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Patents (details)

1 - Improvements in gas and like burners

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The present invention relates to improvements in gas and like burners and has for its object to provide a gas burner for general purposes, but especially for metallurgical apparatus and more particularly for steam boilers, which is constructed in such a manner as to produce a rapid and complete combustion of the gas.

According to this invention the air and the gas are divided into concentric layers which are so directed in the burner that each of the said layers is made to assume a gyratory helicoïdal movement during its passage through the burner, the gas having such movement in one direction and the air in the other, thus forcing them, gas and air, to screw one into the other immediately they emerge from the burner for the purpose of mixing rapidly and completely. Thus a highly efficient mixture results and the flame is produced near to the burner orifice which consumes only well mixed gas and air in spite of the absence of a mixing chamber.

It is important to note the separation of the combustible and comburent into layers in which they are given helicoïdal movement in opposite directions while in the burner because it is necessary to have the two currents screwing into one another in a very definite fashion. The invention is thus distinguished from a previous proposal to arrange helicoïdal or screw baffles partly occupying a large air chamber surrounding a concentric annular gas chamber the outlets from which were inclined to give the gas a gyratory motion in an opposite direction to that given to the air.

The arrangement of the burner is such that the flame produced is not a blowpipe flame, but on the contrary is a flame having no other direction than that given it by the draught as in the case of a steam boiler for example, and the parte exposed to the flame become no more deteriorated than is the case of a chamber of preliminary combustion.