CLAIMS

1. A hydrogen generator comprising

a reaction chamber for containing a reagent,

a supply water tank,

at least one water conduit tubing, the water conduit tubing comprising a water conduit tubing inlet being fluidically connected to the supply water tank and a water conduit tubing outlet,

at least one water dispenser, the water dispenser comprising a water dispenser inlet being fluidically connected to the water conduit tubing outlet and a surface with a plurality of water outlet channels,

the at least one water conduit tubing, and the at least one the water dispenser are provided inside the reaction chamber,

a water pump,

an electric power supply,

a controller being adapted to activate the water pump for transferring water from the supply water tank, to the at least one water conduit tubing, to the at least one water dispenser, and to the reaction chamber for interacting with the reagent in the reaction chamber to generate hydrogen gas, and

at least one hydrogen collector, the hydrogen collector comprising a surface with a plurality of gas inlet channels for receiving the hydrogen gas,

the at least one hydrogen collector is provided inside the reaction chamber,

wherein

the water conduit tubing further comprises an electrically conductive material, and

the controller is further adapted to activate the electric power supply for providing an electric current to the water conduit tubing being provided in the reaction chamber such that the water conduit tubing serves as a heater for increasing a temperature of water in the water conduit tubing and for increasing a temperature of the reagent inside the reaction chamber.

2. The hydrogen generator according to claim 1, wherein at least one portion of the reaction chamber is electrically conductive, and the electrical current flows through said portion of the reaction chamber.

3. The hydrogen generator according to one of claims 1 to 2, wherein
the water conduit tubing comprises a coiled tube that surrounds the water dispenser.

4. The hydrogen generator according to one of claims 1 to 3, wherein
the hydrogen generator comprises a plurality of water dispensers.

5. The hydrogen generator according to one of claims 1 to 4, wherein
the hydrogen generator comprises a plurality of hydrogen collectors.

6. The hydrogen generator according to claim 5, wherein the hydrogen collectors are provided symmetrically around a corresponding water dispenser.

7. The hydrogen generator according to one of claims 1 to 6 further comprising

- a pressure sensor for measuring pressure of hydrogen gas,
- a temperature sensor for measuring temperature in the reaction chamber,

wherein the controller is further adapted to activate the water pump according to a measurement of the temperature sensor and to regulate pump rate of the water pump according to a measurement of the pressure sensor.

8. The hydrogen generator according to one of claims 1 to 7, wherein
the reaction chamber comprises a housing that comprises a thermal insulating material.

9. The hydrogen generator according to one of claims 1 to 8, wherein
the reaction chamber comprises a housing that comprises a thermal conductive material.

10. The hydrogen generator according to one of claims 1 to 9, wherein
the reaction chamber comprises a housing with a doughnut shape.

11. The hydrogen generator according to claim 10, wherein the reaction chamber comprises a fan that is provided in a central hollow part of the doughnut shape of the housing for cooling the reaction chamber.

12. An energy power supply device comprising
a hydrogen generator according one of claims 1 to 11, the hydrogen generator further comprising

- a cooling coil for receiving hydrogen gas from a reaction chamber and for reducing temperature of the hydrogen gas, and
- a buffer tank for separating the hydrogen gas from any water that is mixed with the hydrogen gas, and

a fuel cell module for converting the hydrogen gas to electrical energy.