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(54) Title: METHOD AND APPARATUS FOR STEAM HYDRO-GASIFICATION IN A FLUIDIZED BED REACTOR

(57) Abstract: A method and apparatus for converting carbonaceous material to a stream of methane and carbon monoxide rich gas by heating the carbonaceous material in a fluidized bed reactor using hydrogen, as fluidizing medium, and using steam, under reducing conditions at a temperature and pressure sufficient to generate a stream of methane and carbon monoxide rich gas but at a temperature low enough and/or at a pressure high enough to enable the carbonaceous material to be fluidized by the hydrogen. In particular embodiments, the carbonaceous material is fed as a slurry feed, along with hydrogen, to a kiln type reactor before being fed to the fluidized bed reactor. Apparatus is provided comprising a kiln type reactor, a slurry pump connected to an input of the kiln type reactor, means for connecting a source of hydrogen to an input of the kiln type reactor; a fluidized bed reactor connected to receive output of the kiln type reactor for processing at a fluidizing zone, and a source of steam and a source of hydrogen connected to the fluidized bed reactor below the fluidizing zone. Optionally, a grinder can be provided in the kiln type reactor.



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