explosion limit.

~~8. A gas cutting machine comprising:~~

~~a mixer that mixes hydrogen gas and hydrocarbon gas to acquire fuel gas, in which the content of the hydrocarbon gas is more than 0 vol % and equal to or less than 4 vol %;~~

~~a cutting tip that includes a preheating hole used to form a preheating flame using the fuel gas and preheating oxygen gas and a cutting oxygen hole used to eject cutting oxygen gas to cut a workpiece;~~

~~a cutting blowpipe that has the cutting tip disposed at an end thereof;~~

~~a fuel gas pipeline that supplies the fuel gas to the cutting blowpipe or the cutting tip;~~

~~a preheating oxygen gas pipeline that supplies the preheating oxygen gas to the cutting blowpipe or the cutting tip;~~

~~a hydrogen gas supply source that supplies the hydrogen gas to the mixer;~~

~~a hydrocarbon gas supply source that supplies the hydrocarbon gas to the pipeline; and~~

~~an oxygen gas supply source that supplies the preheating oxygen gas to the preheating oxygen gas pipeline, wherein the fuel gas pipeline and the preheating oxygen gas pipeline join inside the cutting blowpipe, inside the cutting tip, or outside the cutting tip.~~

~~9~~8. A cutting tip of a gas cutting machine, comprising:

a cutting oxygen gas flow channel that passes through the center in the axis direction of the cutting tip;

a preheating gas flow channel that is formed by joining a fuel gas flow channel and a preheating oxygen gas flow channel and that is disposed outside the cutting oxygen gas flow channel;

a cutting oxygen hole that is disposed at an end of the cutting oxygen gas flow channel; and

a preheating hole that is disposed at an end of the preheating gas flow channel, wherein

the end of the preheating gas flow channel is tilted to an extension of the cutting oxygen gas flow channel, and

the distance from a junction of an extension from an end of the preheating gas flow

channel and an extension of the cutting oxygen gas flow channel to the end of the cutting tip is in the range of 10 to 20 mm.

~~10~~9. A cutting tip of a gas cutting machine, comprising:

a cutting oxygen gas flow channel that passes through the center in the axis direction of the cutting tip;

a fuel gas flow channel that is disposed outside the cutting oxygen gas flow channel;

a preheating oxygen gas flow channel that is disposed outside the cutting oxygen gas flow channel;

a cutting oxygen hole that is disposed at an end of the cutting oxygen gas flow channel;

a preheating hole that is disposed at an end of the fuel gas flow channel; and

a preheating hole that is disposed at an end of the preheating oxygen gas flow channel, wherein

the fuel gas flow channel and the preheating oxygen gas flow channel are independent of each other in the cutting tip, and wherein the end of the fuel gas flow channel and the end of the preheating oxygen gas flow channel are tilted to an extension of the cutting oxygen gas flow channel.