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**(71) Applicant(s):**

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**(54) Title (EN):** INTEGRATED ELECTRIC TURBINE-GENERATOR DEVICE

**(54) Title (FR):** DISPOSITIF DE GÉNÉRATEUR-TURBINE ÉLECTRIQUE INTÉGRÉ

**(57) Abstract:**

**(EN):** Device (1) for the conversion of mechanical energy into electrical power and vice versa, comprising: - first means for converting a rectilinear flow of a fluid into the rotary motion of a rotor system (2), and vice versa, - second means for converting the mechanical energy of said rotor system (2) into electrical energy and vice versa; wherein said rotor system (2) is adapted to integrate in one single element the functions of said first and second means and including: - a first outer cylinder (3), comprising permanent magnets, capable of transforming the mechanical energy of said rotor system (2) into electrical energy and vice versa; - a second intermediate cylinder adapted to convert said rectilinear flow of a fluid into the rotary movement of said rotor system and vice versa; - a third internal cylinder (5) adapted to perform the axis function (6) of the rotor system (2). The second intermediate cylinder is structured with helically wound ducts.

**(FR):** L'invention concerne un dispositif (1) pour la conversion d'énergie mécanique en énergie électrique, et inversement, lequel dispositif comprend : des premiers moyens pour convertir un écoulement rectiligne d'un fluide en un mouvement rotatif d'un système de rotor (2), et inversement, des seconds moyens pour convertir l'énergie mécanique dudit système de rotor (2) en énergie électrique, et inversement ; ledit système de rotor (2) étant apte à intégrer en un seul élément les fonctions desdits premier et second moyens, et comprenant : - un premier cylindre externe (3) comprenant des aimants permanents, aptes à transformer l'énergie mécanique dudit système de rotor (2) en énergie électrique, et inversement ; - un deuxième cylindre intermédiaire apte à convertir ledit écoulement rectiligne d'un fluide en un mouvement rotatif dudit système de rotor, et inversement ; - un troisième cylindre interne (5) apte à assurer la fonction d'axe (6) du système de rotor (2). Le deuxième cylindre intermédiaire est structuré avec des conduits enroulés de façon hélicoïdale.

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European Patent Office (EPO) : 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

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**Declarations:**

Declaration made as applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate

Declaration of inventorship (Rules 4.17(iv) and 51bis.1(a)(iv)) for the purposes of the designation of the United States of America