US 20240215449A1

(19) United States

(12) Patent Application Publication

TANAKA et al.

(10) Pub. No.: US 2024/0215449 A1

(43) Pub. Date: Jun. 27, 2024

(54) POWER-GENERATING METHOD AND POWER-GENERATING SYSTEM

(71) Applicant: **KWANSEI GAKUIN EDUCATIONAL FOUNDATION**, Hyogo (JP)

(72) Inventors: **Hirohisa TANAKA**, Hyogo (JP); **Yuki HARAYAMA**, Hyogo (JP); **Tomomi NAGATANI**, Hyogo (JP); **Shoma YAMAGUCHI**, Hyogo (JP); **Takumi ICHIKAWA**, Hyogo (JP)

(73) Assignee: **KWANSEI GAKUIN EDUCATIONAL FOUNDATION**, Hyogo (JP)

(21) Appl. No.: **18/556,050**

(22) PCT Filed: **Apr. 6, 2022**

(86) PCT No.: **PCT/JP2022/017172**

§ 371 (c)(1),
(2) Date: **Oct. 18, 2023**

(30) **Foreign Application Priority Data**

Apr. 22, 2021 (JP) 2021-072695
Aug. 5, 2021 (JP) 2021-129083

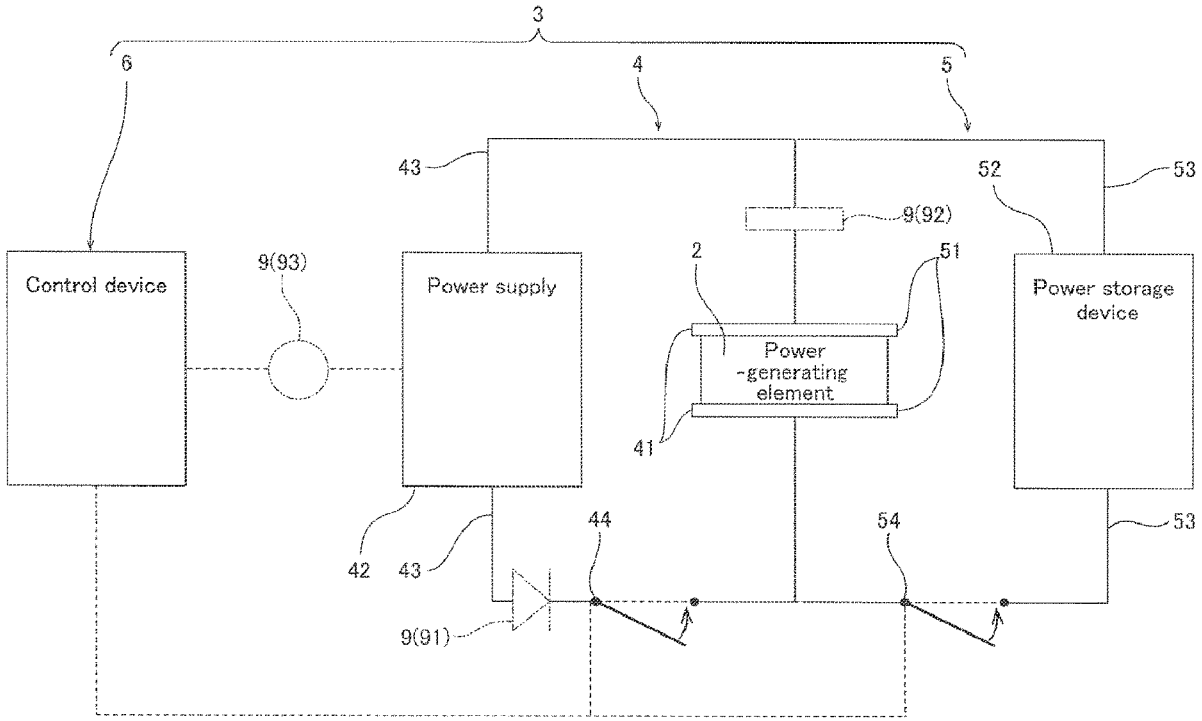
Publication Classification

(51) **Int. Cl.**

H10N 15/10	(2006.01)
C04B 35/468	(2006.01)
C04B 35/49	(2006.01)
H02N 2/18	(2006.01)
H02N 11/00	(2006.01)

(52) **U.S. Cl.**

CPC ***H10N 15/10*** (2023.02); ***C04B 35/4682*** (2013.01); ***C04B 35/49*** (2013.01); ***H02N 2/18*** (2013.01); ***H02N 11/00*** (2013.01); *C04B 2235/768* (2013.01)

(57) **ABSTRACT**

A power-generating method of generating power from a power-generating element. An electric polarization state in the power-generating element is changed by phase transition. First, an electric field is applied to the power-generating element to change a phase transition temperature of the power-generating element by an electric-field application unit for applying the electric field to the power-generating element without changing a temperature of the power-generating element. Then, the electric polarization state in the power-generating element is changed by application of the electric field and control of the application, so that the power from the power-generating element is generated.