Summary of Invention

Technical Problem

[0004]

Since the BFB boiler or the CFB boiler can realize high combustion efficiency with a high-temperature fluid material fluidized in the combustion chamber as a medium, the BFB boiler or the CFB boiler is suitable for combustion of an unstable quality fuel, such as biomass (biofuel), sludge (slurry), and a waste material (waste paper, waste plastic, waste tires, or the like), or a flame-retardant fuel. However, since all the fuels have carbon as a main component, greenhouse gases such as carbon dioxide are generated during combustion, and there is a possibility in which global warming aggravates further.

[0005]

Embodiments of the present invention provide a combustion device that can reduce generation of greenhouse gases.

Solution to Problem

[0006]

According to an aspect of the present invention, there is provided a combustion device including a combustion chamber that causes combustion and a hydrogen storing material supply unit that supplies a hydrogen storing material, which is capable of releasing stored hydrogen during heating, to the combustion chamber, wherein the

hydrogen storing material is a hydrogen occluding alloy. Even when the hydrogen released from the hydrogen storing material combusts in the combustion chamber, since water is mainly generated, generation of greenhouse gases can be reduced.

[0007]

According to another aspect of the present invention, there is provided a combustion method. The method includes a hydrogen storing material supply step of supplying a hydrogen storing material, which is capable of releasing stored hydrogen during heating, to a combustion chamber and a combustion step of combusting the hydrogen released from the hydrogen storing material in the combustion chamber, wherein the hydrogen storing material is a hydrogen occluding alloy.

[0008]

Any combination of the components described above and substitutions of expressions of the present invention between methods, devices, systems, recording media, computer programs, and the like are also effective as aspects of the present invention.

Advantageous Effects of Invention

[0009]

CLAIMS

1. A combustion device comprising:

a combustion chamber that causes combustion; and

a hydrogen storing material supply unit that supplies a hydrogen storing material, which is capable of releasing stored hydrogen during heating, to the combustion chamber,

wherein the hydrogen storing material is a hydrogen occluding alloy.

2. The combustion device according to claim 1,

wherein the hydrogen storing material is granular.

3. The combustion device according to claim 2, further comprising:

a crushing unit that crushes the hydrogen storing material before being supplied to the combustion chamber into a granular form.

4. The combustion device according to claim 2 or 3, further comprising:

a circulation section that collects the granular hydrogen storing material which has come out of the

combustion chamber and that returns the granular hydrogen storing material into the combustion chamber.

5. The combustion device according to any one of claims 1 to 3, further comprising:

a collection unit that collects the hydrogen storing material from a bottom portion of the combustion chamber.

6. The combustion device according to claim 5,

wherein the hydrogen storing material has magnetism, the collection unit further includes a magnetic separation unit that magnetically separates out the hydrogen storing material.

7. The combustion device according to any one of claims 1 to 3, further comprising:

a fuel supply unit that supplies a fuel different from the hydrogen storing material to the combustion chamber.

8. The combustion device according to any one of claims 1 to 3,

wherein the combustion device is at least any one of a circulating fluidized bed boiler, a bubbling fluidized bed boiler, and a rotary kiln.

9. A combustion method comprising:

a hydrogen storing material supply step of supplying a hydrogen storing material, which is capable of releasing stored hydrogen during heating, to a combustion chamber; and

a combustion step of combusting the hydrogen released from the hydrogen storing material in the combustion chamber,

wherein the hydrogen storing material is a hydrogen occluding alloy.