Claims

1. A producing method for producing magnesium hydride comprising:

a procedure for irradiating a magnesium compound different from the magnesium hydride with hydrogen plasma, and

a procedure for depositing the magnesium product containing magnesium hydride on a depositer for depositing the magnesium hydride disposed within a range where the hydrogen plasma exists,

wherein a surface temperature of the depositer is kept no more than a predetermined temperature at which the magnesium hydride precipitates, and

wherein the magnesium compound is magnesium halide.

2. The producing method according to claim 1, wherein the magnesium compound is a magnesium chloride.

3. The producing method according to claim 1 or claim 2, wherein the method further comprises a procedure for recovering by stripping the magnesium product from the depositer without stopping the irradiation of the hydrogen plasma to the magnesium compound.

4. The producing method according to claim 3, wherein the procedure for recovering comprises:

a procedure for moving the magnesium product deposited on the depositer to a position where the stripped magnesium product can be accommodated in an extraction chamber where the magnesium product can be removed from an apparatus that irradiates the hydrogen plasma without stopping the irradiation of the hydrogen plasma to the magnesium compound, and

a procedure for stripping the magnesium product from the depositor for accommodation in the extraction chamber.

5. A power generation method using magnesium hydride comprising:

a procedure for producing a magnesium product containing magnesium hydride from a magnesium compound different from the magnesium hydride,

a procedure for generating hydrogen from the magnesium product,

a procedure for supplying the generated hydrogen to a power generation unit to generate power, and

a procedure for producing the magnesium compound from a by-product containing magnesium after generating the hydrogen,

wherein the magnesium compound is magnesium chloride,

wherein the by-product contains magnesium hydroxide or magnesium oxide,

wherein the procedure for producing the magnesium compound comprises:

a procedure for reacting the by-product with hydrochloric acid to obtain magnesium chloride hydrate, and

a procedure for dehydrating the hydrate, and

wherein the procedure for producing the magnesium product is performed by the producing method according to claim 2.

6. A producing apparatus for obtaining a product different from a raw material by treating a raw material containing metal atoms with plasma comprising:

a microwave generator which generates microwaves to be supplied into a reaction chamber,

a gas supplier which supplies a reactive gas substantially free of oxygen atoms in the reaction chamber,

a raw material supplier that supplies the raw material into the reaction chamber,

a decompressor that decompresses the reaction chamber,

a depositer which deposits thereon the product and is disposed within a range where the generated plasma exists, and

a temperature controller which keeps the surface temperature of a surface of the depositer for depositing the product within a predetermined temperature range suitable for precipitation of the product,

wherein the raw material supplier comprises:

a raw material storage unit which stores the raw materials, and

a raw material supply pipe which supplies vaporized raw material in the raw material storage unit into the reaction chamber.

7. The producing apparatus according to claim 6, wherein the raw material supplier comprises a first heating unit that heats the raw material storage unit and the raw material supply pipe.

8. The producing apparatus according to claim 6 or 7, further comprising a window of dielectric material provided at a portion where the microwave is incident into the reaction chamber,

9. The producing apparatus according to any one of claims 6 to 8, further comprising a heater which heats the reaction chamber.