



ABSTRACT OF THE DISCLOSURE

METHOD OF HEATING A GLASS MELTING FURNACE USING A
ROOF MOUNTED, STAGED COMBUSTION OXYGEN-FUEL BURNER

5 In an industrial glass furnace, which optionally contains
recuperators, regenerators, electric boost or other devices for providing heat to
glass batch material, at least one staged combustion oxy-fuel burner is
mounted in the roof of the furnace to provide heat to melt the glass batch
material by providing a flow of fuel to the oxy-fuel burner; providing a flow of
gaseous oxidant in association with said the oxy-fuel burner; injecting the fuel
10 and the oxidant into the furnace; and, combusting the fuel such that at least a
portion of combustion is effected in the vicinity of said glass forming material
to enhance convective and radiative transfer of heat to said glass forming
material without substantially disturbing the glass forming material. In one
embodiment, the oxy-fuel burner is adapted for injecting liquid fuels. In
15 another embodiment, the oxy-fuel burner is adapted for fuel staged
combustion and contains at least one outer oxidant injector and two inner fuel
injectors, the innermost fuel injector being adapted for high velocity fuel
injection and the other fuel injector, disposed between the innermost fuel
injector and the outer oxidant injector, being adapted for lower velocity fuel
20 injection.

FIG. 1

