



(51) International Patent Classification:  
*H02N 11/00* (2006.01) *H02N 2/18* (2006.01)

(21) International Application Number:  
PCT/FI2011/050769

(22) International Filing Date:  
7 September 2011 (07.09.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
20105929 7 September 2010 (07.09.2010) FI  
13/167,193 23 June 2011 (23.06.2011) US

(71) Applicants (for all designated States except US): **VTI TECHNOLOGIES OY** [FI/FI]; PL27, Myllynkivenkuja 6, FI-01621 Vantaa (FI). **TOYOTA MOTOR CORPORATION** [JP/JP]; c/o Toyota Jidosha Kabushiki Kaisha, 1, Toyota-cho, Toyota-shi, Aichi 471-8571 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KUISMA, Heikki** [FI/FI]; Hanuripolku 5 A 5, FI-00420 Helsinki (FI). **NARITA, Katsutoshi** [JP/JP]; Aichi-ken, Miyoshi-shi, Aichi (JP).

(74) Agent: **BORENIUS & Co Oy Ab**; Itämerenkatu 5, FI-00180 Helsinki (FI).

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

Published:

— with international search report (Art. 21(3))

(54) Title: ENERGY HARVESTING / TIRE PRESSURE, TEMPERATURE AND TIRE DATA TRANSMITTER

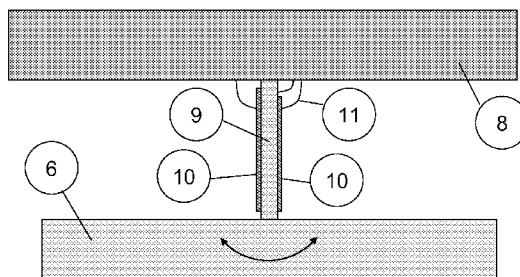


Figure 11

(57) Abstract: The invention embodies a harvester (12) to convert energy from mechanical domain to electrical domain. The harvester comprises at least one inertial body (6), at least one beam (7, 9), a support (8) to said at least one beam (7, 9) and transducer means (10, 16), wherein said at least one beam (7, 9) configures the inertial body (6) into a pendulum structure being suspended from said support (8) so that the beam (7, 9) is allowed to bend according to the kinetic state changes of the inertial body (6), and is configured to interact with at least one transducer means (10, 16) that is/are configured to produce change in the electrical state of said transducer means (10, 16) responsively to the kinetic state of the beam (7, 9). The invention also shows harvester module, matrix and a harvester system comprising at least one embodied harvester. The invention also shows a tire and a foot wear that comprises at least one harvester embodied.

