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(54) Title: METHODS FOR MAKING LIGHT OLEFINS BY DEHYDROGENATION USING CATALYSTS THAT INCLUDE IRON

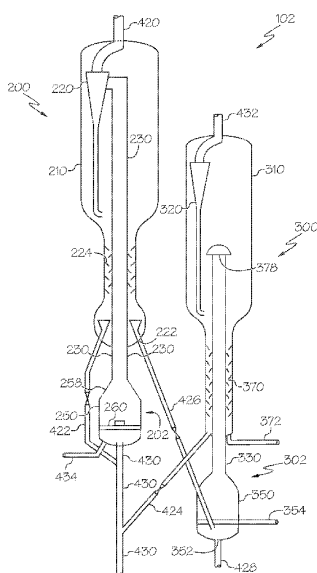


FIG. 1

(57) Abstract: A method may include contacting a hydrocarbon-containing feed with a catalyst in a reactor to form an olefin-containing effluent, then at least partially separating the olefin-containing effluent from the catalyst. Passing the catalyst to a combustor and heating the catalyst by combusting a supplemental fuel. The supplemental fuel includes methane in an amount greater than or equal to 1 mol.%. Passing the catalyst from the combustor to the reactor, such that at least a portion of the catalyst continuously cycles between the reactor and the combustor. The catalyst includes from 0.1 wt.% to 10 wt.% of one or more metals chosen from gallium, indium, thallium or combinations thereof, from 5 ppmw to 1000 ppmw of one or more metals chosen from platinum, palladium, rhodium, iridium, ruthenium, osmium, or combinations thereof, from 100 ppmw to 30000 ppmw of iron, and at least 85 wt.% support.

WO 2023/244965 A1

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