



US009409483B2

(12) **United States Patent**
Ohtani et al.

(10) **Patent No.:** **US 9,409,483 B2**
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **FUEL CELL SYSTEM AND VEHICLE FUEL CELL SYSTEM DISCHARGING METHOD**

H01M 8/04955 (2013.01); *B60L 2240/12* (2013.01); *B60L 2240/14* (2013.01); *B60L 2240/26* (2013.01); *B60L 2240/36* (2013.01); *B60L 2240/80* (2013.01); *B60L 2250/10* (2013.01); *B60L 2250/16* (2013.01); *H01M 2250/20* (2013.01); *Y02E 60/50* (2013.01); *Y02T 10/705* (2013.01); *Y02T 10/7044* (2013.01); *Y02T 90/32* (2013.01); *Y02T 90/34* (2013.01)

(71) Applicant: **HONDA MOTOR CO., LTD.**, Tokyo (JP)

(72) Inventors: **Takeshi Ohtani**, Wako (JP); **Kazuyoshi Miyajima**, Wako (JP); **Akihiro Suzuki**, Wako (JP)

(73) Assignee: **HONDA MOTOR CO., LTD.**, Tokyo (JP)

(58) **Field of Classification Search**
CPC H01M 2250/20
See application file for complete search history.

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 230 days.

(56) **References Cited**

(21) Appl. No.: **14/049,213**

(22) Filed: **Oct. 9, 2013**

(65) **Prior Publication Data**
US 2014/0106251 A1 Apr. 17, 2014

U.S. PATENT DOCUMENTS

7,690,458 B2 4/2010 Ueda
2007/0023215 A1* 2/2007 Ueda B03B 9/06
180/167
2012/0062029 A1* 3/2012 Fukuyama B60L 3/0007
307/10.1

(30) **Foreign Application Priority Data**
Oct. 16, 2012 (JP) 2012-228861

FOREIGN PATENT DOCUMENTS

JP 2004-349110 12/2004

* cited by examiner

Primary Examiner — Stewart Fraser
Assistant Examiner — Olatunji Godo
(74) *Attorney, Agent, or Firm* — Mori & Ward, LLP

(51) **Int. Cl.**
H01M 8/04 (2016.01)
B60L 3/04 (2006.01)
B60L 1/00 (2006.01)
B60L 3/00 (2006.01)
B60L 7/14 (2006.01)
B60L 11/18 (2006.01)

(57) **ABSTRACT**

A fuel cell system mounted in a vehicle includes a fuel cell, a collision prediction device, a discharge device, and a controller. The fuel cell includes a gas channel to which a reactant gas is to be supplied to generate electricity. The collision prediction device is configured to predict probability of collision of the vehicle. The discharge device is configured to discharge the electricity from the fuel cell. The controller is configured to control the discharge device to discharge the electricity from the fuel cell in a case where the collision prediction device predicts that the probability of collision of the vehicle is higher than a predetermined probability.

(52) **U.S. Cl.**
CPC . *B60L 3/04* (2013.01); *B60L 1/003* (2013.01); *B60L 3/0007* (2013.01); *B60L 3/0015* (2013.01); *B60L 3/0053* (2013.01); *B60L 3/0069* (2013.01); *B60L 7/14* (2013.01); *B60L 11/1803* (2013.01); *B60L 11/1861* (2013.01); *B60L 11/1885* (2013.01); *B60L 11/1887* (2013.01); *B60L 11/1892* (2013.01); *H01M 8/04238* (2013.01); *H01M 8/04559* (2013.01);

13 Claims, 6 Drawing Sheets

