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(54) **Title:** ELECTRIC FURNACE FOR CRACKING HYDROCARBON FEEDSTOCK WITH HEAT RECOVERY

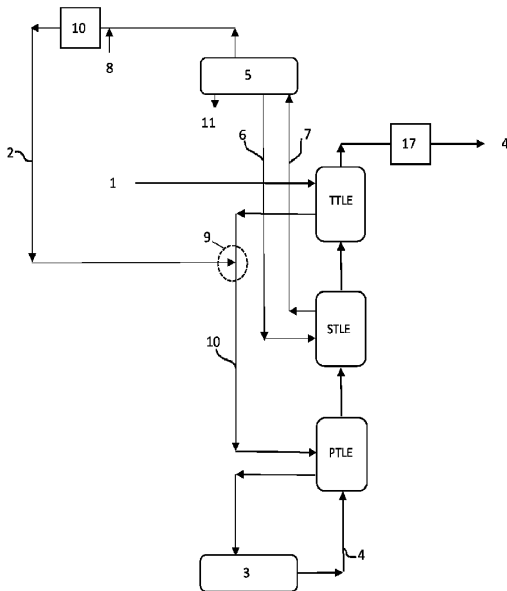


Figure 1

(57) **Abstract:** An electric cracking furnace system for converting a hydrocarbon feedstock into cracked gas includes a mixing device for mixing hydrocarbon feedstock with slightly superheated and/or saturated steam. The system includes a steam drum, an electric furnace, a primary transfer line exchanger (PTLE), a secondary transfer line exchanger (STLE), and a tertiary transfer line exchanger (TTLE). The electric furnace includes a feed inlet for a hydrocarbon feedstock-saturated steam mixture and an outlet for a cracked gas. The steam drum includes a saturated steam outlet connected to the mixing device, and a water outlet and a steam inlet both connected to the STLE. The PTLE is configured to preheat the hydrocarbon feedstock-saturated steam mixture before entry into the electric furnace and to cool the cracked gas provided by the electric furnace. The STLE is configured to generate steam and to cool the cracked gas provided by the PTLE.



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