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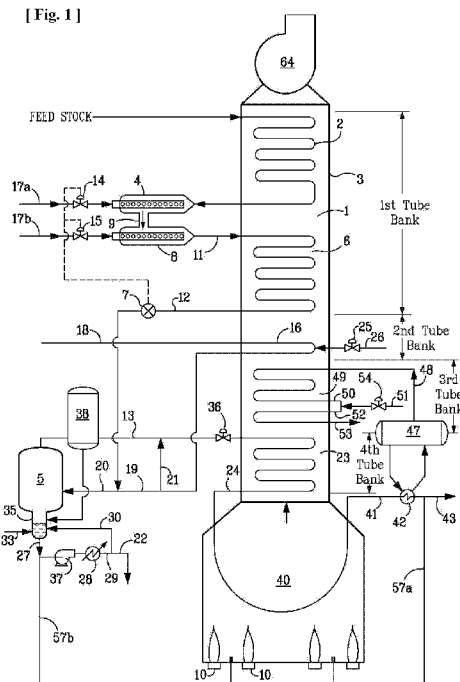
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(54) Title: PROCESS FOR CRACKING A HEAVY HYDROCARBON FEEDSTREAM

[Fig. 1]

(57) Abstract: A process for cracking a hydrocarbon feedstream contain-
ing non-volatile components in a hydrocarbon cracking furnace having up-
per and lower convection heating sections within a flue of the furnace, a
radiant heating section downstream of and connected to said lower con-
vection heating section, a transfer line exchanger downstream of and con-
nected to said radiant heating section, a furnace box containing furnace
burners and said radiant heating section, and a vapor/liquid separator ves-
sel connected between the upper and lower convection heating sections,
the process comprising (a) passing said hydrocarbon feedstream into said
upper convection section to heat said hydrocarbon feedstream to a first
temperature sufficient to flash at least a portion of the hydrocarbons within
said hydrocarbon feedstream into a vapor phase to form a vapor/liquid
stream; (b) passing said vapor/liquid stream out of said upper convection
section and into said vapor/liquid separator to separate said vapor/liquid
stream into a hydrocarbon-containing vapor phase and a hydrocarbon-con-
taining liquid phase within said vapor/liquid separator; (c) collecting said
liquid phase into a bottoms liquid within said vapor/liquid separator; (d)
passing said vapor phase into said radiant heating section and cracking hy-
drocarbons in said vapor phase to form an olefins-containing effluent
stream; and (e) periodically injecting an air- steam mixture into said con-
vection heating section, then through said vapor/liquid separator to incin-
erate coke formed and passing an incinerated coke residue/air-steam mix-
ture so-formed between the furnace burners within the furnace box.



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