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(54) Title: METHODS FOR OPERATING ACETYLENE HYDROGENATION UNITS IN INTEGRATED STEAM CRACKING AND FLUIDIZED CATALYTIC DEHYDROGENATION SYSTEMS

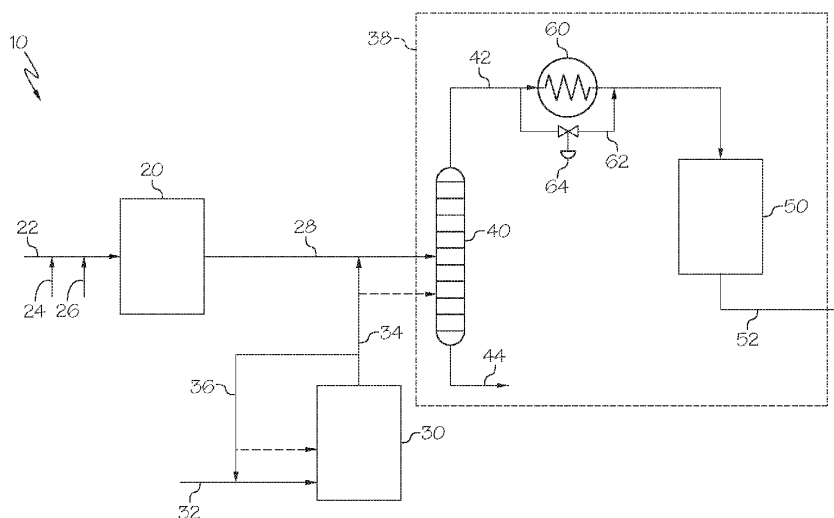


FIG. 1

(57) Abstract: A method for operating an acetylene hydrogenation unit in an integrated steam cracking-fluidized catalytic dehydrogenation (FCDh) system may include separating a cracked gas from a steam cracking system and an FCDh effluent from an FCDh system into a hydrogenation feed and an acetylene-depleted stream, the hydrogenation feed comprising at least hydrogen, CO, and acetylene. During normal operating conditions, at least 20% of the CO in the hydrogenation feed is from the cracked gas. The method may include contacting the hydrogenation feed with an acetylene hydrogenation catalyst to hydrogenate at least a portion of the acetylene in the hydrogenation feed to produce a hydrogenated effluent. The steam cracking is operated under conditions that increase CO production such that a concentration of CO in the cracked gas is great enough that when a flowrate of the FCDh effluent is zero, a CO

[Continued on next page]

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