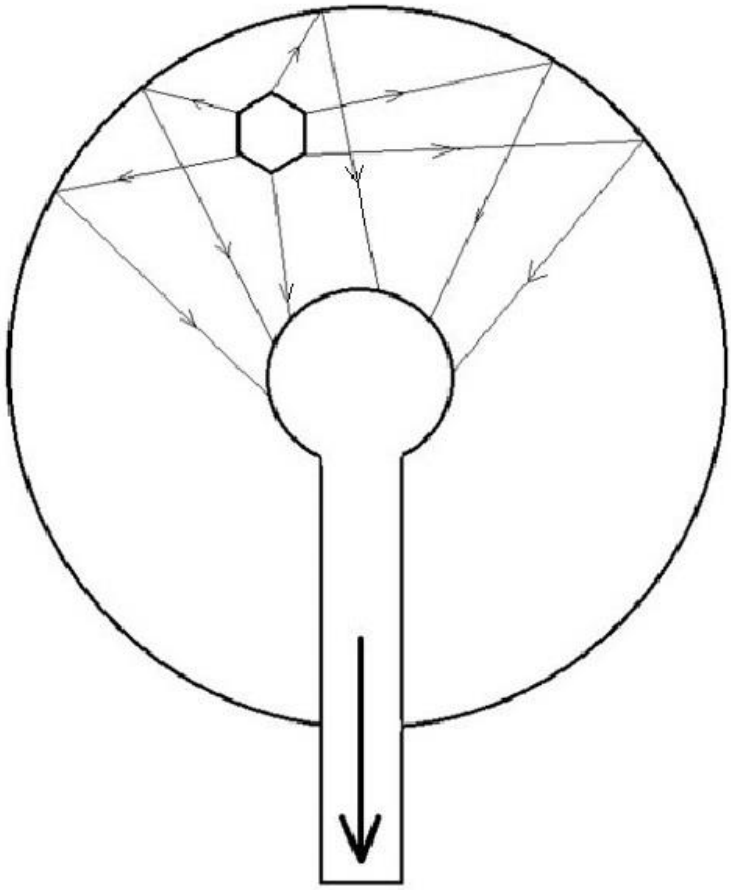


Illustration 3. Shows the expansion of the volume of the water due to the formation of Hydrogen bonds in random directions [2] while the spherical vessel secures the reaction of these forces to the center of the spherical shape.

To increase the efficiency of this converter, we could also install tubes of the water-alcohol cycle system to help with heat exchange between the pressure vessel and the warm water in the base of the pool to dissolve the ice inside the pressure vessel faster when it became above the ice pool and wait to liquidize to return the automatic cycles to the first point as soon as possible.

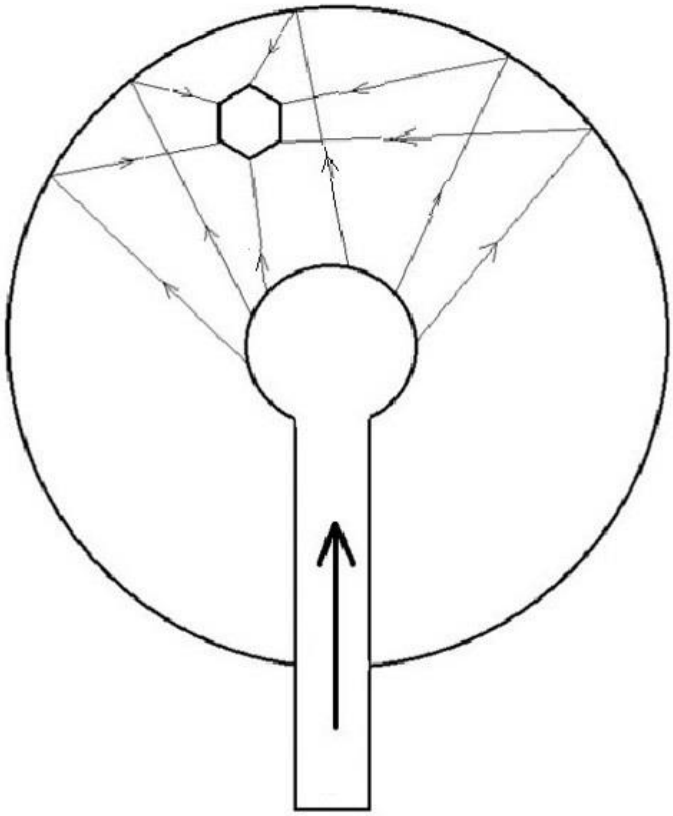


Illustration 4. Shows the contraction of the volume of the water due to the cancellation of Hydrogen bonds.

Once the ice inside the pressure vessel liquidizes (becomes a liquid phase), the volume of the water will reduce due to the cancellation of Hydrogen bonds in the liquid phase of the water inside the pressure vessel.

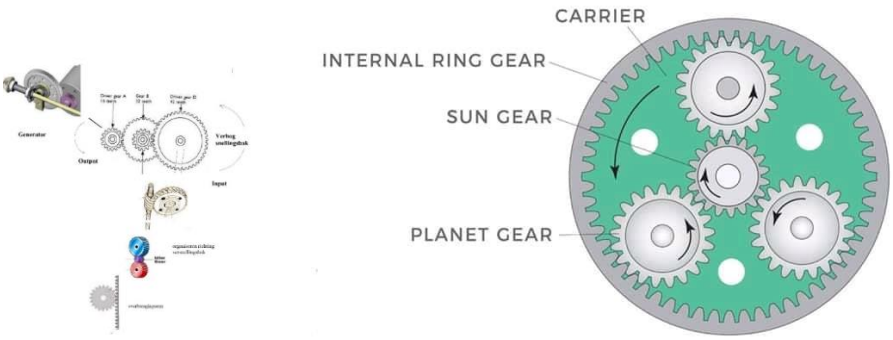


Illustration 5. Shows the gearbox and the energy transportation arm.

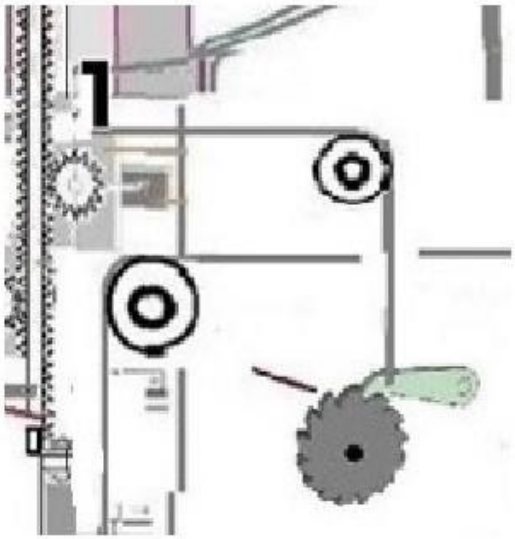
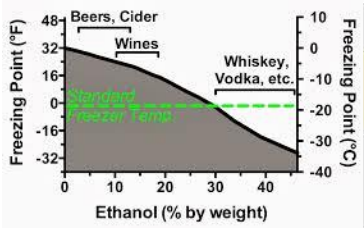


Illustration 6. Adding the mechanical lock to the wire of the shading system trigger may help the timing case work precisely to open and close the shading system.

Therefore, the piston will return due to this shrinkage and reduce the pressure. During the return, it will also move the transmitted arm in another direction to turn the gearbox and the electric generator to generate electricity. When the transmission arm gets to the end of the limit, it will pull the trigger of the steel wire of the opening mechanical lock to return the pressure vessel to the ice once again. The converter should be stabilized in the frozen water pool firmly and we should avoid troubles concerning the level should the pressure vessel increase in the frozen pool, therefore we recommend building an artificial water pool with a hard base and hard columns to hold and support this converter, also install so many converters in the same freeze water pool and use it to work at the same while to increase the value of generated electricity, this convertor should also use mechanical locks which work in different pressures, some of this locks should be installed with pressure vessel and some locks at the end of transmission arm with the hard base to synchronize successfully times of rise the pressure vessel and times of returns the transmission arm, synchronize increase and decrease elevation correctly, thus we could find the importance of the Hydrogen bonds formations when the water freeze.



Flash Point												
Methanol Concentration (% by mass)		0	10	20	30	40	50	60	70	80	90	100
Temperature	(°F)	-	130	110	95	85	75	70	60	54	54	54
	(°C)	-	54	43	35	29	24	21	16	12	12	12

Table 2. Shows the influent of alcohol Ethanol to reduce freezing temperature of water while it mixed with the compositions [3].

Components of the converter of Hydrogen bonds energy: The laboratory experiment must conduct to measure the maximum expands which occurs when one liter of water freezes, after the formation of all the Hydrogen bonds of the water inside the pressure vessel and consider the result into account when we design the pressure vessel and the interior spherical rubber which contains alcohol, because the size of rubber vessel should not be smaller than the maximum expansion of the volume of the freeze water after the formation of all the Hydrogen bonds, otherwise it will causes damages to the rubber vessel and also to the pressure vessel, the volume of a cylinder which is the piston moves inside, must be in the

same size of the rubber vessel or the volume of the used liquid (alcohol), otherwise it will push the piston out of the cylinder when the ice expands.

How does the converter work on Earth? The converter should be installed in a 1.5-meter-deep pool. When the surface of the water pool freezes, the water in the spherical pressure vessel will freeze as well. The ice inside the pressure vessel will expand due to the formation of hydrogen bonds among the water molecules, and the water will expand to all sides and directions of the spherical pressure vessel. The action and reaction forces will be concentrated in the center of the spherical pressure vessel, where the rubbery spherical vessel contains alcohol (ethanol or methanol). It will push the piston down and move the transmission arm to rotate the gearbox and electric generator to create electric currents. Then it begins to push the steel wire to make the lifter rise the pressure vessel in an upside direction (to above) and get it out of the level of ice in the frozen water pool and (to the air zone) where the temperature is higher, to allow dissolving (liquidate) the water in the pressure vessel to return the cycle. At the same time, alcohol pumps work to make the closed cycle run to exchange temperature between the pressure vessel and the warm water in the base of the pool. When the ice dissolves (becomes liquid water), the total size of water inside the pressure vessel will decrease once again, and the transmission arm will return to its original place. To push the trigger of opening the mechanical lock to return the lifter to its original place, the pressure vessel will return to its original place, and thus the pressure vessel will return to its original place due to the gravity force to the freeze water zone once again to recycle the operation. The cycle will continue due to the synchronization between the contraction and expansion of the volume of water to make the system work continually at low rates of temperature.

Some important notes should be considered when we want to design the Hydrogen energy converter:

1. The tolerance among movable parts and mechanical connections [4] must also take into account the shrinkage that always happens during temperature reduction to avoid any urgent stops or any energy losses due to friction.

Suitable alloys should be chosen for this converter, which could be able to do their functions and be able to work at low temperatures, particularly alloys that have small grains in their microstructures and low fraction temperatures for transfer and anti-rust alloys [Ultra High-Strength Steels for the pressure vessel and nickel-chrome alloys for the rest of the parts].

3- The pressure vessel [6] should be completely spherical because, during the pressure increase due to the expanding of ice, it will move in all directions, the unique design of the spherical pressure vessel to deal with this random direction of actions and reactions forces properly to allow concentrating actions and reactions to the center of the spherical pressure vessel successfully without any side effects.

4- Any hydraulic system or heat transfer system should use low-freezing-temperature liquids such as alcohol.

5- Compressible fluids should be avoided firmly before being used in this system; otherwise, they will act negatively and absorb and lose a lot of energy.

6- Small size converters should be avoided and replaced with larger ones to be repaired and maintained easily and also to produce the required energy.

7- The chosen rubber and plastic materials should not be affected chemically by alcohol.

8- The pressure vessel should be painted black to help absorb higher values of heat from the circumstances around it when it is in the air, in the upper zone, and above the freezing water.

9- An extra mechanic accessory over the pressure vessel is required to help remove ice after raising over the ice level in the pool as a rotated arm to remove any ice over the pressure vessel to keep direct

contact between the surface of the pressure vessel and the air, while this rotated arm may also work upon the generated energy from the output of the gearbox.

10- Adding a safety valve to the pressure vessel [7] may prevent any breakdown that may occur if the value of the expansion of ice exceeds the capability of the rest of the components.

11- The spherical rubber ball at the Centre of the pressure vessel should keep its total elastic characteristics; therefore, suitable materials should be used, such as high-elastic polymers, which can keep the elastic characteristics at very low temperatures.

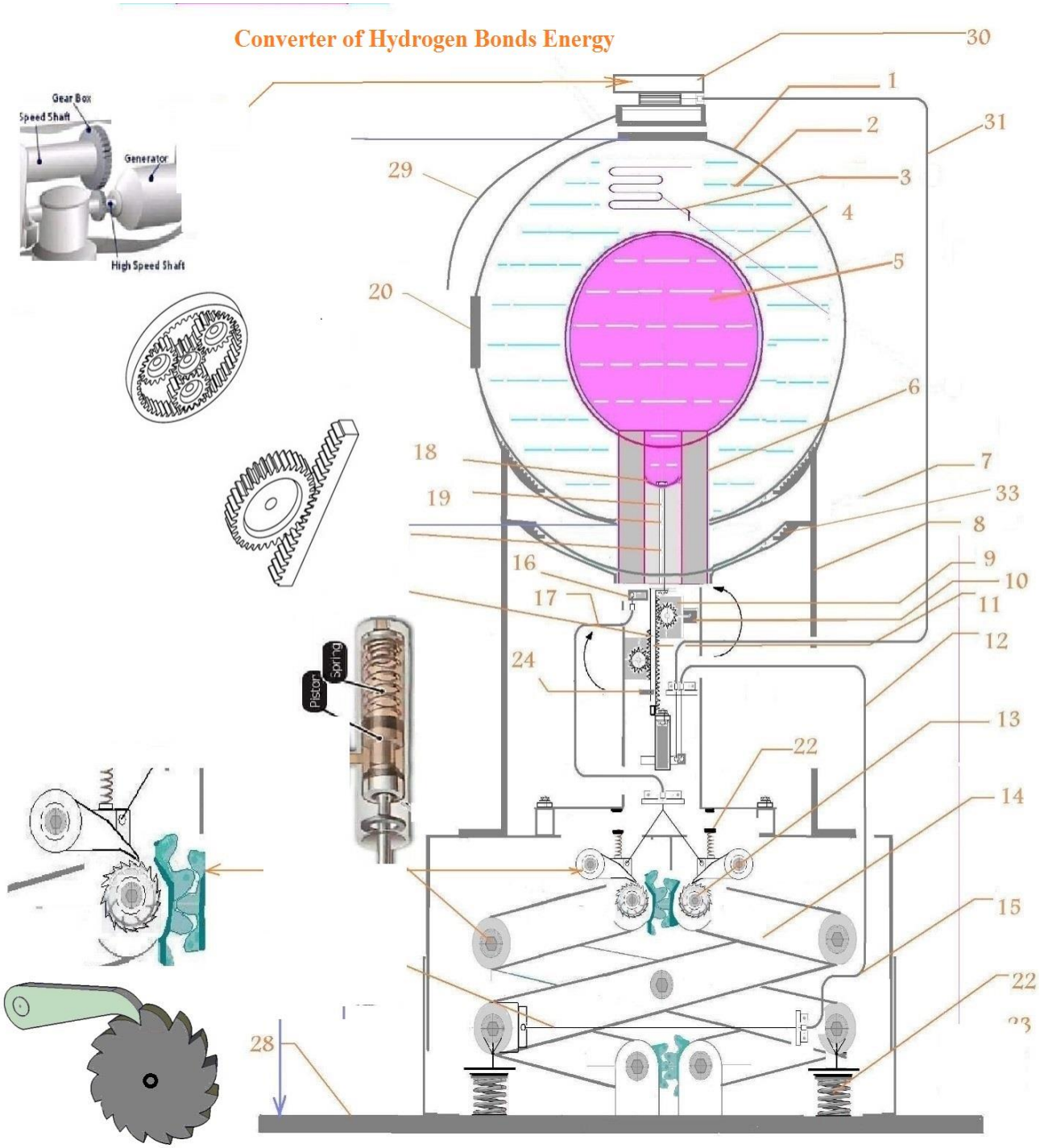


Illustration 7. Converter of Hydrogen bond energy on Earth.

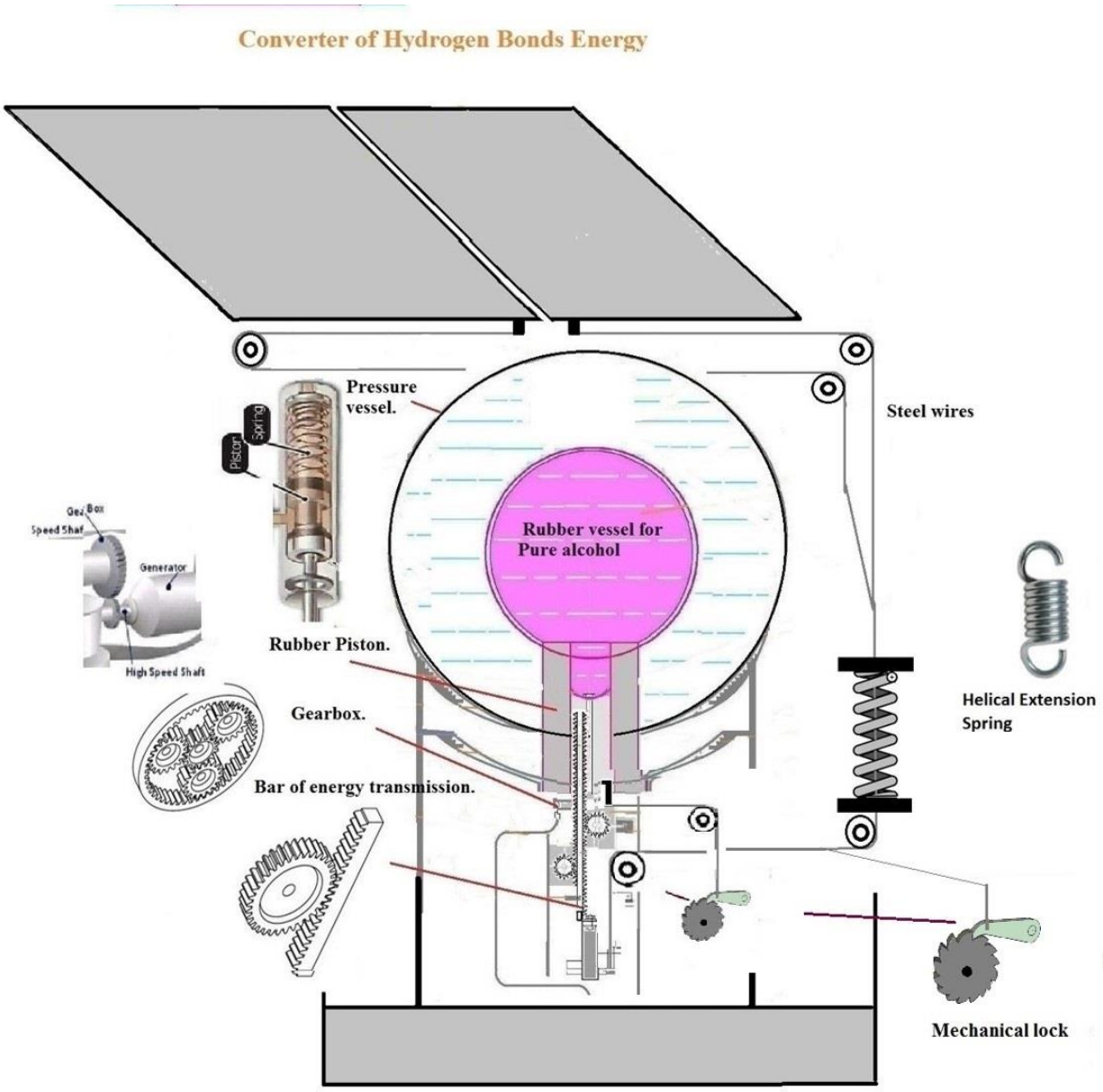


Illustration 8. Convertor Hydrogen bond energy for space applications.

How does the converter work in the space? When the shading system prevents the sun rays from exposing the spherical pressure vessel, the temperature of the water inside the spherical pressure vessel will reduce, resulting in a freeze of the water. Then, the ice inside the pressure vessel will expand due to the formation of hydrogen bonds among the water molecules.

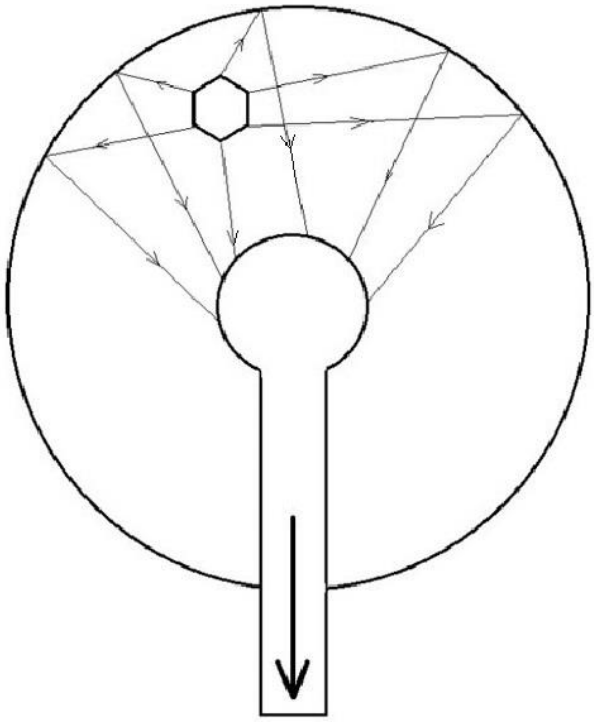


Illustration 9. The diagram shows the expansion of the volume of the water due to the formation of Hydrogen bonds in random directions while the spherical vessel secures the reaction of these forces to the centre of the spherical shape.

When the water freezes the total volume will increase due to the formation of the Hydrogen bond among water molecules, where a rubbery spherical vessel contains alcohol (Ethanol or Methanol), which is linked directly with the tube and piston, it will push the piston down and move the transmission arm to rotate the gearbox and electric generator to create electric currents, where rubbery spherical vessel contains alcohol (Ethanol or Methanol), which linked directly with tube and piston, it will push the piston down and move the transmission arm to rotate the gearbox and electric generator to create electric currents.

Then it begins to push the steel wire to open the shading system which guides the Sunray to exposure to the spherical pressure vessel, the temperature of the water inside the spherical pressure vessel will increase, which results in the melting of the ice inside the pressure vessel, then to reduce its volume, due to cancelations in the Hydrogen bonds among the water molecules, thus the system will return to its the same the cycle again, because when the ice dissolves (becomes liquid water), the total size of water inside the pressure vessel will decrease once again the transmission arm will returns to the original place, to push a trigger of opening the shading system to return the system to its original case again, the generator will keep generate the electricity due to continuously changes in the volume of the water during the increasing and decreasing the temperature to recycle of the system in continuous state.

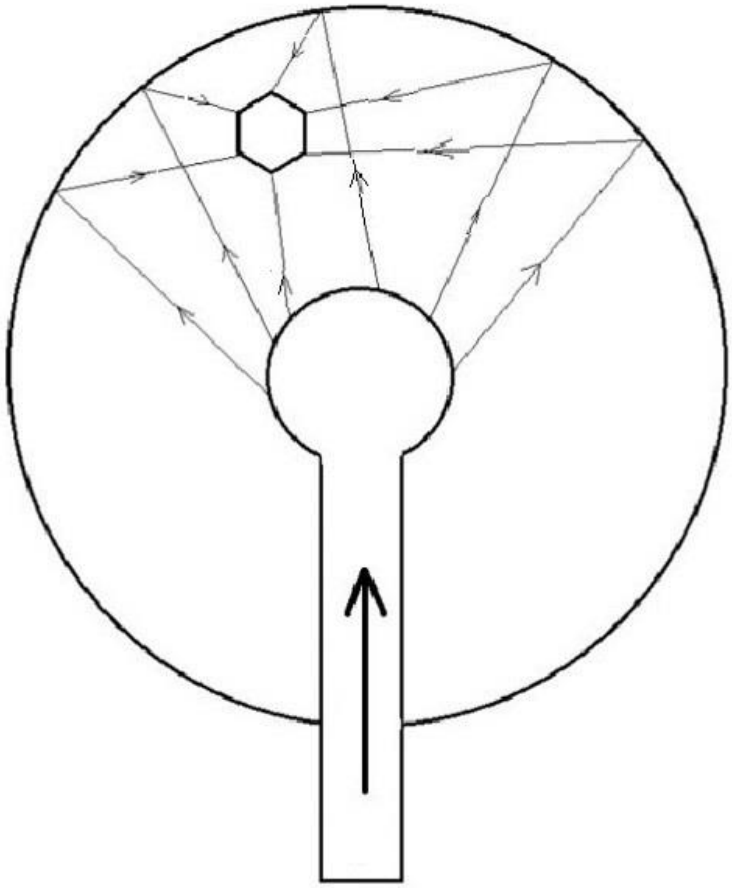


Illustration 10. Shows the contraction of the volume of the water due to the cancellation of Hydrogen bonds.

When the ice starts to liquidize, the total volume will reduce due to the cancellation of the Hydrogen bond among water molecules. The cycle will continue due to the synchronization between the shading system, which leads to a decrease in the temperature of the water in the vessel and an expansion of the volume of the water to make the system work continually at low rates of temperature. When the shading system prevents the sun rays from exposing the spherical pressure vessel, the temperature of the water inside the spherical pressure vessel will reduce, resulting in a freeze of the water. Then, the ice inside the pressure vessel will expand due to the formation of hydrogen bonds among the water molecules.

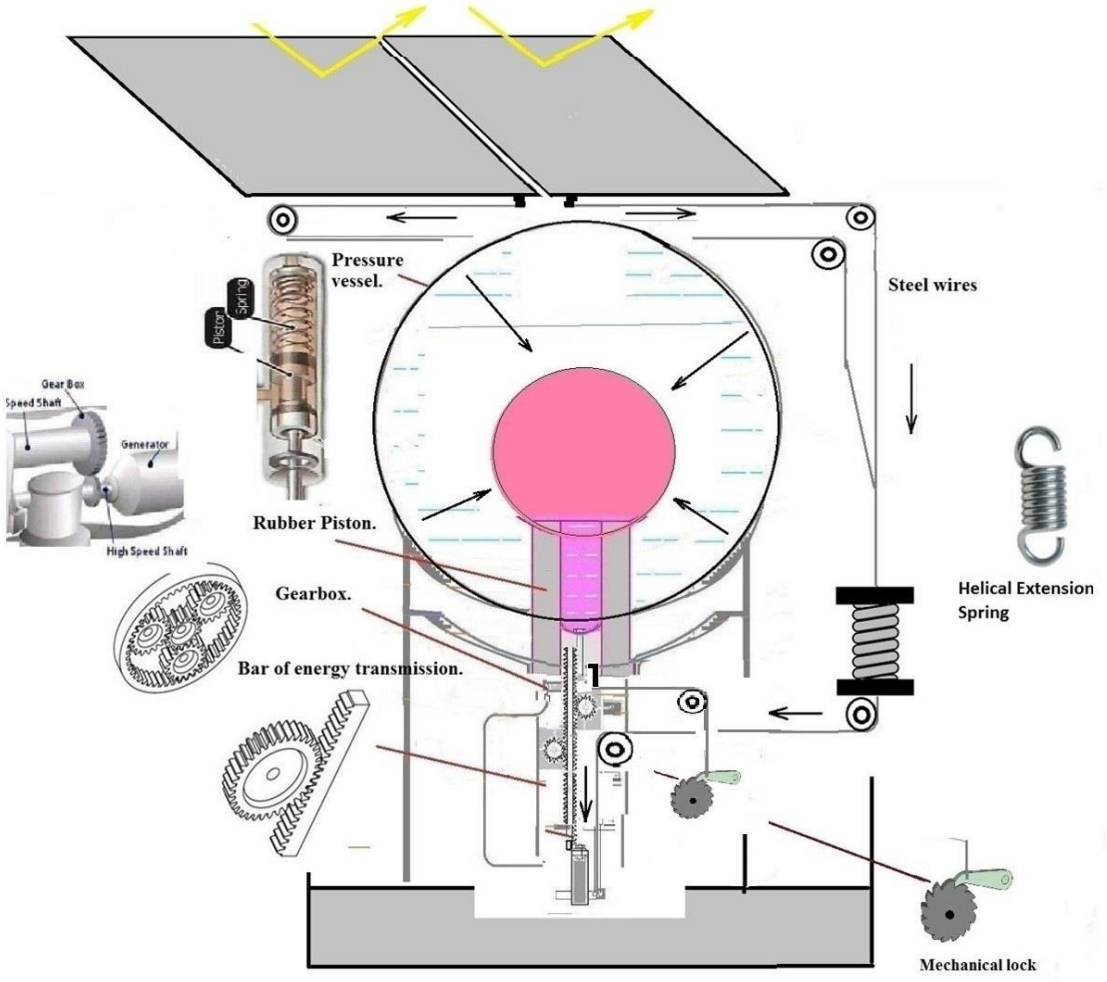


Illustration (11. A) The mechanism of the function of convertor Hydrogen bonds energy for space.

The expansion of the water will take all directions inside the spherical pressure vessel, and then the action and reaction forces will be concentrated in the center of the spherical pressure vessel.

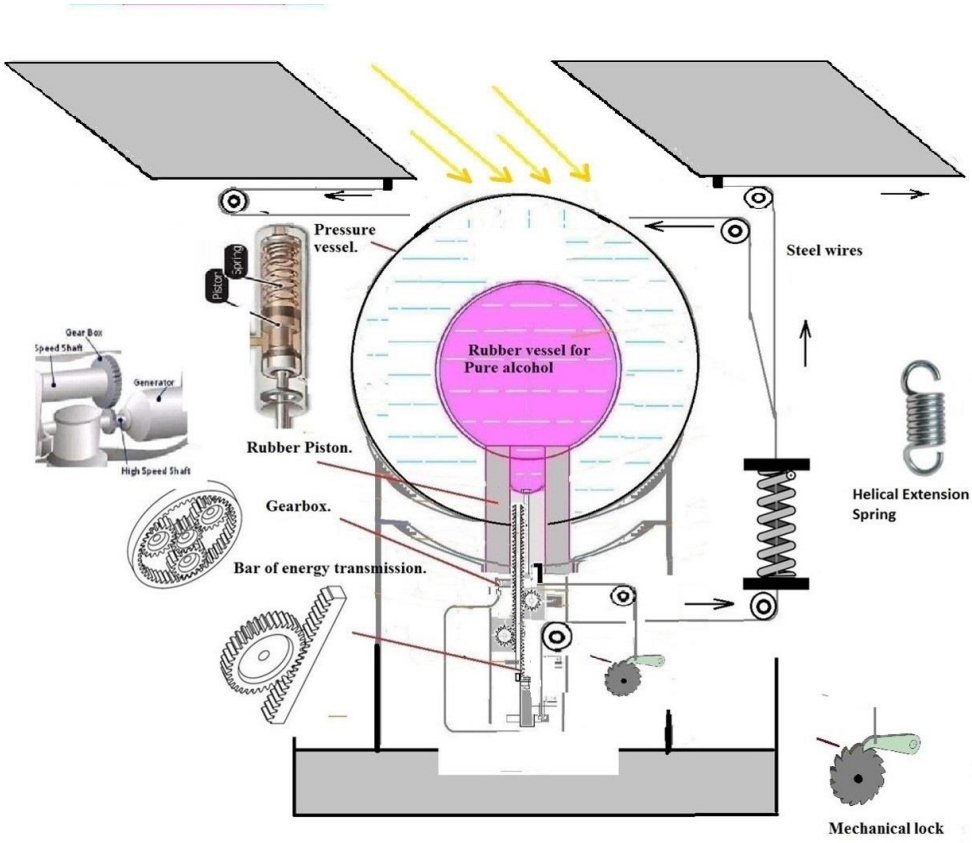
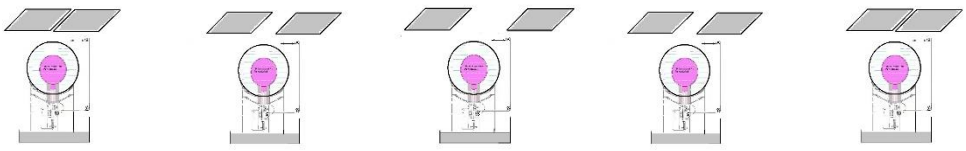


Illustration (11. B) The mechanism of the function of the convertor Hydrogen bond energy for space.

When the ice dissolves (becomes liquid water), the total size of water inside the pressure vessel will decrease once again, and the transmission arm will return to its original place to push a trigger for opening the shading system to return the system to its original case again. When the ice liquidizes, the total volume will reduce due to the cancellation of the hydrogen bond among water molecules. Adding the mechanical lock and the trigger on the wire of the shading system may help the timing case work precisely to open and close the shading system. It's not a condition to generate electricity via this converter, but we may also use the generated kinetic energy to run some mechanical engineering operations.



The illustration -12- shows how the convertor Hydrogen bond energy for space works in space to open and close the shading system to increase and decrease the temperature of the pressure vessel by affecting its exposure and blocking sunlight in space.

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Special Award (If any):	
Any other remarkable point(s)	