



US 20240213485A1

(19) **United States**

(12) **Patent Application Publication**
NOMOTO

(10) **Pub. No.: US 2024/0213485 A1**

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

(54) **ACTIVE MATERIAL SECONDARY PARTICLES, NEGATIVE ELECTRODE MIXTURE, METHOD FOR PRODUCING SAME, AND SECONDARY BATTERY**

(71) Applicant: **TOYOTA JIDOSHA KABUSHIKI KAISHA**, Toyota-shi (JP)

(72) Inventor: **Kazushige NOMOTO**, Sunto-gun (JP)

(73) Assignee: **TOYOTA JIDOSHA KABUSHIKI KAISHA**, Toyota-shi (JP)

(21) Appl. No.: **18/527,448**

(22) Filed: **Dec. 4, 2023**

(30) **Foreign Application Priority Data**

Dec. 16, 2022 (JP) 2022-201320

Publication Classification

(51) **Int. Cl.**

H01M 4/62 (2006.01)

H01M 4/134 (2006.01)

H01M 4/38 (2006.01)

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

CPC **H01M 4/623** (2013.01); **H01M 4/134** (2013.01); **H01M 4/386** (2013.01); **H01M 2004/027** (2013.01)

(57)

ABSTRACT

Disclosed is new technology for reducing the resistance of a secondary battery and improving the cycle characteristics. In a negative electrode of the secondary battery, predetermined active material secondary particles are used. The active material secondary particles of the present disclosure comprise a plurality of negative electrode active material particles and perfluoropolyether.

1

