CLAIMS

[Claim 1] A gas burner system, comprising:

a gas burner disposed in a facility including a furnace of a gas fired boiler, and

a fuel supply system configured to supply gas fuel to the gas burner,

the gas burner, comprising:

a nozzle where gas fuel flows; and

a primary air supply part for supplying, from around the nozzle, primary air whose air ratio to the gas fuel is less than 1,

wherein the nozzle includes:

at least one main hole configured to eject the gas fuel at an ejection angle of not less than 25 degrees and not greater than 45 degrees with respect to a central axis of the gas burner; and

at least one sub hole configured to eject the gas fuel at an ejection angle of not less than 35 degrees and not greater than 55 degrees with respect to the central axis of the gas burner, the ejection angle of the sub hole being greater than the ejection angle of the main hole, and

wherein the fuel supply system is configured to supply the gas fuel to the gas burner such that a gas pressure of not less than 300 kPa is maintained in the nozzle.

[Claim 2] The gas burner system according to claim 1,

wherein the gas fuel contains hydrogen.

[Claim 3] The gas burner system according to claim 2,

wherein the ejection angle of the main hole is not less than 25 degrees and not greater than 35 degrees, and the ejection angle of the sub hole is not less than 35 degrees and not greater than 45 degrees.

[Claim 4] The gas burner system according to claim 1,

wherein the at least one main hole includes a plurality of main holes formed in a tip portion of the nozzle such that the plurality of main holes are disposed around the central axis of the gas burner symmetrically with each other with the central axis of the gas burner therebetween.

[Claim 5] The gas burner system according to claim 1,

wherein the at least one sub hole includes a plurality of sub holes formed in a tip portion of the nozzle such that the plurality of sub holes are disposed around the central axis of the gas burner symmetrically with each other with the central axis of the gas burner therebetween.

[Claim 6] The gas burner system according to claim 1,

wherein a ratio A1:A2 is between 80:20 and 90:10, where A1 is a total opening area of a plurality of the main holes and A2 is a total opening area of a plurality of the sub holes.

[Claim 7] A gas burner system according to claim 1,

wherein a center position of an opening of the at least one main hole and a center position of an opening of the at least one sub hole are disposed such that a distance from the center axis of the gas burner is the same.

[Claim 8] A facility comprising:

a furnace, and

the gas burner system according to any one of claims 1 to 7.