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- (71) **Applicant: EXXONMOBIL CHEMICAL PATENTS INC.** [US/US]; 5200 Bayway Drive, Baytown, Texas 77520 (US).
- (72) **Inventors: YANG, Yuti, L.;** 4535 Sterling Wood Way, Houston, Texas 77059 (US). **RINCON, Edison, A.;** 14727 Birch Arbor Ct., Humble, Texas 77396 (US).
- (74) **Agent: CHEN, Siwen et al.;** Exxonmobil Chemical Company Law Technology, P.O. Box 2149, Baytown, Texas 77522-2149 (US).
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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

(54) **Title:** METHODS AND SYSTEMS FOR PROCESSING HYDROCARBON STREAMS

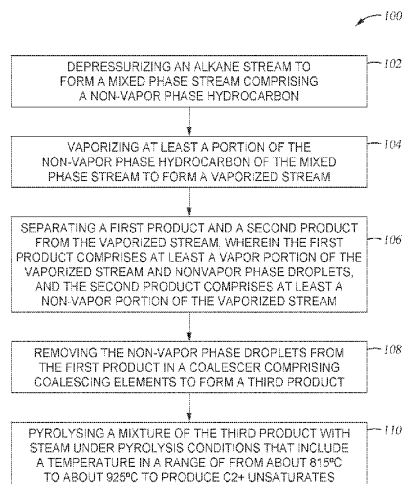


Fig. 1

(57) **Abstract:** The present disclosure relates to a method of processing hydrocarbons including depressurizing a hydrocarbon stream, vaporizing at least a portion of a non-vapor phase hydrocarbon of the stream, and separating first and second products. The first product includes at least a portion of the vaporized stream's vapor phase hydrocarbon that became vapor during the vaporization, and the second product includes at least a portion of the vaporized stream remaining as non-vapor during the vaporization. The separation includes a gross separator such as a cyclone, a vane pack device, a knock-out drum optionally having a demister pad, or combination(s) thereof. Non-vapor phase droplets of the first product are removed from the first product of the stream using coalescing elements before processing in a pyrolysis reactor.

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