

Translation of Energy Catalzyer Patent Application Submitted by Maddalena Pascucci.  
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"Process and Apparatus to obtain exothermal reactions, in particular from Nickel and Hydrogen"

CLAIMS (p 17-19)

1. Process to obtain exothermic reactions from nickel and hydrogen characterized by the fact that the same process involves injecting hydrogen on powder, also nanometric sized, grains or bars of nickel, in an environment heated at high temperature, saturated with hydrogen gas at high temperature, with the purpose of obtaining energy
2. Process, according to claim # 1, characterized by the fact of including catalysts
3. Process, according to claim 1, characterized by the fact that the environment is heated at a temperature preferably between 150 and 500 C
4. Process, according to claim # 1 characterized by the fact that hydrogen is injected in the metal tube filled with nickel at a pressure preferably between 2 and 20 bar.
5. Apparatus for carrying out the process according to claim 1, characterized by the fact of including an appropriately heated tube filled with nickel powder in which hydrogen is injected
6. Apparatus according to one or more of the previous claims, characterized by the fact that the nickel powder can contain catalysts
7. Apparatus according to one or more of the previous claims, characterized by the fact that the hydrogen can be inserted in pulses rather than at constant pressure
8. Apparatus according to one or more of the previous claims, characterized by the fact that the the heating temperature can be varied instead of being maintained constant
9. Apparatus according to one or more of the previous claims, characterized by the fact that the metal tube filled with nickel powder is externally surrounded by a water filled cavity and boron or boron and steel and by a lead layer
10. Apparatus according to one or more of the previous claims, characterized by the fact that the lead layer can be coated with a steel layer
11. Apparatus according to one or more of the previous claims, characterized by the fact that, for the purpose of transforming the products of the exothermal reaction into heat, a flux of water, or other fluid, flows in a steel tube that exchanges heat with the metal reactor
12. Apparatus according to one or more of the previous claims, characterized by the fact that the nickel utilized for the nuclear reaction can be of any isotope

13. Apparatus according to one or more of the previous claims, characterized by the fact that the nickel utilized for the nuclear reaction can be substituted with other elements, in particular copper.

14. Apparatus according to one or more of the previous claims, characterized by the fact that it creates a module that can be combined in parallel or in series in order to build plants of any size

15. Apparatus according to one or more of the previous claims, characterized by the fact that the exothermal reactions are multiple and can create different types of atoms depending on the amount of protons which interact with the nickel nuclei

16. Apparatus according to one or more of the previous claims, characterized by the fact that it includes one or more of the characteristics describe and/or illustrated

17. Process according to one or more of the previous claims, characterized by the fact that it includes one or more of the characteristics described or illustrated