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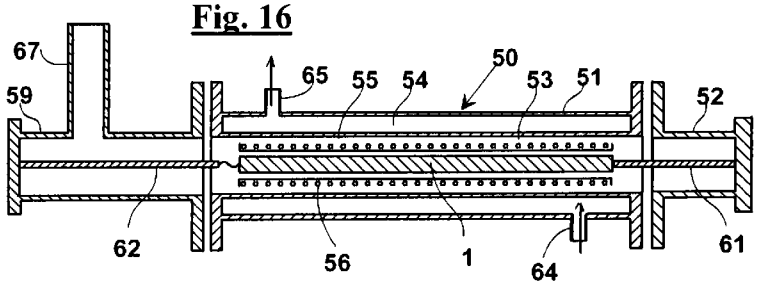
(54) Title: METHOD FOR PRODUCING ENERGY AND APPARATUS THEREFOR

Fig. 16



(57) Abstract: A method and a generator to produce energy from nuclear reactions between hydrogen and a metal, comprising the steps of a) production of a determined quantity of micro/nanometric clusters of a transition metal, b) bringing hydrogen into contact with said clusters and controlling its pressure and speed, preferably after applying vacuum cycles of at least 10^{-9} bar between 35° and 500°C for degassing the clusters; c) creating an active core for the reactions by heating the clusters up to a temperature that is higher than the Debye temperature T_D of the metal, preferably a temperature close to a temperature at which a sliding of reticular planes occurs, in order to adsorb in the clusters the hydrogen as H- ions; d) triggering the reactions by a mechanical, thermal, ultrasonic, electric or magnetic impulse on the active core, causing the atoms of the metal to capture the hydrogen ions, with liberation of heat, preferably in the presence of a gradient of temperature on the active core; e)removing the heat maintaining the temperature above T_D, preferably in the presence of a magnetic and/or electric field of predetermined intensity. The active core can comprise a sintered material of micro/nanometric clusters, or a clusters powder collected in a container, or a deposit of clusters onto a substrate of predetermined volume and shape, with at least 10^9 clusters per square centimetre of surface, obtainable by means of methods such as sputtering, spraying evaporation and condensation of metal, epitaxial deposition, by heating up to approaching the melting point and then slow cooling, such methods followed by quick cooling for freezing the cluster structure.

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