



**COMBUSTION PROCESS AND APPARATUS THEREFORE CONTAINING
SEPARATE INJECTION OF FUEL AND OXIDANT STREAMS**

ABSTRACT

A burner assembly having improved flame length and shape control is presented, which includes in exemplary embodiments at least one fuel fluid inlet and at least one oxidant fluid inlet, means for transporting the fuel fluid from the fuel inlet to a plurality of fuel outlets, the fuel fluid leaving the fuel outlets in fuel streams that are injected into a combustion chamber, means for transporting the oxidant fluid from the oxidant inlets to at least one oxidant outlet, the oxidant fluid leaving the oxidant outlets in oxidant fluid streams that are injected into the combustion chamber, with the fuel and oxidant outlets being physically separated, and geometrically arranged in order to impart to the fuel fluid streams and the oxidant fluid streams angles and velocities that allow combustion of the fuel fluid with the oxidant in a stable, wide, and luminous flame. Alternatively, injectors may be used alone or with the refractory block to inject oxidant and fuel gases. The burner assembly affords improved control over flame size and shape and may be adjusted for use with a particular furnace as required.

Figures 1a & 1b