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(54) Title: FLAMELESS COMBUSTOR

(57) Abstract

A flameless combustor eliminates the flamme as a radiant heat source, which results in a more even temperature distribution throughout the length of the burner. Flameless combustion is accomplished by preheating the fuel and the combustion air to a temperature above the autoignition temperature of the mixture. The present invention lowers the autoignition temperature by placing a catalytic surface within the desired combustion chamber. Temperatures are maintained above the catalyzed autoignition temperature but less than the noncatalyzed autoignition temperatures for noncatalyzed reaction. Thus, the amount and location of reaction can be controlled by varying the amount and distribution of catalyst within the burner. Removing heat from the combustion chamber in amounts that correspond to the oxidation of fuel within different segments of the combustion chamber can result in low temperatures and relatively even distribution of heat from the burner.

