Claims

1. A gas turbine system, comprising:

a combustor;

an intake flow passage connected to the combustor;

an exhaust flow passage connected to the combustor;

a compressor provided in the intake flow passage;

a turbine provided in the exhaust flow passage;

an ammonia tank; and

a hydrogen generator-separator having an ammonia supply port connected to the ammonia tank and a hydrogen discharge port connected to the combustor, the hydrogen generator-separator being arranged on a downstream side of the turbine in the exhaust flow passage or on a downstream side of the compressor in the intake flow passage, the hydrogen generator-separator including an ammonia cracking catalyst and a hydrogen separation membrane,

wherein the hydrogen generator-separator has a nitrogen discharge port, and

wherein the nitrogen discharge port of the hydrogen generator-separator is connected to the combustor.

2. The gas turbine system according to claim 1, wherein the nitrogen discharge port of the hydrogen generator-separator is connected to the combustor with a second gas reservoir provided therebetween.

3. A gas turbine system, comprising:

a combustor;

an intake flow passage connected to the combustor;

an exhaust flow passage connected to the combustor;

a compressor provided in the intake flow passage;

a turbine provided in the exhaust flow passage;

an ammonia tank; and

a hydrogen generator-separator having an ammonia supply port connected to the ammonia tank and a hydrogen discharge port connected to the combustor, the hydrogen generator-separator being arranged on a downstream side of the turbine in the exhaust flow passage or on a downstream side of the compressor in the intake flow passage, the hydrogen generator-separator including an ammonia cracking catalyst and a hydrogen separation membrane,

wherein the hydrogen generator-separator has a nitrogen discharge port,

wherein a denitration device is provided on a downstream side of the turbine in the exhaust flow passage, and

wherein the nitrogen discharge port of the hydrogen generator-separator is connected to the denitration device.

4. A gas turbine system, comprising:

a combustor;

an intake flow passage connected to the combustor;

an exhaust flow passage connected to the combustor;

a compressor provided in the intake flow passage;

a turbine provided in the exhaust flow passage;

an ammonia tank; and

a hydrogen generator-separator having an ammonia supply port connected to the ammonia tank and a hydrogen discharge

port connected to the combustor, the hydrogen generator-separator being arranged on a downstream side of the turbine in the exhaust flow passage or on a downstream side of the compressor in the intake flow passage, the hydrogen generator-separator including an ammonia cracking catalyst and a hydrogen separation membrane

wherein the hydrogen generator-separator has a nitrogen discharge port, andwherein the nitrogen discharge port of the hydrogen generator-separator is connected to the turbine.

5. A gas turbine system, comprising:

a combustor;

an intake flow passage connected to the combustor;

an exhaust flow passage connected to the combustor;

a compressor provided in the intake flow passage;

a turbine provided in the exhaust flow passage;

an ammonia tank; and

a hydrogen generator-separator having an ammonia supply port connected to the ammonia tank and a hydrogen discharge port connected to the combustor, the hydrogen generator-separator being arranged on a downstream side of the turbine in the exhaust flow passage or on a downstream side of the compressor in the intake flow passage, the hydrogen generator-separator including an ammonia cracking catalyst and a hydrogen separation membrane,

wherein the hydrogen generator-separator has a nitrogen discharge port, and

wherein the nitrogen discharge port of the hydrogen generator-separator is connected to a purification device that purifies ammonia.

6. The gas turbine system according to any one of claims 1 to 5, wherein the hydrogen discharge port of the hydrogen generator-separator is connected to the combustor with a first gas reservoir provided therebetween.

7. The gas turbine system according to any one of claims 1 to 6, wherein a pump is provided in a flow passage that connects the ammonia tank and the ammonia supply port of the hydrogen generator-separator to each other.