CLAIMS

[Claim 1]

A shock wave generation system comprising:

a combustion device having a gas passage through which combustion gas flows from a base end to a front end, the front end having an opening;

a fuel supply channel configured to supply fuel;

an oxidizer supply channel configured to supply oxidizer;

a combustible gas supply channel configured to supply combustible gas that is a mixture of the fuel and the oxidizer to the combustion device;

a fuel flow rate adjusting device configured to adjust a flow rate of the fuel flowing through the fuel supply channel;

an oxidizer flow rate adjusting device configured to adjust a flow rate of the oxidizer flowing through the oxidizer supply channel;

an ignition device configured to ignite the combustible gas supplied to the combustion device; and

a control device configured to control the fuel flow rate adjusting device and the oxidizer flow rate adjusting device according to a supply state of the combustible gas supplied to the combustion device, wherein

the fuel flow rate adjusting device and the oxidizer flow rate adjusting device include mass flow controllers, and

each mass flow controller controls compares a measured mass flow rate of the fuel or the oxidizer with a setting value that is set according to at least one of a form of the combustion device and combustion information, to control a degree of opening of a flow control valve so that the mass flow rate becomes the setting value.

[Claim 2]

The shock wave generation system according to claim 1, wherein the fuel flow rate adjusting device and the oxidizer flow rate adjusting device include orifices or sonic nozzles.

[Claim 3]

The shock wave generation system according to claim 2, wherein the fuel flow rate adjusting device and the oxidizer flow rate adjusting device include:

a plurality of fuel branch channels and a plurality of oxidizer branch channels disposed in parallel in the fuel supply channel and in the oxidizer supply channel, respectively, the orifices or the sonic nozzles disposed in the fuel branch channels and in the oxidizer branch channels, respectively; and

open/close valves disposed in the fuel branch channels and in the oxidizer branch channels, respectively.

[Claim 4]

The shock wave generation system according to any one of claims 1 to 3, wherein the control device controls the fuel flow rate adjusting device and the oxidizer flow rate adjusting device so that a mixture ratio of the combustible gas approaches a stoichiometric mixture ratio at least in a last phase of a filling time of the combustible gas to the combustion device.

[Claim 5]

The shock wave generation system according to claim 4, wherein the control device controls the fuel flow rate adjusting device and the oxidizer flow rate adjusting device so that a mixture ratio of the combustible gas becomes an excess of fuel in an initial phase of a filling time of the combustible gas to the combustion device.

[Claim 6]

The shock wave generation system according to claim 1, further comprising an emission portion configured to emit incombustible gas from an outer periphery toward a center of the combustion device.

[Claim 7]

The shock wave generation system according to claim 6, wherein the emission portion emits the incombustible gas simultaneously when the combustible gas is supplied to the combustion device, and stops emission of the incombustible gas after the combustible gas

supplied to the combustion device is ignited.