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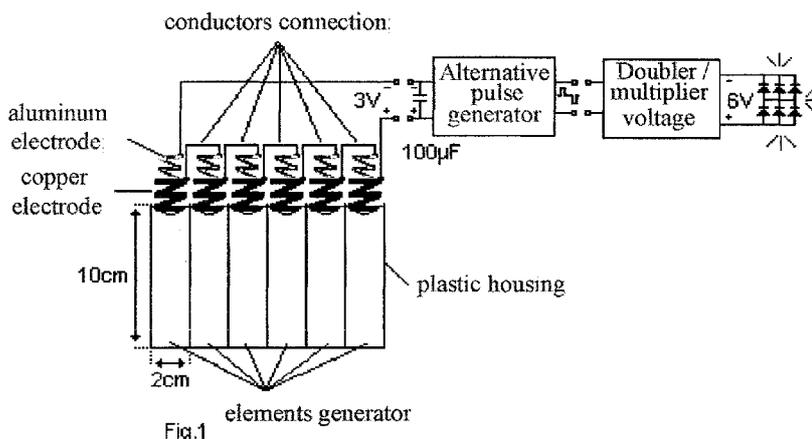
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(54) Title: ELECTRIC POWER GENERATOR USING POTABLE WATER, WITH OXYGEN AND HYDROGEN RELEASE



(57) Abstract: The utility model consists of an electricity generator with drinking water, discharging oxygen and hydrogen based on the differential electronegativity phenomenon of chemical elements, which uses drinkable water to transfer the electrical loads. The novelty lies in the fact that by using electrodes having particular physical structures, made of different materials and adding a condenser, an alternative impulse generator and a doubler or a voltage multiplier useful, stronger power is achieved. In this process, water electrolysis takes place concomitantly, gas bubbles appearing in the two electrodes. As we know, oxygen is discharged to the anode, in the case in point, the aluminium electrode, and hydrogen to the cathode, in our case the copper electrode. In a larger generator, these gases may be collected and used to produce heat energy or in industry, agriculture, medicine etc. It can be used in any field of industry, agriculture, medicine, household etc.



DESCRIPTION

The utility model consists of an electricity generator with drinking water, discharging oxygen and hydrogen based on the differential electronegativity phenomenon of chemical elements, which uses drinkable water to transfer the electrical loads.

For exemplification, I employed six of the generator's elements- plastic pipes or other insulator (fig.1) each having in the interior a pair of spiral electrodes, one made of copper and one made of aluminium. Some plastic splitters or other insulator should be between the electrodes so as not to touch each other. The elements are serially connected by interconnecting conductors, like batteries. The elements' casing can be made of an insulating material or it may even be an electrode.

A potential difference is created in every element which is of about 0,5 V direct current between the aluminium and copper electrodes. If materials with a higher electronegativity difference are to be used, then the potential will be higher. By connecting in series six elements, a potential difference of 3V direct current is created of a very low intensity- measured in microamperes.

The novelty lies in that by using electrodes particular physical structures, made of different materials and adding a condenser, an alternative impulse generator and a doubler or a voltage multiplier useful, stronger power is achieved.

The electrodes may be made out of wire, rods or plates with the diameter or thickness of 3 mm. Other smaller or larger sizes may be chosen as well, depending on their scope. In order to be effective, the electrodes should be spiraled, either from wire mesh from the material of said electrode, or from jagged (zig-zag) plate, (fig.2 a, b, c). Such an electrode structure enhances the generator's power by a few times.

The distance between the cathode and anode can be chosen between 1 and 5 mm placing plastic splitters between them or other insulator.

The electrodes, be they made out of spiral wire, wire mesh or corrugated sheet in zig-zag can be concentric even on several layers (the cathode inside the anode or vice-versa):

Fig.3a- concentric spiral electrodes on several layers.

Fig.3b- electrodes made of jagged plate or wire mesh shaped like a roll on several layers.

Fig.3c- jagged plate or wire mesh electrodes in concentric circles on several layers.

Even the elements' casing can constitute one of the electrodes, either the anode, or the cathode.

The elements can be as many as desired, connected in series or parallel depending on the energy we want.

To become useful, this energy should be amplified both in intensity, and in terms of voltage. Thus, I added an electronic assemblage which solves this problem, so that from one generator with six elements formed of 10 cm long and 2 cm diameter pipes can light up six LEDs with a handmade prototype.

Of course, in a factory production, the output can be much better as compared with the handmade prototype.

The electronic circuit consists of an electrolytic condenser connected to the generator's terminals, an alternative impulse generator and a doubler or a voltage multiplier.

The condenser's role is to enhance the current's intensity between the impulses. The alternative impulse generator has a stimulating effect over the energy output in the generator, also enhancing its intensity. The voltage doubler (or the multiplier) has the function of enhancing the voltage. Such a combination increases the generator's power by a few times.

In this process occurs concomitantly water electrolysis as well, gas bubbles appearing in the two electrodes. As we know, oxygen discharges to the anode, in the case in point to the aluminium electrode, and hydrogen to the cathode, in our case the copper electrode.

For a larger generator, electrodes shaped like jagged plate sheets or wire mesh can be used (fig.4). The gases yielded can be collected by using collectors (fig. 5 –side view) and used to produce heat energy or in industry, agriculture, medicine etc.

Water consumption is low. It requires no water change, only addition. The approximate quantity of water to be added is of 10% per month, should it be used at maximum capacity.

It is possible that within a few years, the anode (the aluminium electrode) may deteriorate, thus requiring replacement. This is dependent upon the water and electrode's composition. This is only for cases where the generator is used permanently at maximum capacity. If it is not used permanently or if it is not used at maximum capacity, the anode's electrodes can last longer. In the breaks between the generator's usage ranges, it doesn't deteriorate, being able to resume its use even after tens or even hundreds of years.

For example, a normal flash light used rarely may last without problems for tens or even hundreds of years.

The potential deposits on the cathode are insignificant and do not interfere with the process' carry out, since the water is drinkable.

The electrodes can be made of other materials having higher electronegativity difference between the cathode and anode. They can be also made of alloys, treated metals or metal plating, semiconductors, thus extending the electrodes' life and at the same time enhancing the generator's power.

Certain substances are added in water so as to extend the electrodes' life and/or substances like "antifreeze" solutions, so that the generator may function below 0 degrees Celsius as well.

It can be used in any branch of the industry, agriculture, medicine, household appliances etc.

It can load accumulators which will generate higher power over shorter periods of time.

As opposed to other energy sources, it has the following advantages:

1. It doesn't depend on the sun, day or night time.
2. It doesn't depend on the wind.
3. It doesn't pollute the atmosphere.
4. It produces a constant quantity of energy.
5. It can be carried without being demounted, as compared with the solar power-plants or wind –power stations.
6. After being manufactured, it can be easily and practically placed and it produces energy immediately.
7. It does not deteriorate over a period of inactivity, unlike accumulators.
8. It can be buried underground (even a water reservoir) which doesn't take up much space and does not cloud the ground like a solar panel. Thus, a temperature of over 0 degrees Celsius is ensured even in the winter without water addition.
9. It doesn't contain acids or salts; consequently, it is not dangerous. It can be used also in agriculture with no problems.
10. It can be used even in apartments, which cannot be done with the solar power-plants or wind –power stations. A volume of one cubic meter installed in a closet, hall way etc. might be sufficient.
11. Depending on the generator's volume and on needs, it could ensure on its own the energy required.
12. It can be used to compensate for the temporary lack of energy when other generators are not enough (solar, wind etc.).
13. The other sources can be supplemented permanently when more energy is required, with one safe, reliable source which does not lead to unpredictable difficulties.
14. It does not have a high cost, having regard to the fact that only once in several years (and upon extensive use) will require only the change of the anode's electrodes.
15. It can be used only in the areas where no electrical network can be implemented, nor exploit the solar or wind energy.
16. It is useful in difficult of access areas where constant energy is needed over more years and the accumulators' frequent change is hard to do, such as underground, under water and even in cosmos.

PATENT CLAIM

“Electricity generator with drinkable water, discharging oxygen and hydrogen” **characterized by** the fact that it is made of an electrical insulator container, split into several compartments (which constitute the generator’s elements), air-sealed between them, filled with drinkable water, without added salts, acids or organic substances, inserting in every compartment a pair (or more) of lamellar or concentric electrodes made from different materials (e.g. Al and Cu) with the electronegativity difference as high as possible between them, and they can be alloys, treated metals, plated, semiconductors or other materials; the electrodes should have a physical structure so that it ensures a contact surface as high as possible with the water such as spiraled, mesh wire, jagged plate or another more effective structure; on the upper heads of electrodes devices shaped like a bell can be attached for gas collection (O₂ or H₂) discharged by every electrode; the container’s elements can be interconnected from an electric point of view in series or parallel as desired, just like batteries, and at the container’s exit point it is connected in parallel with it an electrolytic condenser and an impulse generator or an oscillator at the exit of which a doubler or a voltage multiplier is connected.

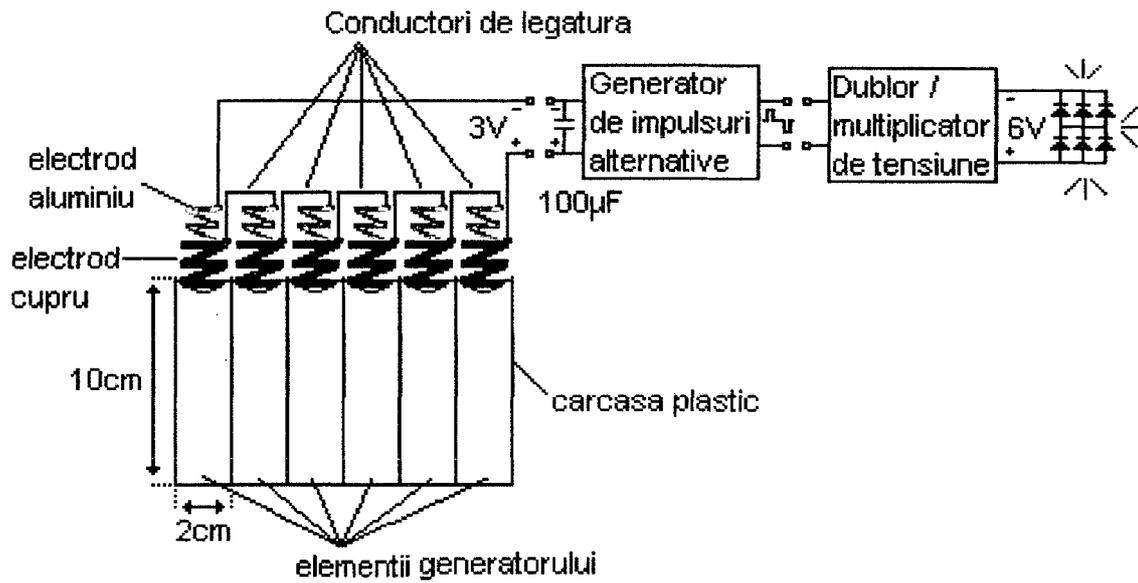


Fig.1

- Electrod aluminiu = aluminum electrode;
- Electrod cupru = copper electrode;
- Elementii generatorului = elements generator;
- Carcasa plastic = plastic housing;
- Generator de impulsuri alternative = Alternative pulse generator;
- Dublor / multiplicator de tensiune = Doubler / multiplier voltage.

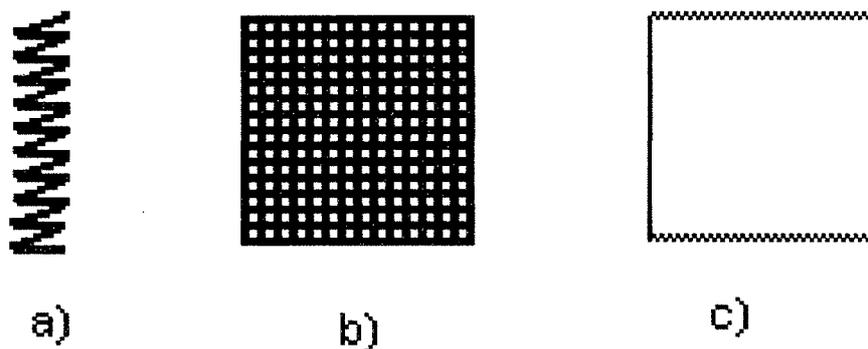


Fig.2

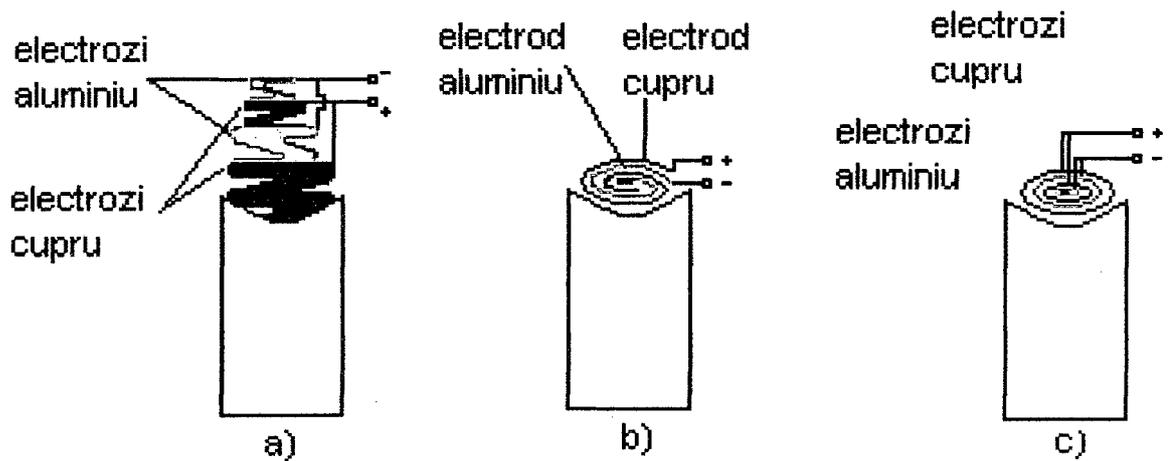


Fig.3

Electrozi aluminiu = aluminum electrodes;
 Electrozi cupru = copper electrodes;
 Electrod aluminiu = aluminum electrode;
 Electrod cupru = copper electrode.

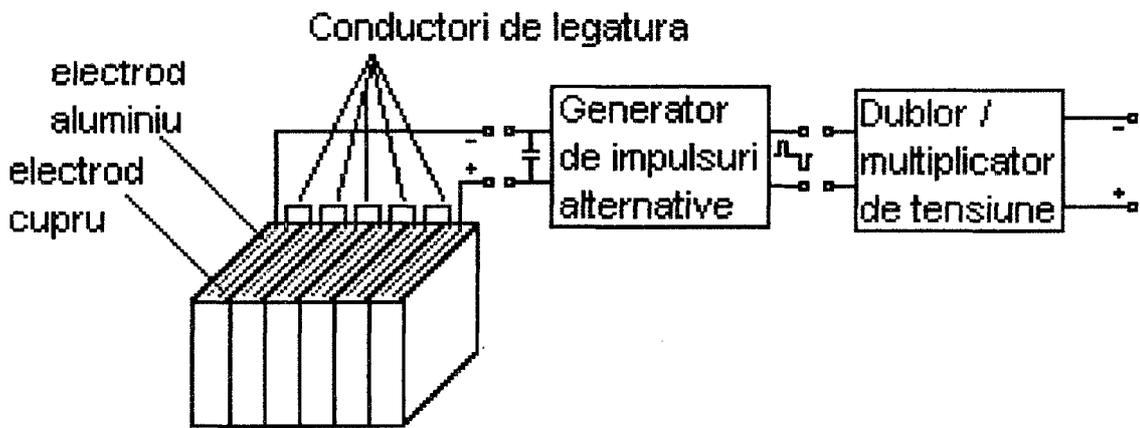


Fig.4

Electrod aluminiu = aluminum electrode;
 Electrod cupru = copper electrode;
 Conductori de legatura = conductors connection;
 Generator de impulsuri alternative = Alternative pulse generator;
 Dublor / multiplicator de tensiune = Doubler / multiplier voltage.

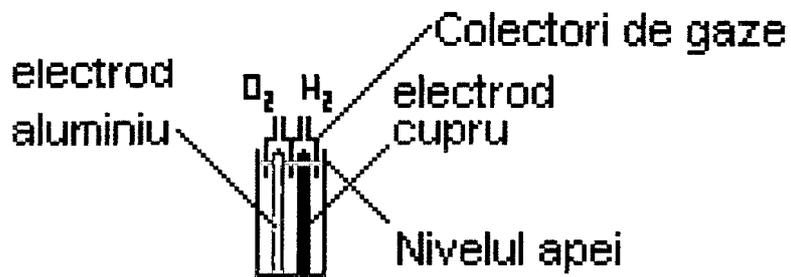


Fig.5

Electrod aluminiu = aluminum electrode;
Electrod cupru = copper electrode;
Colectorii de gaze = gas collectors;
Nivelul apei = water level.