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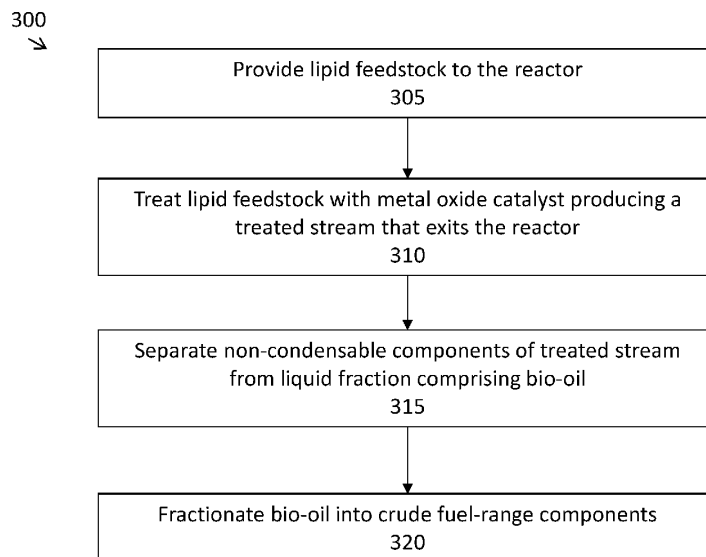


FIG. 3

(57) Abstract: A reactor system includes a reactor that treats a lipid feedstock using a metal oxide catalyst to produce a treated stream comprising a bio-oil. The metal oxide catalyst includes catalyst particles having a diameter of 0.01 to 0.5 mm. The metal oxide catalyst can comprise calcium on alumina. The bio-oil has an increased proportion of transportation fuels relative to other techniques for processing lipid feedstocks.

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