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(54) Title: PROCESSES AND SYSTEMS FOR UPGRADING ALKANES AND ALKYL AROMATIC HYDROCARBONS

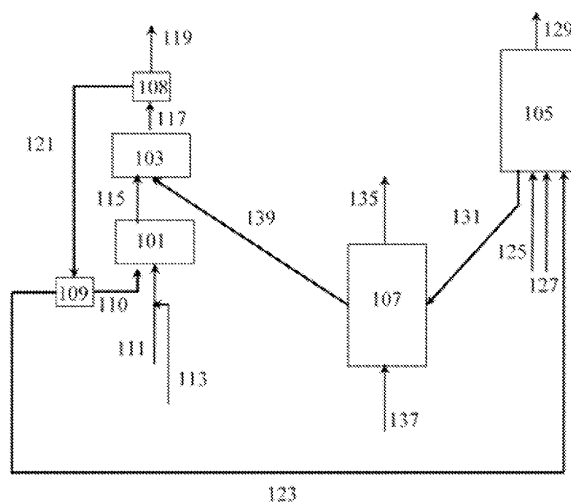


FIG. 1

(57) Abstract: Processes for upgrading a hydrocarbon. In some embodiments, the process can include contacting a hydrocarbon-containing feed with a first catalyst that can include a Group 8-10 element disposed on a support within a first conversion zone to effect dehydrogenation, dehydroaromatization, and/or dehydrocyclization of a portion of the feed to produce first conversion zone effluent that includes one or more upgraded hydrocarbons, molecular hydrogen, and unconverted feed. The process can also include contacting the first conversion zone effluent with a second catalyst that can include a Group 8-10 element disposed on a support within a second conversion zone to effect dehydrogenation, dehydroaromatization, and/or dehydrocyclization of at least a portion of the unconverted feed to produce a second conversion zone effluent that includes an additional quantity of upgraded hydrocarbon(s) and molecular hydrogen. A temperature of the second conversion zone effluent can be greater than a temperature of the first conversion zone effluent.

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