

JCW Patents – Electronics and Photovoltaics

9 Inventions Families 18 Patent Families 71 Patents
(As of December 16, 2022)

009 Ambient Temperature Synthesis of Anatase Titanium Dioxide (2001-07-18)

015 Metal Oxide Films

John C. Warner and Alessandra Morelli

046 [US 2003/0054207](#) Published 2003-03-20, Filed 2002-07-17

047 [WO 2003/008079](#) Published 2003-01-30, Filed 2002-07-17

048 [AU 2002/320603](#) Published 2003-01-16, Filed 2002-07-17

013 Fluoride-Free Integrated Circuit Cleaning Solution (2009-02-05)

020 Non-Fluoride Containing Composition for Removal of Polymers and Other Organic Material from a Surface

Michael B. Korzenski, Ping Jiang, John C. Warner, Ted Mendum, Michelle Lugus, Justin Whitfield, Helen van Benschoten and Makonnen Payne

059 US 61/150,216. Filed 2009-02-05. Unpublished

060 [WO 2010/091045](#) Published 2010-08-12, Filed 2010-02-03

061 [TW 2011/07464](#) Published 2011-03-01, Filed 2010-02-05

015 Low-Cost Photovoltaic System (2010-02-18)

025 Systems and Methods for Preparing a Metal Oxide-Based Anode for Dye-Sensitized Solar Cells

John C. Warner, Helen van Benschoten and Amy Cannon

072 [US 2011/0232742](#) Published 2011-09-29, Filed 2011-02-17

073 [WO 2011/103494](#) Published 2011-08-25, Filed 2011-02-18

026 Semiconductors Compositions for Dye-Sensitized Solar Cells

John C. Warner, Helen van Benschoten and Amy Cannon

074 [US 2011/0232717](#) Published 2011-09-29, Filed 2011-02-17

075 [WO 2011/103503](#) Published 2011-08-25, Filed 2011-02-18

027 Additives for Solar Cell Semiconductors

John C. Warner

076 [US 2011/0226306](#) Published 2011-09-22, Filed 2011-02-17

077 [WO 2011/103506](#) Published 2011-08-25, Filed 2011-02-18

016 Sustainable Electronic Waste Recycling System (2010-08-2)

028 Sustainable Process for Reclaiming Precious Metals and Base Metals from Electronic Waste

Michael B. Korzenski, Ping Jiang, James Norman, John C. Warner, Laura Ingalls, Dinakar Gnanamgari, Fred Strickler and Ted Mendum

078 [US 9,238,850](#) Granted 2016-01-19, Published 2013-12-19, Filed 2011-08-19

079 [WO 2012/024603](#) Published 2012-02-23, Filed 2011-08-19

080 [BR 11/2013/003854](#) Published 2016-06-07, Filed 2011-08-11

081 [CL 2013/000500](#) Published 2013-09-23, Filed 2013-02-20

082 [CN 103249849](#) Granted 2015-11-25, Published 2013-08-14, Filed 2011-08-19

083 [EP 2606158](#) Published 2013-06-26, Filed 2011-08-19

084 IN 623/KOLNP/2013 Published 2013-07-05, Filed 2013-03-06

085 [JP 6068341](#) Granted 2017-01-25, Published 2013-11-07, Filed 2011-08-19

086 [KR 2013/0099948](#) Published 2013-09-06, Filed 2011-08-19

087 [TW I558818](#) Granted 2016-11-21, Published 2012-07-16, Filed 2011-08-19

029 Sustainable Process for Reclaiming Precious Metals and Base Metals from Electronic Waste, Continuation

Michael B. Korzenski, Ping Jiang, James Norman, John C. Warner, Laura Ingalls, Dinakar Gnanamgari, Fred

Strickler and Ted Mendum

- 088 [US 2016/0122846](#) Published 2016-05-05, Filed 2016-01-12
- 089 [CN 105274338](#) Published 2016-01-27, Filed 2011-08-19
- 090 [JP 2017/110301](#) Published 2017-06-22, Filed 2016-12-22
- 091 [TW 2017/16588](#) Published 2017-05-16, Filed 2011-08-19

017 Lithium Battery Recycling (2011-06-21)

030 Method for the Recovery of Lithium Cobalt Oxide from Lithium-Ion Batteries

Sarah L. Poe, Christopher L. Paradise, Laura R. Muollo, Reshma Pal, John C. Warner and Michael B. Korzenski

- 092 [US 9,972,830](#) Granted 2018-05-15, Published 2014-10-16, Filed 2012-06-19
- 093 [WO 2012/177620](#) Published 2012-12-27, Filed 2012-06-19
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- 095 [BR 11/2013/032436](#) Published 2019-09-24, Filed 2012-06-19
- 096 [CN 10362086](#) Granted 2017-02-15, Published 2014-03-05, Filed 2012-06-19
- 097 [EP 2724413](#) Granted 2018-12-15, Published 2014-04-30, Filed 2012-06-19
- 098 IN 271/CHENP/2014 Published 2014-09-26, Filed 2014-01-13
- 099 [JP 6453077](#) Granted 2019-01-16, Published 2014-10-09, Filed 2012-06-19
- 100 JP 2018/095968 Published 2018-06-21, Filed 2018-01-09
- 101 [KR 101965465](#) Granted 2019-04-03, Published 2014-04-01, Filed 2012-06-19
- 102 MY 2013/702463 Published 2014-12-21, Filed 2012-06-19
- 103 [SG 10/2016/05021](#) Published 2016-08-20, Filed 2012-06-19
- 104 [TW I593157](#) Granted 2017-07-21, Published 2013-02-01, Filed 2012-06-20

019 Pre-Sensitized Composite Photovoltaic System (2011-09-02)

032 Dye-Sensitized Solar Cell and Corrosion Resistant Electrode Stack Therein

Lauren Plavisch, Melissa Ricci, and John C. Warner

- 106 [US 2013/0263921](#) Published 2013-10-10, Filed 2012-04-10

033 Solar Cells with a Colorant Sensitized Semiconductor Layer Prepared from a Pre-Sensitized Semiconductor Composition

John C. Warner, Michael S. Viola, Olga Barykina and Vineet Dua

- 107 [US 2013/0180587](#) Published 2013-07-18, Filed 2012-01-17

034 Dye Formulation for Fabricating Dye Sensitized Electronic Devices

John C. Warner and Michael S. Viola

- 108 [US 2013/0074935](#) Published 2013-03-28, Filed 2011-09-23

035 Protective Barriers for Electronic Devices

John C. Warner and Michael S. Viola

- 109 [US 8,581,246](#) Granted 2013-11-12, Published 2013-03-07, Filed 2011-09-02

042 Ambient Light Photovoltaics (2017-05-09)

076 Stilbene and fused stilbene derivatives as solar cell dyes

John C. Warner

- 286 [US 2021/0082632](#) Published 2021-03-18, Filed 2018-05-06
- 287 [WO 2018/208712](#) Published 2018-11-15, Filed 2018-05-08
- 288 [EP 3621957](#) Published 2020-03-18, Filed 2018-05-08

077 Solar cell Dyes for Copper Redox Based Dye Sensitized Solar Cells and Combinations Thereof

Kethinni Chittibabu, John C. Warner, Debora Martino and Rich Allen

- 289 [US 11,286,244](#) Granted 2022-03-29, Published 2020-12-17, Filed 2020-08-26
- 290 [WO 2020/014195](#) Published 2020-01-16, Filed 2019-07-09
- 291 [AU 2019/300873](#) Published 2021-01-28, Filed 2019-07-09
- 292 [CA 3106199](#) Published 2020-01-16, Filed 2019-07-09
- 293 [CN 112912073](#) Published 2021-06-04, Filed 2019-07-09
- 294 [EP 3820465](#) Published 2021-05-19, Filed 2019-07-09
- 295 [IL 280074](#) Published 2021-03-01, Filed 2021-01-10
- 296 [JP 2021/532173](#) Published 2021-11-25, Filed 2019-07-09
- 297 [KR 2021/0034611](#) Published 2021-03-30, Filed 2019-07-09

078 Solar cell Dyes for Copper Redox Based Dye Sensitized Solar Cells and Combinations Thereof, Continuation

Kethinni Chittibabu, John C. Warner, Debora Martino and Rich Allen
298 [US 2022/0235021](#) Published 2022-07-28, Filed 2022-03-25

079 Dye Sensitized Photovoltaic Cells

Kethinni G. Chittibabu and John C. Warner
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300 [WO 2020/061266](#) Published 2020-03-26, Filed 2019-09-19
301 [AU 2019/343155](#) Published 2021-01-28, Filed 2019-09-19
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305 [IL 280849](#) Published 2021-04-29, Filed 2021-02-14
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307 [KR 2021/0058861](#) Published 2021-05-24, Filed 2019-09-19
308 [TW 2020/36923](#) Published 2020-10-01, Filed 2019-09-20

044 Patterned Metal Oxide Structures (2017-06-02)

081 Methods for Producing Metal Oxide Films, Patterned Metal Oxide Surfaces, and Filtration of Volatile Organic Compounds

John C. Warner
311 [US 2020/0165730](#) Published 2020-05-28, Filed 2018-06-01
312 [WO 2018/222976](#) Published 2018-12-06, Filed 2018-06-01
313 [JP 2020/522451](#) Published 2020-07-30, Filed 2018-06-01

047 Rare Earth Metal Recovery from Electronic Waste (2018-04-09)

085 Methods of Rare Earth Metal Recovery from Electronic Waste

John C. Warner, Kethinni Chittibabu and Debora Martino
330 [US 2021/0032725](#) Published 2021-02-04, Filed 2020-10-19
331 [WO 2019/204554](#) Published 2019-10-24, Filed 2019-04-18