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(21) International Application Number: PCT/US99/09642 (22) International Filing Date: 30 April 1999 (30.04.99) (30) Priority Data: 09/073,413 6 May 1998 (06.05.98) US (71) Applicant: EXXON RESEARCH AND ENGINEERING COMPANY [US/US]; 180 Park Avenue, P.O. Box 390, Florham Park, NJ 07932-0390 (US). (72) Inventors: GUPTA, Ramesh; 57 Lawrence Drive, Berkeley Heights, NJ 07922 (US). JUNG, Henry; 17 Coleman Avenue West, Chatham, NJ 07928 (US). ELLIS, Edward, Stanley; 39 Rankin Avenue, Basking Ridge, NJ 07920 (US). MARKLEY, Gerald, Edward; 7833-C Jefferson Place Boulevard, Baton Rouge, LA 70808 (US). (74) Agents: NAYLOR, Henry, E. et al.; Exxon Research and Engineering Company, P.O. Box 390, Florham Park, NJ 07932-0390 (US).		(81) Designated States: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UA, UZ, VN, YU, ZA, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
(54) Title: THREE STAGE HYDROPROCESSING INCLUDING A VAPOR STAGE		
(57) Abstract A three stage hydroprocessing process includes two liquid and one vapor reaction stages, with a hydrogen containing vapor effluent produced in both liquid stages. The second liquid stage vapor effluent comprises part of the first liquid stage feed and the first liquid stage vapor effluent is the feed for the vapor stage. At least a portion of the hydrogen for the first liquid stage and vapor stage reactions is respectively provided by the hydrogen in the second and first liquid stage vapor effluents.		