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Penner et al.(10) **Pub. No.: US 2023/0230776 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **ENHANCED CYCLE LIFETIME WITH GEL
ELECTROLYTE FOR MNO₂ NANOWIRE
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(US)(21) Appl. No.: **18/077,052**(22) Filed: **Dec. 7, 2022****Related U.S. Application Data**(63) Continuation of application No. 16/426,407, filed on
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filed on May 2, 2016.**Publication Classification**(51) **Int. Cl.****H01G 11/36** (2006.01)**H01G 11/56** (2006.01)**H01G 11/24** (2006.01)**H01G 11/80** (2006.01)**H01M 12/02** (2006.01)**B82Y 30/00** (2006.01)**H01M 4/66** (2006.01)**H01M 10/0565** (2006.01)**H01G 11/86** (2006.01)**H01G 11/46** (2006.01)(52) **U.S. Cl.**CPC **H01G 11/36** (2013.01); **H01G 11/56**(2013.01); **H01G 11/24** (2013.01); **H01G****11/80** (2013.01); **H01M 12/02** (2013.01);**B82Y 30/00** (2013.01); **H01M 4/661**(2013.01); **H01M 10/0565** (2013.01); **H01G****11/86** (2013.01); **H01G 11/46** (2013.01);**H01M 2010/0495** (2013.01)

(57)

ABSTRACT

A nanowire energy storage device such as a nanowire battery or a capacitor having a cathode comprising a plurality of nanowires and an anode comprising a plurality of nanowires interlaced with the plurality of nanowires of the cathode, and embedded in a PMMA gel electrolyte.

