Claims

1. A combustion device, comprising:

an ammonia tank;

a combustor connected to the ammonia tank;

an air supply source;

an ammonia autothermal cracking device having inlets connected to the ammonia tank and the air supply source and an outlet connected to the combustor;

an intake flow passage and an exhaust flow passage, each being connected to the combustor; and

an ammonia cracking catalyst, which is provided in the intake flow passage or the exhaust flow passage and is connected to the ammonia tank and the combustor.

2. A combustion device, comprising:

an ammonia tank;

a combustor connected to the ammonia tank;

an air supply source; and

an ammonia autothermal cracking device having inlets connected to the ammonia tank and the air supply source and an outlet connected to the combustor,

wherein a mixer is provided in a flow passage that connects the ammonia autothermal cracking device and the combustor to each other, and

wherein the mixer is connected to the ammonia tank.

3. A combustion device, comprising:

an ammonia tank;

a combustor connected to the ammonia tank;

an air supply source; and

an ammonia autothermal cracking device having inlets connected to the ammonia tank and the air supply source and an outlet connected to the combustor,

wherein a first heat exchanger is provided in a flow passage that connects the ammonia autothermal cracking device and the combustor to each other,

wherein a flow passage that connects the ammonia tank and the ammonia autothermal cracking device to each other includes a first flow passage that passes through the first heat exchanger, and

wherein the flow passage that connects the ammonia tank and the ammonia autothermal cracking device to each other further includes a second flow passage that bypasses the first heat exchanger.

4. A combustion device, comprising:

an ammonia tank;

a combustor connected to the ammonia tank;

an air supply source; and

an ammonia autothermal cracking device having inlets connected to the ammonia tank and the air supply source and an outlet connected to the combustor,

wherein a first heat exchanger is provided in a flow passage that connects the ammonia autothermal cracking device and the combustor to each other,

wherein a flow passage that connects the ammonia tank and the ammonia autothermal cracking device to each other includes

a first flow passage that passes through the first heat exchanger,

wherein the first flow passage branches into a first branch passage and a second branch passage on a side closer to the ammonia autothermal cracking device with respect to the first heat exchanger, and

wherein the first branch passage and the second branch passage are connected to the inlets of the ammonia autothermal cracking device, respectively.

5. A combustion device, comprising:

an ammonia tank;

a combustor connected to the ammonia tank;

an air supply source; and

an ammonia autothermal cracking device having inlets connected to the ammonia tank and the air supply source and an outlet connected to the combustor,

wherein the ammonia tank is connected to the inlet of the ammonia autothermal cracking device through intermediation of the air supply source.

6. A combustion device, comprising:

an ammonia tank;

a combustor connected to the ammonia tank;

an air supply source; and

an ammonia autothermal cracking device having inlets connected to the ammonia tank and the air supply source and an outlet connected to the combustor,

wherein a second heat exchanger is provided in the air

supply source, and

wherein a flow passage that connects the ammonia tank and the ammonia autothermal cracking device to each other passes through the second heat exchanger.

7. A combustion device, comprising:

an ammonia tank;

a combustor connected to the ammonia tank;

an air supply source; and

an ammonia autothermal cracking device having inlets connected to the ammonia tank and the air supply source and an outlet connected to the combustor, wherein the air supply source is connected to the inlet of the ammonia autothermal cracking device through intermediation of an air tank.

8. A gas turbine system, comprising the combustion device of any one of claims 1 to 7.