

MELT HEATING METHODABSTRACT

A method of heating a melt containing an oxidizable substance in which a fuel is burned with an oxidant by projecting fuel oxidant jets over the melt. The fuel and the oxidant jets have a fuel jet momentum and an oxidant jet momentum, respectively. The oxidant jet produces a top oxidation layer on the top surface of the melt and such top oxidation layer has a thickness. The oxidant jet momentum is adjusted to be below a threshold momentum at which the top oxidation layer is forced aside by the oxidant jet to expose fresh melt that potentially can be oxidized and can increase the thickness of the top oxidation layer. The fuel-jet momentum is adjusted so that it is greater than the oxidant jet momentum to draw the oxidant jet towards the fuel jet and thereby forms a desired combustible mixture in a mixing layer. Additionally, the oxidant and fuel jet momentums could be adjusted so that their total momentum (the sum of their individual momentums divided by the power output developed by the burner of the fuel) were less than about 60 newtons per megawatt.

Fig. 1