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(21) International Application Number: PCT/CA99/00382 (22) International Filing Date: 5 May 1999 (05.05.99) (30) Priority Data: 2,236,738 5 May 1998 (05.05.98) CA 2,240,214 9 June 1998 (09.06.98) CA (71) Applicant (for all designated States except US): SHEC LABS - SOLAR HYDROGEN ENERGY CORPORA- TION [CA/CA]; 2214 Hanselman Avenue, Saskatoon, Saskatchewan S7L 6A4 (CA). (72) Inventor; and (75) Inventor/Applicant (for US only): BECK, J., Thomas [CA/CA]; 2214 Hanselman Avenue, Saskatoon, Saskatchewan S7L 6A4 (CA). (74) Agents: KINGWELL, Brian, G. et al.; Smart & Biggar, Vancouver Centre, 2200-650 W. Georgia Street, Box 11560, Vancouver, British Columbia V6B 4N8 (CA).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, 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>Without international search report and to be republished upon receipt of that report.</i>
(54) Title: PROCESS FOR THE PRODUCTION OF HYDROGEN BY THERMAL DECOMPOSITION OF WATER (57) Abstract The invention provides processes and apparatus for producing hydrogen from water, including the steps of heating water to a water dissociating temperature to form a dissociated water reaction mixture comprising hydrogen gas and oxygen gas. A vortex is formed of the reaction mixture to subject the reaction mixture to a centrifugal force about a longitudinal axis of an interior space of a vortex tube reactor, so that there is radial stratification of the hydrogen gas and the oxygen gas in the interior space of the vortex tube reactor. Hydrogen or oxygen is preferentially extracted from the reaction mixture at spaced apart points along the length of the interior space of the vortex tube reactor.		