(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
9 April 2009 (09.04.2009)

PCT

(10) International Publication Number
WO 2009/046429 A3

(51) International Patent Classification:
F01D 15/08 (2006.01) *F04F 99/00* (2009.01)
F04B 35/00 (2006.01)

(21) International Application Number:
PCT/US2008/078961

(22) International Filing Date: 6 October 2008 (06.10.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/977,789 5 October 2007 (05.10.2007) US

(71) Applicant *(for all designated States except US)*: **ENERGY RECOVERY, INC.** [US/US]; 1908 Doolittle Drive, San Leandro, California 94577 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **PIQUE, Gonzalo G.** [US/US]; 553 Crofton Avenue, Oakland, California 94610 (US). **STOVER, Richard L.** [US/US]; 226 Monte Vista Avenue, Oakland, California 94611 (US). **MARTIN, Jeremy G.** [US/US]; 592 Aileen St., Oakland, California 94609 (US). **PINTO, Juan Miguel** [VE/US]; 383 MacArthur Blvd, Apt 219, Oakland, California 94610 (US).

(74) Agents: **SCHUMANN, James J.** et al.; Fitch, Even, Tabin & Flannery, 120 South LaSalle Street, Suite 1600, Chicago, Illinois 60603-3406 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH,

[Continued on next page]

(54) Title: ROTARY PRESSURE TRANSFER DEVICE WITH IMPROVED FLOW

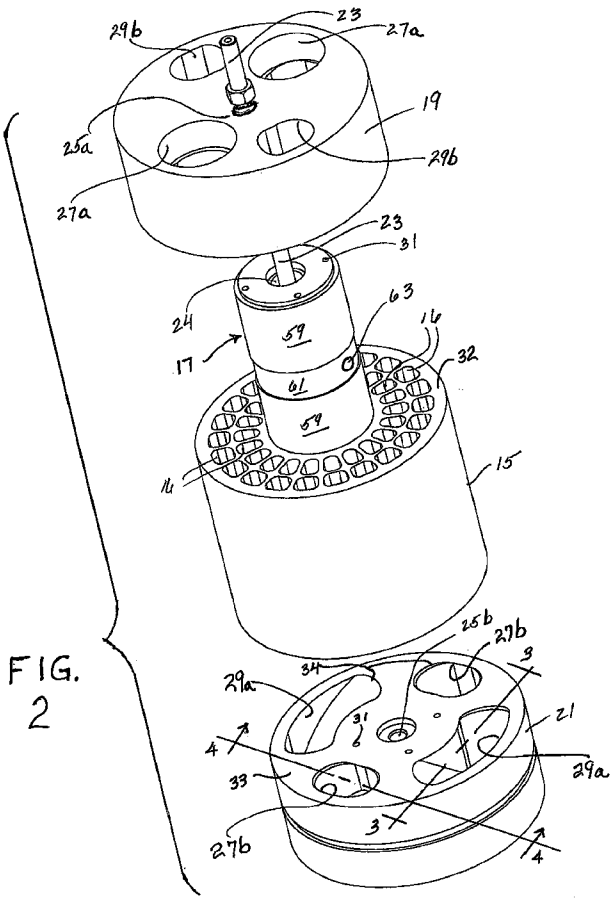


FIG. 2

(57) Abstract: A rotary pressure transfer device utilizes a multi-channel, generally cylindrical rotor (15) that revolves with its flat end faces juxtaposed with flat end surfaces of a pair of flanking end covers (19, 21) in which inlet and outlet passageways are provided. The design is such that there are only oblique ramps (65) in the passageways on the high pressure side which create directional flow of liquid to cause rotor revolution in the desired direction. Passageways (27a, 27b) on the low pressure side may be shaped so that there is essentially longitudinal flow entry and discharge of liquid between the channels and the passageways, or passageways (71) may be constructed to create directional flow that slightly retards rotor revolution in such desired direction.

WO 2009/046429 A3

GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
28 May 2009