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(54) Title: FLUID CATALYTIC CRACKING PROCESS AND APPARATUS FOR MAXIMIZING LIGHT OLEFIN YIELD AND OTHER APPLICATIONS

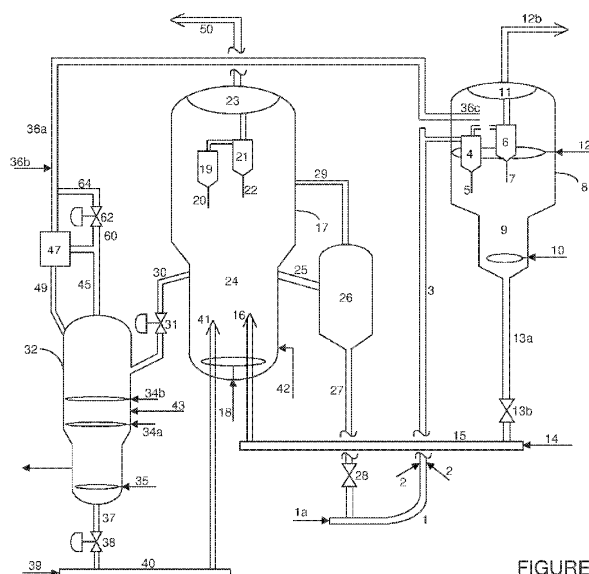


FIGURE 1

(57) **Abstract:** Apparatus and processes herein provide for converting hydrocarbon feeds to light olefins and other hydrocarbons. The processes and apparatus include, in some embodiments, feeding a hydrocarbon, a first catalyst and a second catalyst to a reactor, wherein the first catalyst has a smaller average particle size and is less dense than the second catalyst. A first portion of the second catalyst may be recovered as a bottoms product from the reactor, and a cracked hydrocarbon effluent, a second portion of the second catalyst, and the first catalyst may be recovered as an overhead product from the reactor. The second portion of the second catalyst may be separated from the overhead product, providing a first stream comprising the first catalyst and the hydrocarbon effluent and a second stream comprising the separated second catalyst, allowing return of the separated second catalyst in the second stream to the reactor.

[Continued on next page]

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