

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

1. A burner system comprising:
 - a hydrogen/oxygen generator,
 - a housing having a water reservoir for retaining water therein having no electrolyte added thereto,
 - a pair of similar electrical voltage conductive non-oxidizing, non-corrosive, non-reactive plates positioned in said water reservoir in spaced apart relation with respect to one another,
 - a direct current voltage source having positive and a negative output terminal connected to respective ones of said pair of plates to apply a low current electrical voltage for disassociating the hydrogen gas atoms and oxygen gas atoms from the water molecules; and
 - a gas mixing chamber,
 - conduit means including a first control valve connecting the hydrogen/oxygen combustible gasses from said hydrogen/oxygen generator to said mixing chamber,
 - a source of non-combustible gas,
 - conduit means including a second control valve connecting the non-combustible gas from said non-combustible source to said mixing chamber,

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claim 1, cont'd

said combustible gas and non-combustible
respective first and second gas control valves regulating
the gas mixture ratio of combustible/non-combustible gasses
from said mixing means,

air-intake means connected to the output
of said mixing chamber for combining air with said mixed
gasses,

a gas burner having said controlled amount
of mixed gasses from said mixing chamber and air mixed
therewith fed thereto,

means to ignite said gas/air mixture in
said gas burner, and

demand control means for varying the release
of said hydrogen/oxygen gas atoms to thereby accelerate
and deaccelerate the rate of ignition of said gas/air mixture.

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2. The burner system of claim 1 wherein said air-intake means further comprises a valve for controlling the amount of air-intake to said mixed gasses in said mixing chamber.

3. The burner system of claim 1 wherein said gas burner and said means to ignite said gas/air mixture is a combustion chamber having an ignitor.

4. The burner system of claim 3 further including a drive mechanism disposed relative to said combustion chamber and wherein said drive mechanism is responsive to said gas burning.

5. The burner system of claim 3 wherein said combustion chamber further comprises outlet means for expelling the exhaust gasses therefrom, and means for returning a portion of said exhaust gasses to said mixing means.

6. The burner system of claim 3, further including a pilot light means and wherein a portion of said gas/air mixture is directed thereto,
said pilot light means being operatively associated with said combustion chamber and operative to ignite said gas/air mixture portion in said combustion chamber.

7. The burner system of claim 4 wherein said means to ignite said gasses comprises an electrical ignition means and a source of electrical energy connected to said ignitor in a closed loop arrangement with said drive mechanism.

1. 8. The burner system of claim 3 wherein said combustion chamber
2. comprises a mixed gas/air dispersing chamber having a series of
3. ports therein.

1. 9. The burner system claim 5 wherein said means for returning a
2. portion of said exhaust gasses to said mixing means further in-
3. cludes cooling means for cooling said exhaust gasses.

1. 10. The burner system of claim 5 wherein said means for returning
2. a portion of said exhaust gasses to said mixing means further in-
3. cludes a spark arrestor for preventing uncontrolled combustion.

1. 11. The burner system of claim 3 wherein said hydrogen generator
2. includes a source of electrical potential, and wherein said
3. source of electrical potential is connected in a closed loop
4. arrangement with said drive mechanism.

1. 12. The burner system of claim 1 wherein said demand control
2. means for accelerating and deaccelerating the ignition of said
3. gas/air mixture, further comprises:
4. varying the magnitude of said electrical potential applied to
5. said plates.

1. 13. The burner system of claim 12 wherein said demand control
2. means of varying the electrical potential applied to said plates
3. further comprises varying the voltage and maintain^{ing} the current
4. of said potential constant.

1. 14. The burner system of claim 1 wherein said demand control
 2. means for accelerating and deaccelerating the ignition of said
 3. gas/air mixture, further comprises:
 4. means for pulsing said direct current potential.
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1. 15. The burner system of claim 14 wherein said means for pulsing
 2. said direct current potential further comprises varying the
 3. pulse repetition rate of said pulses to control the time period
 4. of said electrical potential on said water molecules.
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1. 16. The burner system of claim 1 wherein said demand control
 2. means for accelerating and deaccelerating the ignition of said
 3. gas/air mixture, further comprises:
 4. means for varying the configuration of said plates.
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1. 17. The burner system of claim 1 wherein said demand control
 2. means for accelerating and deaccelerating the ignition of said
 3. gas/air mixture, further comprises varying the spacing between
 4. said plates.
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1. 18. The burner system of claim 1 wherein said demand control
 2. means for accelerating and deaccelerating the ignition of said
 3. gas/air mixture, further comprises:
 4. means for varying the number of plates in said hydrogen
 5. generator.
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1. 19. The burner system of claim 15 wherein said demand control
 2. means for accelerating and deaccelerating the ignition of said
 3. gas/air mixture by varying the pulse repetition rate of said
 4. pulsed voltage further comprises interrelating said voltage
 5. magnitude with said pulse repetition rate.

20. The burner system of claim 15 wherein said demand control means for accelerating and deaccelerating the ignition of said gas/air mixture by varying the pulse repetition rate of said pulsed voltage further comprises interrelating said voltage magnitude with said pulse repetition rate and said means for varying said number of plates.

21. The burner system of claim 15 wherein said demand control means for accelerating and deaccelerating the ignition of said gas/air mixture by varying the pulse repetition rate of said pulsed voltage further comprises interrelating said voltage magnitude with said pulse repetition rate and said means for varying said number of plates, and further with said means for varying the spacing of said plates.

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22. A combustion system comprising:
- (a) means to produce a combustible gas such as hydrogen or the like;
 - (b) means for mixing said combustible gas with a non-combustible gas provided from a suitable source and thereby produce a gas mixture,
 - (c) means for mixing said gas mixture with air and direct the same into a combustion chamber of the combustion system and means controllably varying selectively the production of combustible gas as required for combustion based on demand in the combustion system.

23. A combustion system as defined in claim 22 wherein said means to produce a combustible gas comprises apparatus for subjecting water to electrical energy and wherein said means for varying the production of combustible gas comprises means for selectively varying said electrical energy.

24. A combustion system as defined in claim 23 wherein the voltage of the electrical energy is varied.

25. The combustion system as defined in claim 23 wherein said electrical energy is direct current and means are provided for pulsing the same.

26. A combustion system as defined in claim 22 wherein said non-combustible gas comprises gasses exhausted from combustion in said combustion system. 