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(21) International Application Number: PCT/US97/23166 (22) International Filing Date: 2 December 1997 (02.12.97) (30) Priority Data: 08/767,156 16 December 1996 (16.12.96) US (71) Applicants: ENERGY CONVERTORS, INC. [US/US]; Lower Demunds Road, Dallas, PA 18612 (US). RHEEM MANUFACTURING COMPANY [US/US]; 405 Lexington Avenue, New York, NY 10174-0303 (US). (72) Inventors: ECKMAN, Charles, M.; 11 Rice Drive, Dallas, PA 18612 (US). RODEN, James, S.; 141 Tensaw Road, Montgomery, AL 36117 (US). HOCHBERG, Arie; 303 Strathmore Road, Rosemont, PA 19101 (US). (74) Agent: JENKINS, Marylee; Robin, Blecker & Daley, 330 Madison Avenue, New York, NY 10017 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, 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, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published With international search report. With amended claims.
(54) Title: IMPROVED IMMERSION HEATING ELEMENT WITH HIGHLY THERMALLY CONDUCTIVE POLYMERIC COATING		
(57) Abstract Electrical resistance heating elements (100) are provided which are useful in heating fluid mediums, such as air and water. The heating elements include an element body (100) having a supporting surface (10) and a resistance wire (14) wound onto the supporting surface (10) which is connected to a pair of terminal end portions (16 and 12). Disposed over the resistance wire (14), and over most of the supporting surface (10), is a polymeric coating (30) which hermetically encapsulates and electrically insulates the resistance wire (14) from the fluids to be heated. This thermally-conductive polymer coating (30) has a thermal conductivity value of at least about 0.5 W/mK. Improved properties are preferably provided by ceramic powder, aluminum oxide and magnesium oxide, and glass fiber additives.		