



US 20230231101A1

(19) **United States**

(12) **Patent Application Publication**
JEONG et al.

(10) **Pub. No.: US 2023/0231101 A1**

(43) **Pub. Date: Jul. 20, 2023**

(54) **NEGATIVE ELECTRODE, METHOD OF
MANUFACTURING NEGATIVE
ELECTRODE, AND SECONDARY BATTERY
INCLUDING NEGATIVE ELECTRODE**

H01M 4/36 (2006.01)
H01M 10/052 (2006.01)

(52) **U.S. CL.**
CPC *H01M 4/0416* (2013.01); *H01M 4/0435*
(2013.01); *H01M 4/386* (2013.01); *H01M*
4/622 (2013.01); *H01M 4/364* (2013.01);
H01M 10/052 (2013.01); *H01M 4/0404*
(2013.01); *H01M 2004/021* (2013.01)

(71) Applicant: **SK ON CO., LTD.**, Seoul (KR)

(72) Inventors: **Kwang Ho JEONG**, Daejeon (KR);
Sung Do KIM, Daejeon (KR); **Jae**
Kyu JIN, Daejeon (KR)

(21) Appl. No.: **18/156,192**

(22) Filed: **Jan. 18, 2023**

(30) **Foreign Application Priority Data**

Jan. 19, 2022 (KR) 10-2022-0008082

Publication Classification

(51) **Int. Cl.**
H01M 4/04 (2006.01)
H01M 4/38 (2006.01)
H01M 4/62 (2006.01)

(57) **ABSTRACT**

A method of manufacturing a negative electrode includes styrene butadiene rubber on at least one surface of a negative electrode current collector, applying a second slurry including a negative electrode active material and a polyacrylic acid-based binder onto the first slurry, and drying and rolling the negative electrode current collector to which the first slurry and the second slurry are applied. The negative electrode active material includes a silicon-based negative electrode active material. According to the present disclosure, expansion and contraction of a silicon-based negative electrode active material during charging and discharging may be alleviated, and electrode flexibility may be improved, resulting in a significant improvement in lifespan properties of a secondary battery.

100

