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THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A process for producing a gaseous medium which includes hydrogen and oxygen from water, comprising:
providing at least one pair of spaced apart electrically conductive, non-oxidizing exciter elements in association with a cavity having a selected resonant frequency and in which there is water, said exciter elements being in contact with the water in the cavity;
applying a voltage potential to said exciter elements such that one element maintains a positive charge and the other a negative charge, and
pulsing the voltage potential at a frequency matching the resonant frequency of the cavity.
2. A process as set forth in claim 1 wherein one of said pair of exciter elements is a shell providing said cavity.
3. A process as defined in claim 2 wherein said shell is ~~spherical~~ ^{a first sphere} and wherein said other element is a second sphere, said second sphere being substantially smaller in size than said shell.
4. A process as defined in claim 3 wherein said spherical shell includes a first and second spaced apart opening providing respectively a water inlet into the cavity and an outlet for the gases.
5. A process as set forth in claim 1 including a plurality of pairs of exciter elements arranged in an array of identical pairs.
6. A process as set forth in claim 5 wherein the gases from the array of exciter elements are collected in a common chamber.

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7. A process as defined in claim 1 wherein said applied potential produces a gaseous medium in the cavity and including the step of regulating the output of the gaseous medium from said cavity.

8. A process for obtaining a gaseous medium which includes hydrogen and oxygen from water comprising

- (a) providing a pair of electrically conductive non-oxidizing exciter elements in selected spaced apart relation and arranged such as to provide a cavity therebetween which has a predetermined resonant frequency;
- (b) placing water in said cavity;
- (c) applying an electrical voltage potential across said elements and pulsating the same, without any change of polarity, at a frequency corresponding to said resonant frequency of the cavity; and
- (d) collecting the gases separated from the water in said cavity resulting from said applied pulsed voltage potential.

9. Apparatus for producing a gaseous medium which includes hydrogen and oxygen from water comprising a first exciter element formed of an electrically conductive non-reactive material having a surface which defines the boundaries of a cavity, said cavity having a predetermined resonant frequency with a quantity of water therein, a second exciter element of the said same material within said cavity in selected spaced relationship from said first exciter element, means permitting the inflow of water into said cavity and means permitting the outflow of gases from said cavity, said gases being obtained from water in the cavity when an electrical pulsating potential is applied to said exciter elements.

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10. A process as set forth in claim 1 wherein the pair of exciter elements are coaxial and radially spaced providing therebetween said cavity and wherein the outermost element has an opening for the escape of gas from the cavity.
11. An apparatus as set forth in claim 9 wherein said exciter elements are in a coaxial radial spaced relations, the space therebetween being said resonant cavity.
12. An apparatus as defined in claim 11 wherein said coaxial arrangement is such that the cavity is closed at one end and open at the other opposite end.
13. An apparatus as set forth in claim 9 further including igniter means for igniting the gases that outflow from said cavity.
14. An apparatus as set forth in claim 9 including a plurality of said pairs of said exciter elements disposed side-by-side in an array.
15. An apparatus as set forth in claim 14 including means to accumulate the gases output from the respective pairs of exciter elements in a common chamber.
16. An apparatus as defined in claim 9 including a nozzle regulating the outflow of gases from said cavity.
17. An apparatus as defined in claim 9 wherein said first exciter element is a spherical shell.
18. An apparatus as defined in claim 17 wherein said second exciter element is spherical.
19. An apparatus as defined in claim 18 wherein said

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spheres are concentric and radially spaced, the space between said spheres providing said cavity.

20. An apparatus for producing a mixture of gases derived from water comprising a closed vessel suitable for maintaining a volume of water therein and permitting the addition of water thereto as the water therein is being depleted,

means for providing an electrical potential difference within said vessel comprising a pair of electrically conductive exciter elements formed of the same non-reactive material positioned to be in the water in said vessel in a predetermined spatial relationship to one another to define a resonant cavity at a predetermined wavelength;

a source of pulsating voltage potential that creates a potential difference between an arbitrary electrical ground and the source output in a waveform correlated to the predetermined resonance wavelength of the cavity;

means for connecting one of said exciter elements to said arbitrary electrical ground and the other of said exciter elements to said source output, whereby there is formed during use of the apparatus a nominally positive electrical voltage zone in water adjacent the exciter element connected to said output and a nominally negative voltage zone in water adjacent the exciter element connected to said electrical ground as the pulsating voltage potential having the predetermined wavelength is applied thereto,

the pulsating voltage potential during operation of said apparatus being applied to said exciter elements to a sufficient magnitude as to cause the electrical polarization of the water molecules in the vicinity thereof and to thereafter cause the hydrogen atoms of the water molecule to be attracted to said negative zone, and the oxygen atoms to be attracted to said positive zone, and thereby to create a resonance within the cavity and weaken the bond between the hydrogen atoms and

the oxygen atom so that said atoms disassociate from the water molecule and are released in the form of a gas mixture; and means for collecting and dispensing said mixture of gases.

21. An apparatus as set forth in claims 9 or 20 including means to repetitively pulse direct current voltage potential across said exciter elements while maintaining a positive charge on one and a negative charge on the other and means to periodically interrupt said pulsing.

22. Apparatus as set forth in claims 9 or 20 wherein said exciter elements are non-oxidizing.

