

ABSTRACT

The object of this invention is to provide an ash-melting furnace which can respond to fluctuations in the load and which will be capable of highly efficient and stable operation. In an ash-melting furnace which heats and melts the primary ash and the fly ash obtained by combustion together, this invention is characterized by supplying the primary ash (ash containing rough particles) from upper end of the furnace to form an upper layer of a two-tiered layer of ash, supplying the fly ash (ash containing minute particles) from an upper end of the furnace to form a lower layer of the two-tiered layer of ash, moving the two-tiered layer together towards the far end of the furnace, and heating and melting the two-tiered layer by a burner to form molten slugs during the moving step. When the burner is an oxygen-enriched burner, this configuration makes it possible to control the volume of oxygen to be added to the burner air (including changing the density of the oxygen). This invention can control not only the volume of fuel but also the density of the oxygen-enriched air and the volume of the ash to be supplied in response to the state of flow of the molten ash melted by the oxygen-enriched burner.