Claims

[Claim 1]

A combustible gas generation system comprising:

a reactor; and

a filter device, wherein

the reactor is configured to thermally decompose a hydrocarbon supplied to the combustible gas generation system into carbon and hydrogen,

the filter device is configured to capture carbon flowing out of the reactor, and

the combustible gas generation system is configured to supply combustible gas in the combustible gas generation system to the filter device as backwashing gas for regeneration processing of the filter device.

[Claim 2]

The combustible gas generation system according to claim 1 comprising:

a hydrogen refiner; and

an off-gas path, wherein

the hydrogen refiner is a device configured to extract hydrogen from mixture gas from which carbon is removed by the filter device,

the mixture gas contains the hydrocarbon and the hydrogen,

the off-gas path is a path through which off-gas is returned from the hydrogen refiner to the reactor, and

the off-gas is gas obtained by removing the hydrogen from the hydrogen refiner and contains at least the hydrocarbon.

[Claim 3]

The combustible gas generation system according to claim 1 or 2 comprising:

a backwashing path; and

a buffer tank, wherein

the backwashing path is configured to supply the backwashing gas to the filter device, and

the buffer tank is provided in the backwashing path.

[Claim 4]

The combustible gas generation system according to any one of claims 1 to 3 comprising:

a backwashing path; and

a heater, wherein

the backwashing path is configured to supply the backwashing gas to the filter device, and

the heater is provided in the backwashing path.

[Claim 5]

The combustible gas generation system according to any one of claims 1 to 4 comprising:

a backwashing path; and

a compressor, wherein

the backwashing path is configured to supply the backwashing gas to the filter device, and

the compressor is configured to pressurize the backwashing gas to be supplied to the filter device.

[Claim 6]

The combustible gas generation system according to any one of claims 1 to 5 comprising:

a backwashing path;

a first buffer tank;

a compressor; and

a second buffer tank, wherein

the backwashing path is configured to supply the backwashing gas to the filter device,

the first buffer tank and the second buffer tank are provided in the backwashing path, and

the compressor is configured to pressurize the backwashing gas supplied from the first buffer tank in the backwashing path and supply the pressurized backwashing gas to the second buffer tank.

[Claim 7]

The combustible gas generation system according to any one of claims 1 to 6, wherein the backwashing gas is the hydrocarbon supplied to the combustible gas generation system.

[Claim 8]

The combustible gas generation system according to any one of claims 1 to 6 comprising:

a hydrogen refiner;

an off-gas path; and

a backwashing path, wherein

the hydrogen refiner is a device configured to extract hydrogen from mixture gas from which carbon is removed by the filter device,

the mixture gas contains the hydrocarbon and the hydrogen,

the off-gas path is a path through which off-gas is returned from the hydrogen refiner to the reactor,

the off-gas is gas obtained by removing the hydrogen from the hydrogen refiner and contains at least the hydrocarbon, and

the backwashing path is configured to supply the off-gas as the backwashing gas to the filter device by being branched from the off-gas path to be connected to the filter device.

[Claim 9]

The combustible gas generation system according to any one of claims 1 to 6 comprising:

a hydrogen refiner; and

a backwashing path, wherein

the hydrogen refiner is a device configured to extract hydrogen from mixture gas from which carbon is removed by the filter device, and

the backwashing path is configured to supply the hydrogen extracted by the hydrogen refiner as the backwashing gas to the filter device.

[Claim 10]

The combustible gas generation system according to any one of claims 1 to 6, wherein

the combustible gas generation system is configured to generate, as a generation target, mixture gas from which the carbon is removed by the filter device,

the mixture gas contains the hydrogen and the hydrocarbon, and

the backwashing gas is the mixture gas.