

CLAIMS

1. A method for carrying out an exothermal reaction of nickel and hydrogen, **characterized in that** said method comprises the steps of: providing a metal
5 tube; filling said metal tube with a nickel powder, even of nanometric dimensions, heating said nickel powder to a high temperature and injecting a pressurized hydrogen gas, into said metal tube, to provide in said metal tube a high temperature and
10 pressure hydrogen gas saturated environment, thereby generating energy.

2. A method according to claim 1, **characterized in that** said method comprises the further step of providing catalyzer materials in said tube.

15 3. A method according to claim 1, **characterized in that** said high temperature is preferably from 150 to 500°C.

4. A method according to claim 1, **characterized in that** said injected pressurized hydrogen gas has a
20 pressure preferably from 2 to 20 bars.

5. A method according to claim 2, **characterized in that** said injected pressurized hydrogen gas has a non-constant pulsating pressure.

6. A method according to claim 1, **characterized**
25 **in that** said temperature is variable.

7. An apparatus for carrying out a method according to claim 1, **characterized in that** said apparatus comprises a metal tube adapted to be filled with a nickel powder, means for filling in said metal
30 tube a powder nickel even of nanometric dimensions, means for heating said nickel powder and pressurized hydrogen gas injection means for injecting pressurized

hydrogen gas into said tube.

8. An apparatus according to claim 8, **characterized in that** said metal tube (2) is a copper tube, said copper tube further including at least a heating electrical resistance, said tube being encompassed by a jacket (7) including either water and boron or only boron, said jacket (7) being encompassed by a further lead jacket (8) in turn optionally encompasses by a steel layer (9), said jackets (7, 8) being adapted to prevent radiations emitted from said copper tube (2) from exiting said copper tube (2), thereby also transforming said radiations into thermal energy.

9. An apparatus according to claim 8, **characterized in that** said apparatus comprises, encompassing said nickel powder, hydrogen and electric resistance (101) containing copper tube (100), a first steel-boron armored construction (102) encompassed by a second lead armored construction (103) for protecting said copper tube (100), a hydrogen bottle connection assembly (106) and a hydrogen bottle (107), said apparatus further comprising, outside of said lead armored construction (103), a cooling water steel outer pipe assembly (105).