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(54) Title: DIRECT CATALYTIC CRACKING OF CRUDE OIL BY A TEMPERATURE GRADIENT PROCESS

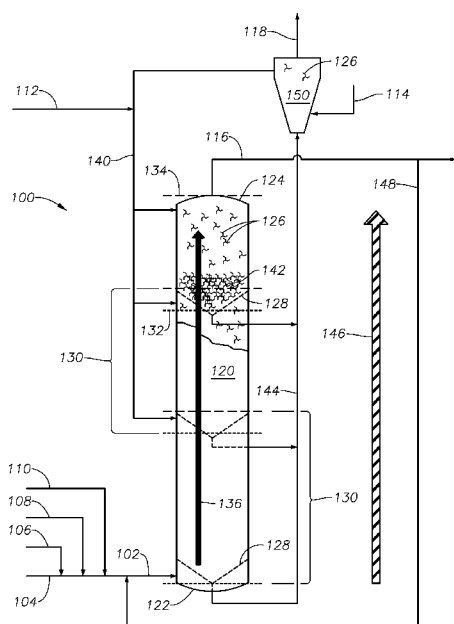


FIG. 1

(57) Abstract: A direct catalytic cracking system for converting undistilled and unfractionated hydrocarbon material into hydrocarbon products, which include light olefins and C6-8 aromatics. The direct catalytic cracking system includes a moving catalyst bed reactor having one or more catalytic reaction zones and configured to regulate its internal temperature. The direct catalytic cracking system also includes a catalyst regeneration system. A method for converting undistilled and unfractionated hydrocarbon material into hydrocarbon products using the direct catalytic cracking system. The process includes the step of introducing a moving bed reactor feed comprising steam and undistilled and unfractionated hydrocarbon material. The process includes the steps of introducing direct cracking catalyst into the catalytic reaction zone of the moving catalyst bed reactor, operating the direct catalytic cracking system such that hydrocarbon material in the presence of direct cracking catalyst converts into product hydrocarbons, and passing the product hydrocarbons from the moving catalyst bed reactor.



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