UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/295,132	06/03/2014	Dean Solon	S4079.10023US02

CONFIRMATION NO. 6619

97149
Maschoff Brennan
1389 Center Drive, Suite 300
Park City, UT 84098

POA ACCEPTANCE LETTER

OC000000129995231

Date Mailed: 11/26/2021

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/15/2021.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/ggasgedom/

Voltage LLC
Ex.1002-1

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/295,132	06/03/2014	Dean Solon	SHOALS-25

CONFIRMATION NO. 6619

POWER OF ATTORNEY NOTICE

57825
CARLA GANNON LAW
Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465

OC00000129995218

Date Mailed: 11/26/2021

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/15/2021.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/ggasgedom/

Voltage LLC
Ex.1002-2

Doc Code: MFEE.C.AD
Document Description: Maintenance Fee Address Change

PTO/SB/47 (12-20)
Approved for use through 09/30/2021. OMB 0651-0016
U.S. Patent and Trademark Office; U.S. Department of Commerce
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

"FEE ADDRESS" INDICATION FORM

Address to:
Mail Stop Maintenance Fee
Director of the United States
Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

-OR-

Fax to: 571-273-6500

INSTRUCTIONS: The issue fee must have been paid for application(s) listed on this form. In addition, only an address represented by a Customer Number can be established as the fee address for maintenance fee purposes (hereafter, fee address). A fee address should be established when correspondence related to maintenance fees should be mailed to a different address than the correspondence address for the application.
When to check the first box below: If you have a Customer Number to represent the fee address.
When to check the second box below: If you have no Customer Number representing the desired fee address, in which case a completed Request for Customer Number (PTO/SB/125) must be attached to this form. For more information on Customer Numbers, see section 403 of the Manual of Patent Examining Procedure (MPEP).

For the following listed application(s), please recognize as the "Fee Address" under the provisions of 37 CFR 1.363 the address associated with:

☑ Customer Number 97149

OR

☐ The attached Request for Customer Number (PTO/SB/125) form.

PATENT NUMBER (if known)	APPLICATION NUMBER
10,553,739	14/295,132

Completed by (check one):

☐ Applicant/Inventor — /Eric L. Maschoff/ (Signature)

☑ Attorney or agent of record — 36,596 (Reg. No.) — Eric L. Maschoff/ (Typed or printed name)

☐ Assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) (Form PTO/SB/96) is enclosed or was filed on _____ (Date)

(435) 252-1360 (Requester's telephone number)

November 15, 2021 (Date)

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. If the assignee is a juristic entity, this form must be signed by a patent practitioner (attorney or agent) of record. Submit multiple forms if more than one signature is required (see below*).

☑ *Total of 1 PTO/SB/47 forms are submitted

This collection of information is required by 37 CFR 1.363. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) a change in fee address. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 5 minutes to complete, including gathering, preparing, and submitting the completed form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND COMPLETED FORMS TO THE CHIEF INFORMATION OFFICER ADDRESS. INSTEAD, SEND COMPLETED FORMS TO: Mail Stop Maintenance fee, Director of the United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing this form, please call 1-800-PTO-9199 and then select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	44283567
Application Number:	14295132
International Application Number:	
Confirmation Number:	6619
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Customer Number:	57825
Filer:	Eric L. Maschoff/Anika Corwell
Filer Authorized By:	Eric L. Maschoff
Attorney Docket Number:	SHOALS-25
Receipt Date:	15-NOV-2021
Filing Date:	03-JUN-2014
Time Stamp:	15:42:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	2021-11-15_POA_S4079-10023US02.pdf	127668 1cb6ca5df332b29ae61e4d2d07ecee61a86a15be	no	2

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	2021-11-15_373c_S4079-10023US02.pdf	119726 671577b2e60016ba6d90215a70bffd184d542d52	no	3
Warnings:					
Information:					
3	Maintenance Fee Address Change	2021-11-15_Address-Form_S4079-10023US02.pdf	212967 8ebe0ff307e9d49b4a927b9db220b396b1375599	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	460361	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B or equivalent) to identify the application to which the Power of Attorney directed, in accordance with 37 CFR 1.5. If the Power of Attorney by Applicant form is not accompanied by this transmittal form or an equivalent, the Power of Attorney will not be recognized in the application.

Application Number	14/295,132
Filing Date	June 3, 2014
First Named Inventor	Dean Solon
Title	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
Art Unit	2847
Examiner Name	Steven T. Sawyer
Attorney Docket Number	S4079.10023US02

SIGNATURE of Applicant or Patent Practitioner			
Signature	/Eric L. Maschoff/	**Date**	November 15, 2021
Name	Eric L. Maschoff	**Telephone**	(435) 252-1360
Registration Number	36,596		

MASCHOFF BRENNAN, PLLC
1389 Center Drive, SUITE 300
PARK CITY, UTAH 84098, USA

POWER OF ATTORNEY BY APPLICANT

[Assignee, Legal Representative or Person with Proprietary Interest]

I hereby revoke all previous powers of attorney given in the application identified in the attached Transmittal for Power of Attorney form.

■ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter:

97149

Please recognize or change the correspondence address for the above-identified patent to:

■ The address associated with the above-mentioned Customer Number.

I am the Applicant:

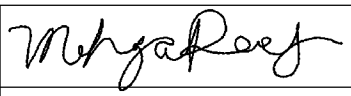
☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor

☐ Person Who Otherwise Shows Sufficient *Proprietary* Interest (*e.g.*, a petition under 37 CFR 1.46 (b)(2) was granted in the application or is concurrently being filed with this document)

SIGNATURE of Applicant for Patent

The individual whose signature and title is supplied below is authorized to act on behalf of the Applicant

Signature		Date	August 25, 2021
Name	Mehgan Peetz	Telephone	6153887696
Company	SHOALS TECHNOLOGIES GROUP, LLC	Title	CLO

NOTE: Signature - This form must be signed by the applicant or applicant's representative in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms for more than one signature, see below*.

*Total of 1 forms are submitted.

MASCHOFF BRENNAN, PLLC
1389 Center Drive, SUITE 300
PARK CITY, UTAH 84098, USA

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: SHOALS TECHNOLOGIES GROUP, LLC

Application No./Patent No.: 14/295,132 Filed/Issue Date: June 3, 2014

Titled: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE

SHOALS TECHNOLOGIES GROUP, LLC, a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Inventor To: SHOALS TECHNOLOGIES GROUP, LLC

   The document was recorded in the United States Patent and Trademark Office at

   Reel 033074, Frame 0221, or for which a copy thereof is attached.

2. From: _____ To: _____

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Eric L. Maschoff/	November 15, 2021
Signature	Date
Eric L. Maschoff	36,596
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	02/04/2020	10553739	SHOALS-25	6619

57825 7590 01/15/2020

CARLA GANNON LAW
Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 209 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Dean Solon, Gallatin, TN;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

Voltage LLC
Ex.1002-12

PART B – FEE(S) TRANSMITTAL

Complete and send this form, together with the applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22314-1450
or Fax **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note Use Block 1 for any change of address)

CARLA GANNON LAW
Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, EFS-Web transmitted, or facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's Name)
(S-signature)
(Date)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

TITLE OF INVENTION:

APPLN: TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	12/30/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS

1. Change of correspondence address or indication of "Fee Address" (37CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered attorney or agent. If no name is listed, no name will be printed

1. CARLA GANNON LAW
2.
3.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)
PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

1a. NAME OF ASSIGNEE: SHOALS TECHNOLOGIES GROUP, LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): PORTLAND, TENNESSEE

Please check the appropriate assignee categories (will not be printed on the patent): ☐ Individual ☑ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☑ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies

4b. Payment of Fees(s): **(Please first reapply and previously paid fee shown above)**
☐ A check is enclosed
☑ Payment be credit card. Form PTO-2038 is attached
☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number (enclose an extra copy of this form)

5. Change of Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

☐ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

☐ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Carla L. Gannon/ Date 12/30/2019

Typed or printed name Carla L. Gannon Registration No. 56358

Voltage LLC
Ex.1002-13

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	14295132
Filing Date:	03-Jun-2014
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Filer:	Carla L. Gannon/Donna Braam
Attorney Docket Number:	SHOALS-25

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	500	500

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**500**

Electronic Acknowledgement Receipt

EFS ID:	38160399
Application Number:	14295132
International Application Number:	
Confirmation Number:	6619
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Customer Number:	57825
Filer:	Carla L. Gannon/Donna Braam
Filer Authorized By:	Carla L. Gannon
Attorney Docket Number:	SHOALS-25
Receipt Date:	30-DEC-2019
Filing Date:	03-JUN-2014
Time Stamp:	12:34:11
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$500
RAM confirmation Number	E2019BTC35158074
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	IssueFeeTransmittal_SHOALS-25.pdf	122587 d894316e97276e681adae9082dd21c1aa160f2ae	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	29962 e463ae10b59d25b7c95e59ca0889883479b8db6c	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	152549		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

57825 7590 09/30/2019

CARLA GANNON LAW
Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465

EXAMINER
SAWYER, STEVEN T

ART UNIT	PAPER NUMBER
2847	

DATE MAILED: 09/30/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

TITLE OF INVENTION: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	12/30/2019

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

Voltage LLC
Ex.1002-19

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

57825 7590 09/30/2019

CARLA GANNON LAW
Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

TITLE OF INVENTION: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	12/30/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
SAWYER, STEVEN T	2847	174-07200A

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Voltage LLC
Ex.1002-20

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

57825 7590 09/30/2019

CARLA GANNON LAW
Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465

EXAMINER	
SAWYER, STEVEN T	

ART UNIT	PAPER NUMBER
2847	

DATE MAILED: 09/30/2019

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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Ex.1002-21

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Voltage LLC
Ex.1002-22

Notice of Allowability	Application No. 14/295,132	Applicant(s) Solon, Dean	
	Examiner STEVEN T SAWYER	Art Unit 2847	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 5/21/2019.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-18 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☑ Other Claim Proposal.

/STEVEN T SAWYER/
Primary Examiner, Art Unit 2847

Voltage LLC
Ex.1002-23

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Election/Restrictions

Independent claim 1 is allowable. The restriction requirement, as set forth in the Office action mailed on 5/18/2016, has been reconsidered in view of the allowability of claims to the elected invention pursuant to MPEP § 821.04(a). **The restriction requirement is hereby withdrawn as to any claim that requires all the limitations of an allowable claim.** Specifically, the restriction requirement between the in line assembly for a solar installation (Group I) and the method of configuring a solar installation (Group II) is withdrawn. Claims 15-18, directed to a method of configuring a solar installation are no longer withdrawn from consideration because the claim(s) requires all the limitations of an allowable claim.

In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See In re Ziegler, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in an interview with Carla Gannon on 9/24/2019.

FOR THE CLAIMS:

10. (**Currently Amended**) A photovoltaic wire harness including:

a. A trunk wire having a plurality of branch wires extending there from in pairs, said branch wires and said trunk wire forming angles having vertices of approximately 90 degrees; and

b. A plurality of fuse assemblies engaged only with said branch wires in a ratio of one fuse assembly per branch wire**, said fuse assemblies each including:**

i. A photovoltaic fuse having a solid outer surface including a first end, a second end and a middle section there between, said solid outer surface defining an outline;

ii. An undermold surrounding and sealing said fuse, said undermold defining an outer surface outline, wherein the outer surface outline of said undermold is substantially parallel relative to the outline of said solid outer surface;

iii. An overmold defining an outline and surrounding said undermold, said undermold and said overmold each constructed of a single unit and each constructed of dissimilar materials, wherein the outline of said overmold is substantially parallel relative to the outline of said undermold; and

iv. A first photovoltaic connector engaged with said first end, wherein said assembly provides electrical insulation.

11. **(Currently Amended)** The photovoltaic wire harness of claim 10 wherein said fuse assemblies each **further** include ~~**one or two connectors**~~ **a second photovoltaic connector**.

12. **(Currently Amended)** The photovoltaic wire assembly of claim 10 wherein said fuse assemblies each include a pair selected from the group consisting of one male type **said first photovoltaic** connector and one female type connector; **one female type said first photovoltaic connector and one male type connector;** one male type **said first photovoltaic** connector and one wire; and one female type **said first photovoltaic** connector and one wire.

15. (**Currently Amended**) A method of configuring a solar installation including the steps of:

a. Engaging the trunk of a wire harness with a combiner box wherein said combiner box lacks fuses and circuit breakers; and

b. Engaging each terminal branch of said wire harness with one solar panel wherein each terminal branch includes exactly one in line fuse assembly **each of said in line fuse assemblies including:**

i. A photovoltaic fuse having a solid outer surface including a first end, a second end and a middle section there between, said solid outer surface defining an outline;

ii. An undermold surrounding and sealing said fuse, said undermold defining an outer surface outline, wherein the outer surface outline of said undermold is substantially parallel relative to the outline of said solid outer surface;

iii. An overmold defining an outline and surrounding said undermold, said undermold and said overmold each constructed of a single unit and each constructed of dissimilar materials, wherein the outline of said overmold is substantially parallel relative to the outline of said undermold; and

iv. A first photovoltaic connector engaged with said first end, wherein said assembly provides electrical insulation.

16. **(Currently Amended)** The method of claim 15 wherein said step of engaging each terminal branch with one solar panel includes the step of ~~**uniting a male connector with a female**~~ **connecting to said first photovoltaic** connector.

17. **(Currently Amended)** The method of claim 16 wherein said step of ~~**uniting a male connector with a female**~~ **connecting to said first photovoltaic** connector includes the step of ~~**uniting**~~ **connecting to** a male **said first photovoltaic** connector ~~**integrated with said in line fuse assembly**~~.

18. **(Currently Amended)** The method of claim 16 wherein said step of ~~**uniting a male connector with a female**~~ **connecting to said first photovoltaic** connector includes the step of ~~**uniting**~~ **connecting to** a female **said first photovoltaic** connector ~~**integrated with said in line fuse assembly**~~.

Allowable Subject Matter

Claims 1-18 are allowed.

The following is an examiner's statement of reasons for allowance of claims 1, 10 and 15:

The prior art does not teach or suggest a photovoltaic fuse having an undermold surrounding and sealing said fuse, wherein an outer surface outline of the undermold is substantially parallel relative to the outline of the solid outer surface of the fuse; an overmold defining an outline and surrounding said undermold, the undermold and the overmold each constructed of dissimilar materials, wherein the outline of the overmold is substantially parallel relative to the outline of the undermold, in combination with all other features claimed.

Regarding claims 2-9, 11-14 and 16-18, these claims are allowed based on their dependence on the allowable independent claims 1, 10 and 15 discussed above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

E. W. Breisch et al. (US Patent 2700085) discloses an electrical fuse device.

Knapp (US Patent 5726851) discloses a coaxial cable fuse apparatus.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN T SAWYER whose telephone number is (571)270-5469. The examiner can normally be reached on M-F 8:30 am - 5pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thompson can be reached on 5712722342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEVEN T SAWYER/
Primary Examiner, Art Unit 2847

Notice of References Cited	Application/Control No. 14/295,132	Applicant(s)/Patent Under Reexamination Solon, Dean	
	Examiner STEVEN T SAWYER	Art Unit 2847	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2700085-A	01-1955	BREISCH EDGAR W	H01H85/201	337/201
*	B	US-5726851-A	03-1998	Knapp; Walter	H01H85/041	337/159
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Voltage LLC
Ex.1002-30

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/295,132	Solon, Dean
	Examiner	Art Unit
	STEVEN T SAWYER	2847

CPC - Searched*		
Symbol	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc.	09/24/2019	ss
H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	09/24/2019	ss

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
439	620.28 (updated)	09/24/2019	ss
337	227, 228 (updated)	09/24/2019	ss

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc., H01L31/0504. cpc., H01B7/0045.cpc., H01L31/18.cpc. (with text) (updated)	09/24/2019	ss
Updated Inventor name search	09/24/2019	ss

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	Interference search attached	09/24/2019	ss

/STEVEN T SAWYER/ Primary Examiner.Art Unit 2847	

Voltage LLC
Ex.1002-31

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/295,132	Solon, Dean
	Examiner	**Art Unit**
	STEVEN T SAWYER	2847

CPC							
Symbol						**Type**	**Version**
H01L	/	31	/	0504		F	2013-01-01
H01L	/	31	/	18		I	2013-01-01
H01B	/	7	/	0045		I	2013-01-01
H01H	/	85	/	044		I	2013-01-01
H01H	/	85	/	042		I	2013-01-01

CPC Combination Sets								
Symbol						**Type**	**Set**	**Ranking**	**Version**
	/		/						

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	18	
/STEVEN T SAWYER/ Primary Examiner, Art Unit 2847	24 September 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7, 9

U.S. Patent and Trademark Office — Part of Paper No.: 20190924

Voltage LLC
Ex.1002-32

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/295,132	Solon, Dean
	Examiner	**Art Unit**
	STEVEN T SAWYER	2847

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H01H	/	85	/	04

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 18	
/STEVEN T SAWYER/ Primary Examiner, Art Unit 2847 (Primary Examiner) 24 September 2019 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 7, 9

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/295,132	Solon, Dean
	Examiner	**Art Unit**
	STEVEN T SAWYER	2847

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/STEVEN T SAWYER/ Primary Examiner, Art Unit 2847	24 September 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	7, 9

U.S. Patent and Trademark Office — Part of Paper No.: 20190924

Voltage LLC
Ex.1002-34

From:	Carla Gannon
To:	Sawyer, Steven
Cc:	"Donna Braam"
Subject:	RE: Update re: Claims for Examiner"s Amendment for Rejoinder - 14/295,132 (SHOALS-25)
Date:	Tuesday, September 24, 2019 11:33:11 AM

Examiner Sawyer – proposed claims for Examiner's Amendment are below. Had to make some amendments based on antecedent basis and so forth, but scope of claims the same and no new matter introduced.

Sure appreciate your help with this case. Don't hesitate to reach out if I can do anything.

Kind Regards,
Carla

Listing of the Claims

1. An in line assembly for a solar installation including:

   a. A photovoltaic fuse having a solid outer surface including a first end, a second end and a middle section there between, said solid outer surface defining an outline;

   b. An undermold surrounding and sealing said fuse, said undermold defining an outer surface outline, wherein the outer surface outline of said undermold is substantially parallel relative to the outline of said solid outer surface;

   c. An overmold defining an outline and surrounding said undermold, said undermold and said overmold each constructed of a single unit and each constructed of dissimilar materials, wherein the outline of said overmold is substantially parallel relative to the outline of said undermold; and

   d. A first photovoltaic connector engaged with said first end, wherein said assembly provides electrical insulation.

2. The assembly of claim 1 further including a second photovoltaic connector engaged with said second end.

3. The assembly of claim 2 wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

4. The assembly of claim 1 wherein said first and second connectors are locking type connectors.

5. The assembly of claim 4 further comprising a tool for unlocking said

connectors.

6. The assembly of claim 1 wherein said undermold is a modified polyphenylene ether plastic.

7. The assembly of claim 1 wherein said overmold is a thermoplastic elastomer.

8. The assembly of claim 6 wherein said fuse is rated at 2-30 amps.

9. The assembly of claim 8 wherein said fuse is rated at 600-2000V.

10. (**Currently Amended**) A photovoltaic wire harness including:

    e. A trunk wire having a plurality of branch wires extending there from in pairs, said branch wires and said trunk wire forming angles having vertices of approximately 90 degrees; and

    f. A plurality of fuse assemblies engaged only with said branch wires in a ratio of one fuse assembly per branch wire**, said fuse assemblies each including:**.

        i. **A photovoltaic fuse having a solid outer surface including a first end, a second end and a middle section there between, said solid outer surface defining an outline;**

        ii. **An undermold surrounding and sealing said fuse, said undermold defining an outer surface outline, wherein the outer surface outline of said undermold is substantially parallel relative to the outline of said solid outer surface;**

        iii. **An overmold defining an outline and surrounding said undermold, said undermold and said overmold each constructed of a single unit and each constructed of dissimilar materials, wherein the outline of said overmold is substantially parallel relative to the outline of said undermold; and**

        iv. **A first photovoltaic connector engaged with said first end, wherein said assembly provides electrical insulation**.

11. **(Currently Amended)** The photovoltaic wire harness of claim 10 wherein said fuse assemblies each **further** include ~~**one or two connectors**~~ **a second photovoltaic connector**.

12. **(Currently Amended)** The photovoltaic wire assembly of claim 10 wherein said fuse assemblies each include a pair selected from the group consisting of one male type **said first photovoltaic** connector and one female type connector; **one female type said first photovoltaic connector and one male type connector;** one male type **said first photovoltaic** connector and one wire; and one female type **said first photovoltaic** connector and one wire.

13. The photovoltaic wire assembly of claim 10 wherein said angles are surrounded by an encasement.

14. The photovoltaic wire assembly of claim 13 wherein said encasement defines tie-downs that span between adjacent protrusions.

15. (**Currently Amended**) A method of configuring a solar installation including the steps of:

    g. Engaging the trunk of a wire harness with a combiner box wherein said combiner box lacks fuses and circuit breakers; and

    h. Engaging each terminal branch of said wire harness with one solar panel wherein each terminal branch includes exactly one in line fuse assembly **each of said in line fuse assemblies including:**

        v. **A photovoltaic fuse having a solid outer surface including a first end, a second end and a middle section there between, said solid outer surface defining an outline;**

        vi. **An undermold surrounding and sealing said fuse, said undermold defining an outer surface outline, wherein the outer surface outline of said undermold is substantially parallel relative to the outline of said solid outer surface;**

        vii. **An overmold defining an outline and surrounding said undermold, said undermold and said overmold each constructed of a single unit and each constructed of dissimilar materials, wherein the outline of said overmold is substantially parallel relative to the outline of said undermold; and**

        viii. **A first photovoltaic connector engaged with said first end, wherein said assembly provides electrical insulation**.

16. **(Currently Amended)** The method of claim 15 wherein said step of engaging each terminal branch with one solar panel includes the step of ~~**uniting a male connector with a female**~~ **connecting to said first photovoltaic** connector.

17. **(Currently Amended)** The method of claim 16 wherein said step of ~~**uniting a male connector with a female**~~ **connecting to said first photovoltaic** connector includes the step of ~~**uniting**~~ **connecting to** a male **said first photovoltaic** connector ~~**integrated with said in line fuse assembly**~~.

18. **(Currently Amended)** The method of claim 16 wherein said step of ~~**uniting a male connector with a female**~~ **connecting to said first photovoltaic** connector includes the step of ~~**uniting**~~ **connecting to** a female **said first photovoltaic** connector ~~**integrated with said in line fuse assembly**~~.

From: Carla Gannon [mailto:cgannon@carlagannonlaw.com]
Sent: Friday, September 20, 2019 1:52 PM
To: 'steven.sawyer@uspto.gov' <steven.sawyer@uspto.gov>
Subject: Update re: Claims for Examiner's Amendment for Rejoinder - 14/295,132 (SHOALS-25)

Hi Examiner Sawyer,

I amended the withdrawn claims and sent them to the client.

I will be in touch with you on Monday to ***hopefully*** confirm that they can be entered.

Just wanted to let you know since yesterday on the phone I said I'd have them to you today, and obviously that isn't the case.

So grateful for your help in wrapping up this case.

-Carla

CARLA GANNON LAW
PATENTS • TRADEMARKS • COPYRIGHTS
8903 E. OAK ISLAND DR., SUITE 9, OAK ISLAND, NC 28465
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Bibliographic Data

Application No: 14/295,132

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /STEVEN T SAWYER/ Examiner's Signature | Initials

Title: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
06/03/2014	174	2847	SHOALS-25
RULE			

APPLICANTS

INVENTORS

Dean Solon Gallatin, TN, UNITED STATES

CONTINUING DATA

This application has PRO of 61830284 06/03/2013

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

06/12/2014

** SMALL ENTITY **

STATE OR COUNTRY

UNITED STATES

ADDRESS

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Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465
UNITED STATES

FILING FEE RECEIVED

$730

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L20	796	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT	ADJ	OFF	2019/09/24 15:01
L21	8509	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT	ADJ	OFF	2019/09/24 15:01
L22	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2019/09/24 15:02
L23	9587	22 or 21 or 20	US-PGPUB; USPAT	ADJ	OFF	2019/09/24 15:06
L24	10	23 and fuse and elastomer and (mold or overmold or undermold)	US-PGPUB; USPAT	ADJ	OFF	2019/09/24 15:07
L25	99	23 and fuse and (mold or overmold or undermold)	US-PGPUB; USPAT	ADJ	OFF	2019/09/24 15:08
L26	10	("4135175" | "4920327" | "5363082").PN. OR ("5617069").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2019/09/24 15:13
L27	28	((("SOLON") near3 ("Dean"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	ADJ	OFF	2019/09/24 15:17
S1	3	photovoltaic fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 10:48
S2	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 12:22
S3	1	(13/151984).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:37
S4	14	("2046221" | "3356806" | "3518600" | "3778741" | "4734059" | "4909761" | "5018991" | "5648749" | "5888098").PN. OR ("8454390").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:37
S5	26	("20050128045" | "20120161919" | "2700085" | "3356806" | "3465280" |	US-PGPUB;	ADJ	OFF	2016/10/04 12:38

		"3551869" | "3778741" | "3843050" | "4060303" | "4333701" | "4391485" | "4531806" | "4734059" | "4909761" | "5444428" | "7377813" | "7445509" | "7777508" | "7988493" | "8098126" | "8342885" | "8454390").PN. OR ("9325122").URPN.	USPAT; USOCR			
S6	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S7	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S8	23	("4202589" | "4390225" | "4448476" | "6483417" | "2187427" | "3828291" | "4909761" | "3243551" | "7639113" | "2758295" | "4504815" | "6717505" | "20090184796" | "2614190" | "20120309232" | "4762509" | "6587028" | "2207837").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:42
S9	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:03
S10	1	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:11
S11	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:19
S12	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:19
S13	2063	fuse and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S14	34	fuse and thermoplastic elastomer and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S15	0	(13/245432).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:29
S16	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S17	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S18	9	("3900241" | "5168124" | "20080194154" | "20070107767" | "3900241" | "20060049358" | "7342171" | "7485982" | "20080099062" | "6307144").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S19	2628	fuse and (different with material) and	US-	ADJ	OFF	2016/10/04

		elastomer	PGPUB; USPAT; USOCR			13:39
S20	743	fuse and (different with material) and thermoplastic elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:40
S21	239	S12 and material	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:42
S22	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S23	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S24	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:13
S25	24	("4023071" | "4188561" | "4199736" | "4335415" | "4359764" | "4633359" | "5224012" | "5278720" | "5384679" | "5508873").PN. OR ("5726851").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:27
S26	2	("3243551").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:42
S27	2	("2839636").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:46
S28	2	("2049309").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:49
S29	184	fuse and polyphenylene ether and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:57
S30	0	fuse and photovlotaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:02
S31	2971	fuse and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:02
S32	539034	"361".clas. or "136".clas. or "174".clas. or "439".clas. or "337".clas.	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2016/10/04 15:03

			EPO; JPO			
S33	707	S32 and S31	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S34	602	S33 not S2	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S35	0	fuse holder and polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:30
S36	9	fuse holder and polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:31
S37	2	("2316036").URPN.	USPAT	ADJ	OFF	2016/10/04 15:57
S38	53	("1028328" | "1036510" | "1099589" | "1508839" | "1511838" | "1889585" | "1927905" | "1971809" | "20020113684" | "20070236323" | "2316036" | "2524550" | "2838639" | "2873327" | "2877321" | "2946974" | "3205467" | "3447240" | "3562162" | "3838374" | "3870863" | "3912903" | "4084145" | "4237440" | "4563809" | "4680567" | "4929921" | "5003280" | "5361058" | "5418516" | "5903208" | "6664886" | "6774760" | "7645645" | "RE23219").PN. OR ("8629750").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 15:57
S39	1	(13/208149).APP.	US-PGPUB; USOCR	ADJ	OFF	2016/10/04 16:08
S40	1	(13/208149).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 16:11
S41	27	("20130037294" | "3356806" | "3417359" | "3518600" | "3629808" | "3753192" | "4734059" | "4759730" | "4826454" | "4909761" | "5018991" | "5088683" | "5335160" | "5427542" | "5648749" | "5888098" | "5993246" | "D326845" | "RE40228").PN. OR ("8517768").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 16:12
S42	1	("20130037294").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 07:39
S43	26	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$).did. or (US-5168124-$ or US-	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 07:49

		5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.				
S44	7	S43 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:50
S45	13	("5726851" | "4909761" | "8454390" | "5018991" | "5648749" | "5888098" | "20100207716" | "20050141164" | "20120295456" | "5137478" | "4734059" | "5714923" | "3848215").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S46	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S47	26	S43 and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S48	4	S43 and S46	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:53
S49	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 08:05
S50	8	polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:25
S51	21694	polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S52	141	S51 and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S53	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S54	3	polyphenylene ether and S43	US-PGPUB;	ADJ	OFF	2016/10/05 08:28

			USPAT; USOCR; EPO; JPO			
S55	18	PPE and fuse with holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S56	18	PPE and (fuse with holder)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S57	9	PPE and fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S58	5	S43 and amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:40
S59	11	S43 and (rated or rating)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:42
S60	4	polyphenylene ether with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:55
S61	0	polyphenylene ether with fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:56
S62	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:03
S63	9151	fuse with voltage with current	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S64	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S65	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S66	426	H01H85/044.cpc.	US-PGPUB; USPAT;	ADJ	OFF	2016/10/05 09:26

			USOCR; EPO; JPO			
S67	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S68	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S69	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S70	1380	S64 or S65 or S66 or S67 or S68 or S69	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S71	184	S70 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:27
S72	95	fuse with voltage with amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S73	6	S72 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S74	7	female and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:39
S75	51	photovoltaic and fuse and (connector with lock$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:23
S76	27	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 10:24

		2049309-$).did.				
S77	9	S76 and lock$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:24
S78	7	(("20120309232") or ("20130037294") or ("5316502") or ("20110104925") or ("20110232963") or ("3296399")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:04
S79	6337	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S80	10	S79 and fuse and elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S81	170	S79 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S82	20	((Dean) near2 (Solon)).INV.	US-PGPUB; USPAT	ADJ	OFF	2016/10/05 13:37
S83	0	("2010302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S84	1	("20100302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S85	49	(("8937249") or ("20110209741") or ("8690595") or ("20130344727") or ("5309625") or ("5755579") or ("4280748") or ("4850884") or ("4884050") or ("4906195") or ("4940419") or ("4943241") or ("4950168") or ("4963099") or ("5011417") or ("5057026") or ("5327644") or ("5403193") or ("5489885") or ("5662496") or ("5697813") or ("5722863") or ("5735713") or ("5739739") or ("5749739") or ("5785532") or ("5877944") or ("5883560") or ("5897385") or ("5928004") or ("6007350") or ("6011319") or ("6109973") or ("6144539") or ("6172302") or ("6186633") or ("6224397") or ("6224397") or ("6252477") or ("6262537") or ("6411190") or ("6430054") or ("6600236") or ("6712623") or ("6719572") or ("6791207") or ("6796808") or ("6851956") or ("7021962") or ("7132761")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:18

S86	1	("14700742").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:41
S87	0	("14295132").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:21
S88	3	(("20120309232") or ("20130037294") or ("5316502")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:22
S89	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:23
S90	7658	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:07
S91	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/04 15:08
S92	8198	S91 or S90	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:09
S93	30	S92 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:09
S94	39	("1175103" | "1579596" | "2414865" | "2872501" | "3422213" | "3601737" | "3766307" | "3766509" | "4280748" | "4308515" | "4333701" | "4365226" | "4391485" | "4679877" | "4734059" | "4831353" | "4880943" | "4958426" | "5018991" | "5162773" | "5241134" | "5298877" | "5304740" | "5329065" | "5345210" | "5391836" | "5493069" | "5591366").PN. OR ("6046665").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/04 15:11
S95	4	("1175103").URPN.	USPAT	ADJ	OFF	2017/02/04 15:14
S96	20	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/06 07:50
S97	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 13:40
S98	2	fuse same overmold same undermold	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2017/08/30 13:47

			EPO; JPO			
S99	25	overmold$4 same undermold$4 and (water or moisture)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:48
S100	2164	(second with overmold$4) and (water or moisture)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:49
S101	89	(second with overmold$4) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:50
S102	5	(second overmold or second overmolding) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:52
S103	9	("20100139733" | "20110104925" | "20110232963" | "20120309232" | "20130037294" | "20130077249" | "3296399" | "5316502").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:58
S104	2	(("20100139733") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 15:01
S105	1	("20110232963").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:01
S106	8165	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:06
S107	1102	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:06
S108	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:06
S109	9807	S108 or S107 or S106	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:08
S110	2	S109 and overmold and fuse and solar	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S111	2	S109 and overmold and fuse	US-	ADJ	OFF	2017/08/30

			PGPUB; USPAT; USOCR; EPO; JPO			16:09
S112	391	S109 and mold$4 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S113	49	S109 and mold$4 and fuse and solar	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S114	23	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/08/30 16:10
S115	640	(("20170214234") or ("8113890") or ("20120085040") or ("20110275232") or ("20090318004") or ("7850476") or ("20160072431") or ("20100105238") or ("20150162870") or ("8907230") or ("20110147076") or ("20090178701") or ("20100139733") or ("20130056047") or ("7445508") or ("20160142008") or ("7387537") or ("20080160819") or ("20080160804") or ("20130104982") or ("6307144") or ("20130043055") or ("20080006321") or ("5232518") or ("7824191") or ("20120279150") or ("8695291") or ("20120031473") or ("20130050956") or ("6498289") or ("20130077249") or ("6201180") or ("20120031472") or ("20070157963") or ("8196360") or ("20100078058") or ("5280133") or ("20130087197") or ("20120186622") or ("20020129849") or ("8796536") or ("8809699") or ("6730841") or ("20120227783") or ("9653634") or ("9112080") or ("9634606") or ("20150000727") or ("9466961") or ("20140352998") or ("20130133721") or ("6576830") or ("8656661") or ("20020134421") or ("20160027944") or ("20080110488") or ("20110114158") or ("20110253192") or ("20130212959") or ("20130081338") or ("20100180523") or ("20110017281") or ("20120023842") or ("7918694") or ("20090120484") or ("20140113500") or ("4310211") or ("20080149170") or ("20090255573") or ("5951785") or ("8911264") or ("9437985") or ("8671630") or ("8604342") or ("20150140849") or ("8937249") or ("8227942") or ("20100065107") or ("20140284101") or ("20080302408") or ("20040147172") or ("20120104872") or ("7442077") or ("20090078306") or ("4636577") or	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:11

		("6344612") or ("8779623") or ("9647159") or ("20050032416") or ("20110220187") or ("20110140528") or ("20120132249") or ("8454390") or ("8013237") or ("5590495") or ("8207637") or ("20120152349") or ("20120048349") or ("20110011642") or ("8137115") or ("20120071025") or ("20120309232") or ("20140041935") or ("20170019061") or ("20140041934") or ("9130096") or ("6242685") or ("4233085") or ("20050133082") or ("20060042680") or ("20080302031") or ("7642449") or ("8097818") or ("20120240978") or ("20100018569") or ("20110168238") or ("20110084556") or ("20110308833") or ("20080236886") or ("20080113567") or ("20110056535") or ("20110209741") or ("20140034111") or ("7291036") or ("8336264") or ("8530737") or ("20030070368") or ("20110283635") or ("20110047903")).PN. or (("8209920") or ("20160344334") or ("6672018") or ("20080302409") or ("8273981") or ("20050061360") or ("8450601") or ("9225286") or ("20130263909") or ("5830779") or ("20090126782") or ("7963813") or ("20110195585") or ("8128439") or ("9413286") or ("8468757") or ("6093884") or ("20120317901") or ("20080163918") or ("8227684") or ("20110210085") or ("5513075") or ("20080110487") or ("6331671") or ("20100282294") or ("9391223") or ("9401676") or ("20090095339") or ("5059296") or ("20080110490") or ("20080110492") or ("20140000709") or ("20160065119") or ("6121542") or ("20130340811") or ("8943765") or ("20150194557") or ("9263986") or ("20160118936") or ("20160149539") or ("20140144489") or ("7655859") or ("20070251567") or ("20100031996") or ("20150222225") or ("20170201205") or ("20050022859") or ("7900407") or ("20050072456") or ("9010041") or ("6928775") or ("20120013191") or ("20110168230") or ("20070084504") or ("20110272061") or ("20130340358") or ("20130000694") or ("8523609") or ("20130263910") or ("20100282290") or ("20130008482") or ("20120312346") or ("8656659") or ("8632358") or ("20110197524") or ("20140246074") or ("8434276") or ("20130000230") or ("5252141") or ("20120270450") or ("20150263668") or ("20140000676") or ("9130091") or ("5112408") or ("6469242") or ("6960716") or ("6753468") or					

("8733035") or ("8261496") or ("20090114261") or ("20040031219") or ("20040144043") or ("20080121267") or ("20110240089") or ("20110297205") or ("4677248") or ("20100258157") or ("6008450") or ("7342171") or ("20010050102") or ("20110023390") or ("20150340990") or ("8723370") or ("20120152327") or ("20120125395") or ("20110232212") or ("20170237392") or ("20080253092") or ("20080011289") or ("20130276854") or ("20110000535") or ("6265242") or ("20130340810") or ("20110247678") or ("9091461") or ("8796064") or ("20120118355") or ("8683761") or ("20080257402") or ("20040011354") or ("6268559") or ("20130098447") or ("7592537") or ("7824189") or ("7012188") or ("20140083483") or ("8631613") or ("7811098") or ("8061091") or ("8362739") or ("20120152325") or ("9273885") or ("20170201207") or ("8823315") or ("20130052773") or ("20140366464") or ("8699209") or ("20110125338") or ("20120167986") or ("8291654")).PN. or (("20110138599") or ("20120275066") or ("20110067751") or ("20130176662") or ("20140305494") or ("20100263714") or ("6521821") or ("20120247538") or ("20170025993") or ("20110067691") or ("20110017262") or ("9294032") or ("20100012172") or ("20100193008") or ("20070199561") or ("20110108085") or ("20110239450") or ("20160028345") or ("8435063") or ("7694466") or ("5800631") or ("20080169018") or ("7880098") or ("20090320905") or ("20150129016") or ("20150187975") or ("9147786") or ("8615941") or ("20120315783") or ("20160356406") or ("20120125394") or ("20100132275") or ("8684758") or ("20130014809") or ("20100031997") or ("20110138711") or ("7678990") or ("9184324") or ("20150318427") or ("9525380") or ("8671639") or ("20100064605") or ("20130160814") or ("20130084726") or ("20130025652") or ("9006751") or ("8387319") or ("20120024356") or ("20140261639") or ("20100151725") or ("20140150357") or ("9281430") or ("20120118349") or ("8309840") or ("20130055662") or ("20140030841") or ("20080099063") or ("20120118360") or ("6207889") or ("8439712") or ("9059350") or ("9170034") or ("8829539") or ("20040000334") or ("20060032527") or ("20070181174") or ("9653635") or

("20050178429") or ("20010050101") or ("20170163206") or ("20110220185") or ("20150027069") or ("20120067613") or ("8500462") or ("20100147362") or ("20140318602") or ("20150129517") or ("20160254776") or ("20150194552") or ("9482449") or ("20140216527") or ("20130118545") or ("20120180845") or ("7663055") or ("20120152302") or ("9608559") or ("8656660") or ("9331213") or ("20130125975") or ("4860509") or ("8448407") or ("20120060919") or ("20060054213") or ("20140083028") or ("9059348") or ("20170005614") or ("8793941") or ("9590557") or ("4724010") or ("5092939") or ("9083121") or ("8915030") or ("9249995") or ("9236832") or ("8162677") or ("20150372638") or ("8235749") or ("5733382") or ("9160092") or ("9331631") or ("20160226433") or ("20160036377") or ("6175075") or ("20140060621") or ("20140060622") or ("20090320896") or ("20130000229") or ("8991116") or ("7858874") or ("8545239") or ("20130276856") or ("9147785") or ("20130033894") or ("9294033") or ("20150038011") or ("9664835") or ("8181402") or ("20070227580") or ("20120071024") or ("20110036386")).PN. or (("20120320621") or ("20150180406") or ("8308504") or ("20130098420") or ("20140158650") or ("20110094570") or ("20120315787") or ("8927850") or ("20110290303") or ("20150280640") or ("20100170715") or ("20100275534") or ("20140261638") or ("8507784") or ("4097308") or ("20080302030") or ("20050126622") or ("8959848") or ("20170179878") or ("20120312347") or ("20110192441") or ("20110269347") or ("9362442") or ("20150311371") or ("7868244") or ("20130180575") or ("20110239554") or ("20070102038") or ("9032672") or ("20140144485") or ("20090320389") or ("20170025994") or ("20130008103") or ("20110183531") or ("8895852") or ("9018518") or ("5022381") or ("8511006") or ("9270224") or ("20120186630") or ("20140130429") or ("20120312354") or ("20090014058") or ("8424256") or ("8601754") or ("9316417") or ("20130125482") or ("20130160816") or ("20150059158") or ("20100031998") or ("20150326170") or ("20100018135") or ("8555872") or ("20110247282") or ("8471141") or ("20140165480") or ("20160126885")

		or ("9029683") or ("8950128") or ("20120279747") or ("9103564") or ("8177566") or ("9403477") or ("6323478") or ("20160049903") or ("20100269891") or ("8631614") or ("20120060898") or ("20110212647") or ("8203075") or ("20100275991") or ("20140060624") or ("20150318819") or ("20050178430") or ("20170110280") or ("20110067327") or ("8418417") or ("20110088753") or ("8680656") or ("20090056792") or ("8418415") or ("6693237") or ("4106952") or ("20060235717") or ("7678991") or ("20100012343") or ("9706660") or ("20120055553") or ("20140369063") or ("20140216525") or ("20150287858") or ("20160118932") or ("8969714") or ("20110232728") or ("20140001129") or ("20080235949") or ("5409549") or ("20140190096") or ("20080236649") or ("20080236650") or ("20080236740") or ("20050133086") or ("8910433") or ("20100300508") or ("20140166082") or ("8776455") or ("20120222670") or ("6809251") or ("20120210660") or ("9735728") or ("4210122") or ("20120151856") or ("9455664") or ("20130199598") or ("20090133740") or ("20140240998") or ("9035168") or ("20110241243") or ("20130067836") or ("20040007260") or ("9331224") or ("7681363") or ("20130125973") or ("9003728") or ("20140311547") or ("20100077680") or ("20130139871") or ("20150059828")).PN. or (("8033859") or ("20150270803") or ("20120118359") or ("20120024337") or ("20080083449") or ("20130033115") or ("20110138710") or ("8695289") or ("20080178922") or ("8372226") or ("4078944") or ("20080313977") or ("5164020") or ("9615470") or ("6506970") or ("20120247721") or ("20110259402") or ("20110000601") or ("20030111103") or ("20140208670") or ("20120132260") or ("20100146878") or ("20110303285") or ("20140305493") or ("20020043277") or ("20110067758") or ("8627617") or ("20100139760") or ("7666466") or ("8123565") or ("9142691") or ("20150311861") or ("20080245405") or ("20080057776") or ("20140090866") or ("20150214889") or ("20050115176") or ("20140246078") or ("8613169") or ("8366471") or ("20140130848") or ("6786012") or ("7708593") or ("8063301") or ("20160329857") or ("20100126651") or ("20160134229")				

		or ("8633376") or ("9171980") or ("9171982") or ("20110162315") or ("20120285502") or ("20080314434") or ("7435897") or ("20090308431") or ("20120318319") or ("20160315581") or ("20170040928") or ("20150038005") or ("20120129401") or ("20170179876") or ("20110277811") or ("20120103401") or ("20110214367") or ("20090314335") or ("20100173511") or ("8853530") or ("20100132305") or ("20080142071") or ("20110214368") or ("20100263704") or ("8033857") or ("20110114149") or ("20080099062") or ("20160197580") or ("20090293932") or ("20140182678") or ("20070259103") or ("20110214366") or ("20070256727") or ("20160013346") or ("8435056") or ("6606830") or ("9541308") or ("20080264468") or ("20130146125") or ("9564545") or ("7812247") or ("8853525") or ("20060219291") or ("20050161074") or ("6201179") or ("5542989") or ("8316619") or ("20120145221") or ("8307606") or ("9640692") or ("6075201") or ("20110155203") or ("20110088744") or ("8336277") or ("20160164453") or ("8316618") or ("20140318599") or ("7963802") or ("20090098775") or ("20160230394") or ("20110023935") or ("20130092216") or ("20150043200") or ("8943766") or ("20090014051") or ("20100326498") or ("20120204927") or ("20100068926") or ("8633406") or ("20160105145") or ("20010034982") or ("7910392") or ("20120234377") or ("7740497") or ("20130008490") or ("20100071749")).PN.				
S116	60	S115 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:12
S117	2	(("20100139733") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/27 11:41
S118	2	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/27 11:47
S119	5	("2700085").URPN.	USPAT	ADJ	OFF	2018/03/27 11:51
S120	32	("2700085" | "2839636" | "3085138" | "3843050").PN. OR ("4734059").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 11:53

S121	5	("2700085").URPN.	USPAT	ADJ	OFF	2018/03/27 11:58
S122	0	("3231966").URPN.	USPAT	ADJ	OFF	2018/03/27 12:04
S123	0	("3231966").URPN.	USPAT	ADJ	OFF	2018/03/27 12:04
S124	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 12:14
S125	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 12:18
S126	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 08:44
S127	41	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$ or US-20130037294-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$ or US-6046665-$ or US-3766509-$ or US-4918420-$ or US-3085138-$ or US-2839636-$ or US-2700085-$ or US-9325122-$ or US-7327213-$ or US-4060785-$ or US-3818407-$ or US-3578896-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$ or US-3296399-$ or US-3015008-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 09:18
S128	5	S127 and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 09:18
S129	2	"20130037294"	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 10:01
S130	2	(("20130037294") or ("5903209")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 10:01

S131	3	(("20130037294") or ("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 10:45
S132	1	("9575466").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 11:26
S133	8579	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
S134	1114	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
S135	617	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 13:45
S136	10234	S135 or S134 or S133	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
S137	46	S136 and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
S138	2324	thermoplastic elastomer and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
S139	6	S138 and S136	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
S140	25	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 14:04
S141	7	S140 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 14:04
S142	2	(("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/06/27 09:55
S143	2	(("20140042293") or ("20140055938")).PN.	US-PGPUB; USPAT;	OR	OFF	2018/06/27 10:54

			USOCR; JPO			
S144	2	(("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/02 14:30
S145	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 14:30
S146	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/02 14:43
S147	3613	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/02 14:44
S148	4004	S147 or S146	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/02 14:44
S149	94	S148 and thermoplastic and fuse	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/02 14:44
S150	1	(12/081584).APP.	USPAT; USOCR	ADJ	OFF	2018/07/02 14:53
S151	41	("20020041944" | "20030001716" | "20040104801" | "20060055497" | "20060170332" | "20070159292" | "20080084267" | "3911385" | "4091353" | "4140988" | "4157486" | "4309684" | "4417226" | "4503415" | "4636765" | "4656453" | "4684915" | "4873506" | "4899123" | "4918420" | "4924203" | "5179436" | "5198791" | "5280261" | "5406245" | "5572181" | "5664320" | "5675308" | "5714923" | "5774037" | "5812046" | "5858454" | "5994994" | "6147585" | "6222438" | "6507265" | "6664886" | "6903649" | "7119652" | "7320171" | "RE33137").PN. OR ("8179224").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 14:54
S152	1	(12/081584).APP.	US-PGPUB; USOCR	ADJ	OFF	2018/07/02 15:03
S153	38	("2441692" | "2809254" | "2843704" | "3235688" | "3304390" | "3599138").PN. OR ("3863187").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:05
S154	22239	(PCB or circuit board or FPC or flex ciruit) with (ring or circular or circle)	US-PGPUB;	ADJ	OFF	2018/07/02 15:12

			USPAT; USOCR			
S155	299612	"174".clas. or "361".clas.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:12
S156	2299	S155 and S154	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:12
S157	283	S155 and S154 and sensor	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:13
S158	5	("20120006907" | "5508781" | "20140067056" | "20130141913" | "5508781" | "5436745" | "20140067056").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:14
S159	17	("3670639" | "4596454" | "4682871" | "4964697" | "4990948" | "4999656" | "5327184").PN. OR ("5508781").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:15
S160	1	(14/015542).APP.	USPAT; USOCR	ADJ	OFF	2018/07/02 15:21
S161	200	("0845816" | "0888654" | "1026101" | "20040236420" | "20050004421" | "20050147512" | "20070100196" | "20080068815" | "20090064755" | "20090234447" | "20100130809" | "20100150749" | "20100152526" | "20100241223" | "20100327687" | "20110002794" | "20110031836" | "20110054239" | "20110071337" | "20110144413" | "20110156197" | "20110187217" | "20110237863" | "20110245582" | "20110313237" | "20120032629" | "20120035411" | "20120046514" | "20120059212" | "20120112347" | "20120126795" | "20120134832" | "20120226097" | "20120245680" | "20120245681" | "20120253103" | "20120310036" | "20130164161" | "20130331934" | "20140062462" | "20140100413" | "20140194985" | "20140275723" | "20140303426" | "20140357937" | "20150051438" | "2128988" | "2747512" | "2864552" | "3005117" | "3066849" | "3122101" | "3225608" | "3401640" | "3499274" | "3575536" | "3597022" | "3608088" | "3611815" | "3647324" | "3650581" | "3938913" | "3957389" | "4082376" | "4135253" | "4167296" | "4213207" | "4340260" | "4382199" | "4398773" | "4405286" | "4408966" | "4475866" | "4507048" | "4547039" | "4589822" | "4642036" | "4688998" | "4704121" | "4763032" | "4779614" | "4844707" | "4876492" | "4878831" | "4898759" | "4922199" | "4929158" | "4944748" | "4957504" | "5055005" | "5078741" | "5106273" |	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:21

		"5112200" | "5112202" | "5126612" | "5127792" | "5159219" | "5177387" | "5195877" | "5220232" | "5341059" | "5385581" | "5470208" | "5652473" | "5708346" | "5725357" | "5798454" | "5808437" | "5917297" | "5928131").PN. OR ("5947703" | "6023115" | "6053705" | "6100618" | "6121704" | "6130494" | "6146325" | "6191513" | "6222290" | "6227797" | "6232687" | "6234772" | "6249067" | "6259179" | "6264635" | "6278251" | "6293901" | "6302661" | "6348752" | "6351048" | "6355998" | "6394769" | "6447266" | "6468041" | "6559567" | "6575717" | "6589030" | "6605032" | "6623475" | "6626644" | "6634224" | "6640617" | "6688861" | "6707200" | "6711943" | "6717311" | "6817836" | "6879074" | "6949066" | "7070398" | "7112903" | "7138776" | "7150711" | "7160242" | "7229258" | "7229474" | "7239098" | "7284956" | "7338521" | "7462019" | "7497116" | "7511443" | "7578782" | "7591777" | "7645225" | "7699588" | "7854631" | "7861582" | "7887479" | "7951062" | "7963705" | "7976271" | "8152493" | "8157720" | "8303482" | "8382830" | "8506470" | "8517699" | "8556795" | "8597350" | "8764621" | "8870739" | "8882477" | "8956275" | "8981245" | "D534548").PN. OR ("9492599").URPN.				
S162	1	("20100207716").PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 11:57
S163	2	(("20100207716") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 13:15
S164	2	(("20100207716") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 13:21
S165	8894	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/03 15:39
S166	1119	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/03 15:39
S167	3619	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2018/07/03 15:39

			JPO			
S168	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 15:40
S169	25	((("Solon") near3 ("Dean"))).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/03 15:41
S170	10478	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/11/06 16:59
S171	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/11/06 16:59
S172	9135	S171 or S170	US-PGPUB; USPAT	ADJ	OFF	2018/11/06 16:59
S173	10470	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/11/07 08:42
S174	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/11/07 08:42
S175	9127	S174 or S173	US-PGPUB; USPAT	ADJ	OFF	2018/11/07 08:42
S176	9127	S175	US-PGPUB; USPAT	ADJ	OFF	2018/11/07 08:42
S177	1	S176 and photovoltaic and fuse and undermold and overmold	US-PGPUB; USPAT	ADJ	OFF	2018/11/07 09:54
S178	1	S176 and fuse and undermold and overmold	US-PGPUB; USPAT	ADJ	OFF	2018/11/07 09:55
S179	152	S176 and photovoltaic and fuse	US-PGPUB; USPAT	ADJ	OFF	2018/11/07 09:55
S180	26	((("Solon") near3 ("Dean"))).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/11/07 09:59
S181	1	("20100207716").PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/11/07 11:07
S182	2	(("20100207716") or	US-	OR	OFF	2019/05/15

		("20100139733")).PN.	PGPUB; USPAT; USOCR; JPO			10:08
S183	1	("5903209").PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2019/05/15 10:21
S184	13	("20110104925" | "3296399" | "3578896" | "3818407" | "20110232963" | "20130077249" | "3781745" | "20130037294" | "5903209" | "20100139733" | "20120309232" | "5316502" | "20100207716").PN.	US-PGPUB; USPAT	ADJ	OFF	2019/05/15 10:29
S185	26	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2019/05/15 10:35
S186	9	("3723930" | "3921116" | "4271343" | "4323873" | "4349803").PN. OR ("4419651").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2019/05/15 10:36
S187	0	("3231966").URPN.	USPAT	ADJ	OFF	2019/05/15 10:57
S188	18	("3085138").URPN.	USPAT	ADJ	OFF	2019/05/15 11:01
S189	606	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	USPAT	ADJ	OFF	2019/05/15 11:28
S190	3244	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	USPAT	ADJ	OFF	2019/05/15 11:28
S191	476	((337/227,228) or (439/620.28)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2019/05/15 11:29
S192	4142	S191 or S190 or S189	US-PGPUB; USPAT	ADJ	OFF	2019/05/15 11:29
S193	1	S192 and fuse and overmold and undermold	US-PGPUB; USPAT	ADJ	OFF	2019/05/15 11:29
S194	1	S192 and fuse and overmold	US-PGPUB; USPAT	ADJ	OFF	2019/05/15 11:30
S195	9	S192 and fuse$4 and overmold$4	US-PGPUB; USPAT	ADJ	OFF	2019/05/15 11:30
S196	27	((("Solon") near3 ("Dean"))).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2019/05/15 11:31
S197	3	(("20110007042") or ("20160231843") or ("20160239050")).PN.	US-PGPUB; USPAT;	OR	OFF	2019/05/28 10:39

			USOCR; JPO			
S198	1	("6236571").PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2019/05/28 10:47

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L28	4	(solar and fuse and (mold or overmold or undermold)).clm.	US-PGPUB; USPAT	ADJ	OFF	2019/09/24 15:18
L29	786	(fuse and (mold or overmold or undermold)).clm.	US-PGPUB; USPAT	ADJ	OFF	2019/09/24 15:19
L30	120	(fuse and (mold or overmold or undermold) and surround$4).clm.	US-PGPUB; USPAT	ADJ	OFF	2019/09/24 15:19

9/ 24/ 2019 3:47:31 PM
C:\ Users\ ssawyer\ Documents\ EAST\ Workspaces\ 14295132.wsp

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

57825 7590 08/28/2019

CARLA GANNON LAW
Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465

EXAMINER	
SAWYER, STEVEN T	

ART UNIT	PAPER NUMBER
2847	

NOTIFICATION DATE	DELIVERY MODE
08/28/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

carlagannon@yahoo.com
cgannon@carlagannonlaw.com
docketing@carlagannonlaw.com

Voltage LLC
Ex.1002-65

Applicant-Initiated Interview Summary	**Application No.** 14/295,132	**Applicant(s)** Solon, Dean	
	Examiner STEVEN T SAWYER	**Art Unit** 2847	**AIA (FITF) Status** Yes

All participants (applicant, applicants representative, PTO personnel):

(1) STEVEN T. SAWYER. (3) _____.

(2) Carla Gannon (REG# 56358). (4) _____.

Date of Interview: 21 August 2019.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☑ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☑103 ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1 and 6.

Identification of prior art discussed: Yen & Stepniak & Jonczyk et al.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant argued that the outline of the undermold did not have a similar contour to that of the outer surface of the fuse . Examiner pointed out that the undermold has two outlines, an inner surface outline and an outer surface outline. In order to overcome the Stepniak reference the Examiner suggested amending to state, "outer surface outline". Examiner also pointed to the language "similar contour" as being imprecise language, it was suggested to change this language to a "parallel" concept. The Examiner further discussed including the materials of the undermold and overmold as discussed in claims 6-7 to further differentiate the claim from the prior art..

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☑ Attachment

/STEVEN T SAWYER/ Primary Examiner, Art Unit 2847	

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Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiners responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicants correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,-
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicants record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiners version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, Interview Record OK on the paper recording the substance of the interview along with the date and the examiners initials.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	DEAN SOLON		
Serial No.:	14/295,132	**Examiner:**	SAWYER, STEVEN T.
Filed:	06/03/2014	**Art Unit:**	2847
Confirmation No.:	6619		

For: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRATED FUSE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

AUTHORIZATION TO COMMUNICATE VIA THE INTERNET AND PRE-INTERVIEW COMMUNICATION

Recognizing that internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned in accordance with 37 CFR §1.33 and 37 CFR §1.34 concerning any subject matter of this application by video conferencing, instant messaging, or electronic mail. I understand that a copy of these communications will be made of record in the application file.

Applicant's representative wishes to discuss the following items in the telephonic interview scheduled for Wednesday, August 21 at 9:00 Central Time (10:00 Eastern Time). This interview is in connection with the Non-Final Office Action dated 5/21/19.

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PENDING INDEPENDENT CLAIM

No Proposed Amendments

1) An in line assembly for a solar installation including:
   a. A photovoltaic fuse having a solid outer surface including a first end a second end and a middle section there between, said solid outer surface defining an outline;
   b. An undermold surrounding and sealing said fuse, said undermold defining an outline, wherein the outline of said undermold has a similar contour and orientation relative to the outline of said solid outer surface;
   c. An overmold defining an outline and surrounding said undermold, said undermold and said overmold each constructed of a single unit and each constructed of dissimilar materials, wherein the outline of said overmold has a similar contour and orientation relative to the outline of said undermold; and
   d. A first photovoltaic connector engaged with said first end, wherein said assembly provides electrical insulation.

Voltage LLC
Ex.1002-69

REMARKS

The Office has cited Stepniak as teaching "…*wherein the outline of said undermold has a similar contour and orientation relative to the outline of said solid outer surface…*".

Applicant vigorously disagrees:

FIG-3

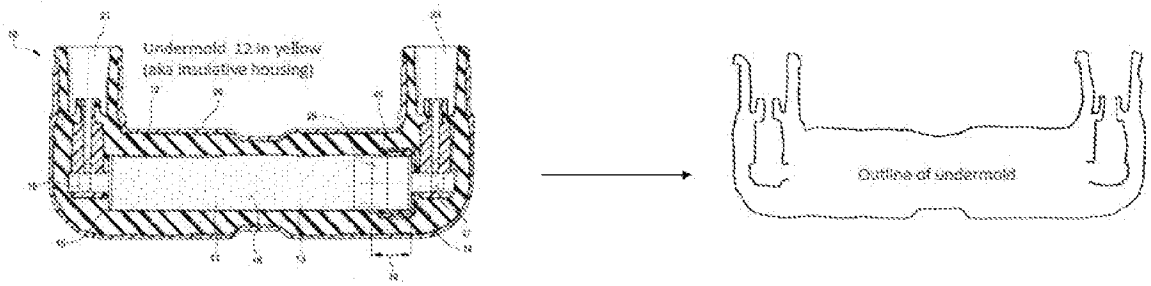
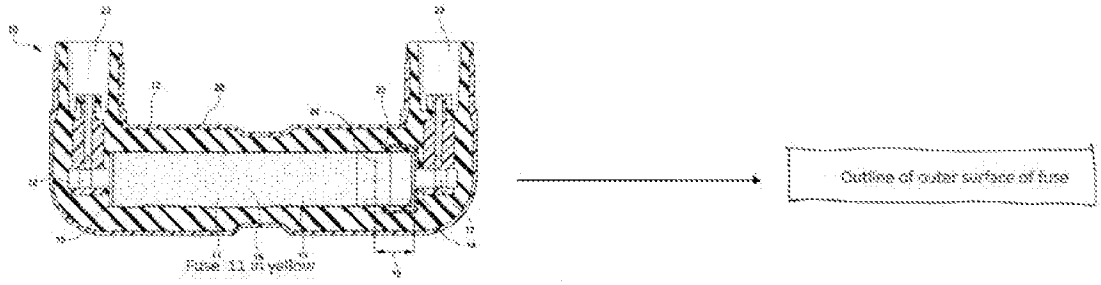


FIG-3



Outline of undermold doesn't have a similar contour relative to outline of outer surface of fuse

Voltage LLC
Ex.1002-70

CONCLUSION

Applicant appreciates the opportunity to discuss this case with Examiner Sawyer.

Respectfully submitted,

/Carla L. Gannon, 56,358/

Carla L. Gannon
Registration No. 56,358
Carla Gannon Law
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465
336-543-3797
cgannon@carlagannonlaw.com

Date: August 20, 2019
File No. SHOALS-25

Voltage LLC
Ex.1002-71

Electronic Acknowledgement Receipt

EFS ID:	36935808
Application Number:	14295132
International Application Number:	
Confirmation Number:	6619
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Customer Number:	57825
Filer:	Carla L. Gannon/Donna Braam
Filer Authorized By:	Carla L. Gannon
Attorney Docket Number:	SHOALS-25
Receipt Date:	21-AUG-2019
Filing Date:	03-JUN-2014
Time Stamp:	12:22:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	Response_052119OA_SHOALS-25.pdf	195163 7d39fa2ad1dd806c4d8e10949aa5f7a79cd33553	no	10

Warnings:

Information:	
Total Files Size (in bytes):	195163

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	DEAN SOLON		
Serial No.:	14/295,132	**Examiner:**	SAWYER, STEVEN T.
Filed:	06/03/2014	**Art Unit:**	2847
Confirmation No.:	6619		

For: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

INTERVIEW SUMMARY AND

RESPONSE TO NON-FINAL OFFICE ACTION

This paper responds to the Office Action mailed May 21, 2019.

In the event an additional extension of time or other fee is required, Applicant requests that this be considered the requisite petition.

The Commissioner is hereby authorized to charge any fees associated with this case to 506268.

Voltage LLC
Ex.1002-74

INTERVIEW SUMMARY

Applicant gratefully acknowledges the telephonic interview conducted on Wednesday, August 21 at 9:00 Central Time (10:00 Eastern Time) between Examiner Steven Sawyer and Attorney Carla L. Gannon. Claim allowance was not agreed upon but the parties discussed the following:

- Examiner Sawyer stated that he had reviewed the Pre-Interview Communication dated August 20 and noted that the outline defined by "undermold" (insulative housing 12) of Stepniak has both an inner surface and an outer surface, and that the inner surface of the outline has a similar contour and orientation relative to the outline of the solid outer surface of the fuse.
- Examiner Sawyer and Attorney Gannon agreed amending element b of claim 1 to recite "…said undermold defining an outer surface outline, wherein the outer surface outline of said undermold…" would overcome the Stepniak reference.
- Examiner Sawyer proposed amending claim 1 to introduce the subject matter of claims 6 and 7, and Attorney Gannon declined.
- Examiner Sawyer expressed concern about indefiniteness surrounding the "…has a similar contour and orientation…" recitation. Attorney Gannon agreed to amend claim 1 to recite "…of said undermold ~~has a similar contour and orientation~~ is substantially parallel relative to…" to alleviate any concerns.
- Examiner Sawyer indicated he would reach out to Attorney Gannon to resolve remaining obstacles to allowance.

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RESPONSE TO NON-FINAL OFFICE ACTION

Amendments to the Claims

The current status of the claims is listed in the "Listing of the Claims" below. This replaces all previous versions of claims.

Listing of the Claims

1) (**Currently Amended**) An in line assembly for a solar installation including:
   a. A photovoltaic fuse having a solid outer surface including a first end, a second end and a middle section there between, said solid outer surface defining an outline;
   b. An undermold surrounding and sealing said fuse, said undermold defining an **outer surface** outline, wherein the **outer surface** outline of said undermold ~~**has a similar contour and orientation**~~ **is substantially parallel** relative to the outline of said solid outer surface;
   c. An overmold defining an outline and surrounding said undermold, said undermold and said overmold each constructed of a single unit and each constructed of dissimilar materials, wherein the outline of said overmold ~~**has a similar contour and orientation**~~ **is substantially parallel** relative to the outline of said undermold; and
   d. A first photovoltaic connector engaged with said first end, wherein said assembly provides electrical insulation.

2) (Original) The assembly of claim 1 further including a second photovoltaic connector engaged with said second end.

3) (Original) The assembly of claim 2 wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

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4) (Original) The assembly of claim 1 wherein said first and second connectors are locking type connectors.

5) (Previously Amended) The assembly of claim 4 further comprising a tool for unlocking said connectors.

6) (Original) The assembly of claim 1 wherein said undermold is a modified polyphenylene ether plastic.

7) (Original) The assembly of claim 1 wherein said overmold is a thermoplastic elastomer.

8) (Original) The assembly of claim 6 wherein said fuse is rated at 2-30 amps.

9) (Original) The assembly of claim 8 wherein said fuse is rated at 600-2000V.

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10) (Previously Withdrawn) A photovoltaic wire harness including:

a. A trunk wire having a plurality of branch wires extending there from in pairs, said branch wires and said trunk wire forming angles having vertices of approximately 90 degrees; and

b. A plurality of fuse assemblies engaged only with said branch wires in a ratio of one fuse assembly per branch wire.

11) (Previously Withdrawn) The photovoltaic wire harness of claim 10 wherein said fuse assemblies each include one or two connectors.

12) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said fuse assemblies each include a pair selected from the group consisting of one male type connector and one female type connector; one male type connector and one wire; and one female type connector and one wire.

13) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said angles are surrounded by an encasement.

14) (Previously Withdrawn) The photovoltaic wire assembly of claim 13 wherein said encasement defines tie-downs that span between adjacent protrusions.

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15) (Previously Withdrawn) A method of configuring a solar installation including the steps of:

a. Engaging the trunk of a wire harness with a combiner box wherein said combiner box lacks fuses and circuit breakers; and
b. Engaging each terminal branch of said wire harness with one solar panel wherein each terminal branch includes exactly one in line fuse assembly.

16) (Previously Withdrawn) The method of claim 15 wherein said step of engaging each terminal branch with one solar panel includes the step of uniting a male connector with a female connector.

17) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a male connector integrated with said in line fuse assembly.

18) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a female connector integrated with said in line fuse assembly.

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Remarks

Applicant gratefully acknowledges the Office Action dated 5/21/19. Upon considering the Office's cited art and remarks and interviewing the case, claim 1 has been amended. Claims 10-18 were previously withdrawn. Accordingly, claims 1-9 are currently pending, and claims 1-9 are currently under consideration, with no claims allowable at this time.

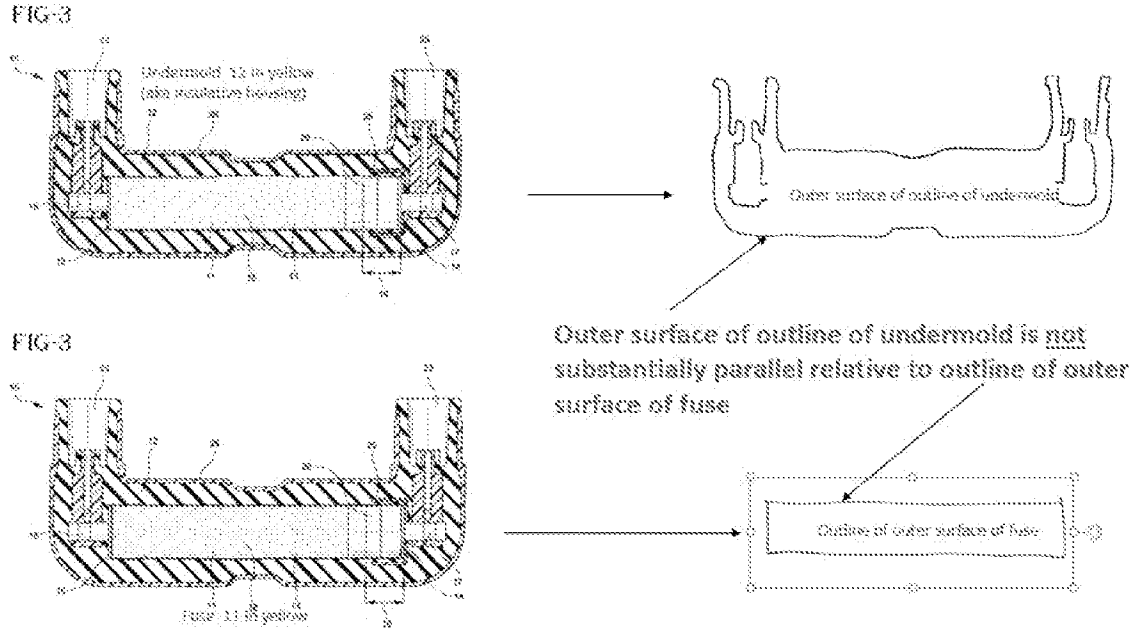
This Response specifically addresses the following issues:

I. 35 USC §103 Rejection of Claims 1, 2 and 7 as Obvious in view of Yen, Stepniak and Jonczyk (Examiner's ¶3)

Independent claim 1 has been amended to differentiate the present invention over Stepniak as follows:

> *"...said undermold defining an outer surface outline, wherein the outer surface outline of said undermold ~~has a similar contour and orientation~~ is substantially parallel relative to the outline of said solid outer surface..."*

This amendment overcomes Stepniak as set forth below:



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Applicant notes that while the specification does not recite, *verbatim*, that *the outer surface outline of the undermold is substantially parallel relative to the outline of the solid outer surface of the fuse,* this would be understood to the Person Having Ordinary Skill In The Art ("PHOSITA") based on the originally filed specification.[1]

No new matter has been introduced.

In view of the amendment to claim 1 overcoming the Stepniak reference, claims 2 and 7 which depend from claim 1 likewise overcome the art of record.

II. 35 USC §103 Rejection of Claims 3 and 4 as Obvious in view of Stepniak, Jonczyk and Loet (Examiner's ¶7)

This rejection is deemed moot in view of the amendment to claim 1 overcoming the Stepniak reference as set forth in Section I above.

III. 35 USC §103 Rejection of Claim 5 as Obvious in view of Yen, Stepniak, Jonczyk, Loet and Quiter (Examiner's ¶8)

This rejection is deemed moot in view of the amendment to claim 1 overcoming the Stepniak reference as set forth in Section I above.

IV. 35 USC §103 Rejection of Claim 6 as Obvious in view of Yen, Stepniak, Jonczyk and Kono (Examiner's ¶9)

This rejection is deemed moot in view of the amendment to claim 1 overcoming the Stepniak reference as set forth in Section I above.

V. 35 USC §103 Rejection of Claims 8 and 9 as Obvious in view of Yen, Stepniak, Jonczyk, Kono and F. J. Kozackz (Examiner's ¶10)

This rejection is deemed moot in view of the amendment to claim 1 overcoming the Stepniak reference as set forth in Section I above.

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[1] See, *inter alia*, FIGS. 7 and 8.

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VI. Other Amendments

Applicant notes that claim 1 was further amended to preemptively address any potential indefiniteness concern surrounding the second "similar contour and orientation" recitation:

> *"…wherein the outline of said overmold ~~has a similar contour and orientation~~ is substantially parallel relative to the outline of said undermold…"*

While the specification does not recite, *verbatim*, that *the outline of the overmold is substantially parallel relative to the outline of the undermold,* this would be understood to the PHOSITA based on the originally filed specification.[2]

No new matter has been introduced.

[2] See, *inter alia*, FIGS. 8 and 9.

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Conclusion

For the reasons set forth herein, Applicant believes all claims are allowable over the art of record. Examiner Sawyer is encouraged to contact Attorney Gannon by telephone or email to discuss the case.

Respectfully submitted,

/Carla L. Gannon, 56,358/

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Date: August 21, 2019
File No. SHOALS-25

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PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/295,132	Filing Date 06/03/2014	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	08/21/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 18	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/RENEE D HAWKINS/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

57825 7590 05/21/2019

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EXAMINER	
SAWYER, STEVEN T	

ART UNIT	PAPER NUMBER
2847	

NOTIFICATION DATE	DELIVERY MODE
05/21/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

carlagannon@yahoo.com
cgannon@carlagannonlaw.com
docketing@carlagannonlaw.com

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Ex.1002-85

Office Action Summary	Application No. 14/295,132	Applicant(s) Solon, Dean	
	Examiner STEVEN T SAWYER	Art Unit 2847	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 5/10/2019.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-18 is/are pending in the application.

5a) Of the above claim(s) 10-18 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-9 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

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1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/10/2019 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 7 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen (US PG. Pub. 2010/0207716) in view of Stepniak (US Patent 5903209) and further in view of Jonczyk et al. (US PG. Pub. 2010/0139733).

Regarding claim 1 - Yen teaches an in line assembly (fig. 3, 2 [paragraph 0021] Yen states, "overcurrent protection structure 2") including:

a. A fuse (element 22 in combination with surrounding space 25 [paragraph 0019] Yen

states, "fuse structure unit 22") having a first end (left end) and a second end (right end), and defining an outline;

b. An undermold (211 [paragraph 0027] Yen states, "inner layer 211 can be made of the arc resistant material") surrounding and sealing said fuse, said undermold defining an outline, wherein the outline of said undermold has a similar contour and orientation relative to the outline of said fuse (figure 3 shows the undermold following the contour of the fuse structure 22/25);

c. An overmold (212 [paragraph 0028] Yen states, "outer layer 212 can be made of the ordinary coating material") defining an outline and surrounding said undermold (claimed structure shown in figure 3), said undermold (211) and said overmold (212) each constructed of a single unit and each constructed of dissimilar materials ([paragraph 0020] Yen states, "The inner layer 211 can be made of an arc resistant material and the outer layer 212 can be made of an ordinary coating material"), wherein the profile outline of said overmold has a similar contour and orientation relative to the profile outline of said undermold (see fig. 3); and

d. A first connector (23 [paragraph 0019] Yen states, "electrode 23") engaged with said first end, wherein said assembly provides electrical insulation ([paragraph 0020] Yen states, "The coating 21 can be an arc resistant material, which can be a thermoplastic material or a thermosetting material").

Yen does not teach wherein the in line assembly is for a solar installation and the fuse is a photovoltaic fuse; and the fuse having a solid outer surface including a first end, a second end and a middle section therebetween, said solid outer surface defining

an outline and wherein the outline of said undermold has a similar contour and orientation relative to the outline of said solid outer surface.

Stepniak teaches a fuse (fig. 3, 11 [column 3 line 33-34] Stepniak states, "Fuse 11 is generally a cartridge-type fuse well known for use in the field of high voltage distribution systems") wherein the fuse having a solid outer surface (a cartridge-type fuse is considered to have a "solid outer surface") including a first end (left end), a second end (right end) and a middle section therebetween (middle section of fuse 11), said solid outer surface defining an outline (the "outline" is defined at the interface between the fuse 11 and undermold 12) and wherein the outline of an undermold (12 [column 4 line 63] Stepniak states, "insulative housing 12") has a similar contour and orientation relative to the outline of said solid outer surface (The inner contour of the undermold 12 follows the outline of the solid outer surface of fuse 11; claimed structure shown in figure 3).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the inline assembly fuse structure as taught by Yen with the fuse in the assembly fuse being a cartridge fuse and having a solid outer surface as taught by Stepniak because Stepniak states, "generally a cartridge-type fuse well known for use in the field of high voltage distribution systems" [column 3 lines 34-36]. Cartridge-type fuses are often used based on their ubiquitous nature within electronics and their ease of replacement.

Jonczyk teaches wherein the in line assembly is for a solar installation ([title] Jonczyk states, "fused wiring harness for a photovoltaic system") and the fuse (fig. 6, 112 [paragraph 0033] Jonczyk states, "fuse 112") is a photovoltaic fuse ([paragraph

0005] Jonczyk states, “The photovoltaic system further includes a fused wiring harness having a fused wiring assembly and a second wiring assembly”); an undermold (fig. 6 [paragraph 0033] Jonczyk states, “fuse holder 110”; figure 6 shows the fuse holder 110 completely covering the fuse 112) covering the fuse and an overmold (fig. 10, 210 [paragraph 0038] Jonczyk states, “fuse overmold portion 210”) covering the undermold (see figs. 10).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having a fuse as taught by Yen in view of Stepniak with the in line assembly being for a solar installation and with an undermold/overmold arrangement as taught by Jonczyk because Jonczyk states, " Accordingly, there is a need for a wiring harness for a PV system that protects each individual circuit and that provides for ease of installation during, for example, the deployment of large photovoltaic arrays." [paragraph 0003].

Regarding claim 2 – Yen in view of Stepniak and Jonczyk teach the assembly of claim 1 further including a second photovoltaic connector (Yen; fig. 3, 24; Jonczyk teaches a photovoltaic fuse structure as discussed in the rejection to claim 1 above) engaged with said second end (right end of fuse element 22).

Regarding claim 7 – Yen in view of Stepniak and Jonczyk teach the assembly of claim 1 wherein said overmold (Jonczyk; fig. 10, 210) is a thermoplastic elastomer ([paragraph 0031] Jonczyk states, “overmold portions 82, 84 can be formed from a high-

performance thermoplastic material such as a thermoplastic elastomer (TPE)";

overmold 82 is considered equivalent to overmold 210).

7. Claims 3 and 4 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Stepniak and Jonczyk et al. as applied to claim 2 above, and further in view of Loet (US Patent 5316502).

Regarding claim 3 – Yen in view of Stepniak and Jonczyk teach the assembly of claim 2 but fails to teach wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, "fuse 26") with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20), wherein a first connector is a female type connector ([column 4 line 47] Loet states, "female connector 34"), and said second connector is a male type connector ([column 4 line 32] Loet states, "male connection element 22" [Abstract] Loet states, "a fuse, is mounted within the housing and arranged to electrically couple the male cable connector to the female cable connector").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Yen in view of Stepniak and Jonczyk with the connectors being of a male and female type as taught by Loet because Loet states, "The housing can be easily installed

at any location of a power distribution network by using the male and female connectors to couple one power cable to another power cable" [Abstract].

Regarding claim 4 – Yen in view of Stepniak and Jonczyk teach the assembly of claim 1 but fails to teach wherein said first and second connectors are locking type connectors.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, "fuse 26") with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20) wherein said first and second connectors are locking type connectors ([column 5 line 18-20] Loet states, "the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Yen in view of Stepniak and Jonczyk with the connectors being locking type connectors as taught by Loet because Loet states, "the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another"" [column 5 lines 18-20]. This locking arrangement will provide a strong mechanical connection.

8. Claim 5 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Stepniak, Jonczyk et al. and Loet as applied to claim 4 above, and further in view of Quiter et al. (US PG. Pub. 2011/0104925).

Regarding claim 5 – Yen in view of Stepniak, Jonczyk and Loet teach the assembly of claim 4, but fails to teach wherein a tool is used for unlocking said connectors.

Quiter teaches an assembly (fig. 1 [title] Quiter states, "connector system, use and method") having connectors (10 & 12 [paragraph 0077] Quiter states, "connector 10 and complementary connector 12") being of a locking type ([paragraph 0080] Quiter states, "connector 10 is locked with the complementary connector 12"), wherein a tool is used for unlocking said connectors ([paragraph 0083] Quiter states, "For unlocking, a tool (not shown) can be inserted…By means of the tool, the complementary latching element can be displaced in the unlocking direction ENR").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Yen in view of Stepniak, Jonczyk and Loet with the connectors being unlockable by a tool as taught by Quiter because this securing arrangement will prevent unintentional disconnection of the connectors.

9. Claim 6 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Stepniak and Jonczyk et al. as applied to claim 1 above, and further in view of Kono et al. (US PG. Pub. 2011/0232963).

Regarding claim 6 – Yen in view of Stepniak and Jonczyk teach the assembly of claim 1 wherein said undermold (Yen; fig. 3, 211) is formed of a polyphenylene plastic ([paragraph 0020] Yen states, "coating 21 can be an arc resistant material, which can be a thermoplastic material or a thermosetting material…polyphenylene sulfone").

Yen in view of Jonczyk do not explicitly teach the material being a modified polyphenylene ether plastic.

Kono teaches an in line assembly for a photovoltaic installation (fig. 2 [title] Kono states, "connection structure for photovoltaic power generation module") wherein a material is a modified polyphenylene ether plastic ([paragraph 0044] Kono states, "the connection structure of the present embodiments is produced by injection molding…consisting of a modified polyphenylene ether").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the undermold as taught by Yen in view of Stepniak and Jonczyk with the in line assembly using the material of modified polyphenylene ether in the structure as taught by Kono because Kono states, "Especially, from the viewpoint of strength, electrical characteristics, and long-term heat resistance, preferred is a resin composition containing at least one selected from the group consisting of a modified polyphenylene ether" [paragraph 0044].

10. Claims 8-9 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Stepniak, Jonczyk et al. and Kono et al. as applied to claim 6 above, and further in view of F. J. Kozackz (US Patent 3296399).

Regarding claim 8 – Yen in view of Stepniak, Jonczyk and Kono teach the assembly of claim 6, but fail to teach specifically wherein said fuse is rated at 2-30 amps.

Kozackz teaches a fuse (fig. 1, 5 [column 3 line 40] Kozackz states, "fusible element 5") wherein said fuse is rated at 2-30 amps ([column 3 line 40-42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the fuse as taught by Yen in view of Stepniak, Jonczyk and Kono with fuse having a rating of 2-30 amps as taught by Kozackz because this fuse rating will protect the connected solar device from overdrawing current and prevent damage to the solar device, the fuse will perform as a protection device.

Regarding claim 9 – Yen in view of Stepniak, Jonczyk, Kono and Kozackz teach the assembly of claim 8 wherein said fuse (Kozackz; fig. 1, 5) is rated at 600-2000V ([column 3 line 40-42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

Response to Arguments

Applicant's arguments with respect to claims 1-9 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN T SAWYER whose telephone number is (571)270-5469. The examiner can normally be reached on M-F 8:30 am - 5pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thompson can be reached on 5712722342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEVEN T SAWYER/
Primary Examiner, Art Unit 2847

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/295,132	Solon, Dean
	Examiner	Art Unit
	STEVEN T SAWYER	2847

CPC - Searched*		
Symbol	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc.	05/15/2019	ss
H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	05/15/2019	ss

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
439	620.28 (updated)	05/15/2019	ss
337	227, 228 (updated)	05/15/2019	ss

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc., H01L31/0504. cpc., H01B7/0045.cpc., H01L31/18.cpc. (with text) (updated)	05/15/2019	ss
Updated Inventor name search	05/15/2019	ss

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	Interference search attached	7/2/2018	ss

/STEVEN T SAWYER/ Primary Examiner.Art Unit 2847	

Voltage LLC
Ex.1002-97

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	(("20100207716") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2019/05/15 10:08
L7	1	("5903209").PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2019/05/15 10:21
L8	13	("20110104925" | "3296399" | "3578896" | "3818407" | "20110232963" | "20130077249" | "3781745" | "20130037294" | "5903209" | "20100139733" | "20120309232" | "5316502" | "20100207716").PN.	US-PGPUB; USPAT	ADJ	OFF	2019/05/15 10:29
L9	26	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2019/05/15 10:35
L10	9	("3723930" | "3921116" | "4271343" | "4323873" | "4349803").PN. OR ("4419651").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2019/05/15 10:36
L12	0	("3231966").URPN.	USPAT	ADJ	OFF	2019/05/15 10:57
L18	18	("3085138").URPN.	USPAT	ADJ	OFF	2019/05/15 11:01
L19	606	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	USPAT	ADJ	OFF	2019/05/15 11:28
L20	3244	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	USPAT	ADJ	OFF	2019/05/15 11:28
L21	476	((337/227,228) or (439/620.28)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2019/05/15 11:29
L22	4142	21 or 20 or 19	US-PGPUB; USPAT	ADJ	OFF	2019/05/15 11:29
L23	1	22 and fuse and overmold and undermold	US-PGPUB; USPAT	ADJ	OFF	2019/05/15 11:29
L24	1	22 and fuse and overmold	US-PGPUB; USPAT	ADJ	OFF	2019/05/15 11:30

L25	9	22 and fuse$4 and overmold$4	US-PGPUB; USPAT	ADJ	OFF	2019/05/15 11:30
L26	27	((("Solon") near3 ("Dean"))).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2019/05/15 11:31
S1	3	photovoltaic fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 10:48
S2	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 12:22
S3	1	(13/151984).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:37
S4	14	("2046221" | "3356806" | "3518600" | "3778741" | "4734059" | "4909761" | "5018991" | "5648749" | "5888098").PN. OR ("8454390").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:37
S5	26	("20050128045" | "20120161919" | "2700085" | "3356806" | "3465280" | "3551869" | "3778741" | "3843050" | "4060303" | "4333701" | "4391485" | "4531806" | "4734059" | "4909761" | "5444428" | "7377813" | "7445509" | "7777508" | "7988493" | "8098126" | "8342885" | "8454390").PN. OR ("9325122").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:38
S6	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S7	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S8	23	("4202589" | "4390225" | "4448476" | "6483417" | "2187427" | "3828291" | "4909761" | "3243551" | "7639113" | "2758295" | "4504815" | "6717505" | "20090184796" | "2614190" | "20120309232" | "4762509" | "6587028" | "2207837").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:42
S9	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:03
S10	1	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:11
S11	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO;	ADJ	OFF	2016/10/04 13:19

			JPO			
S12	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:19
S13	2063	fuse and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S14	34	fuse and thermoplastic elastomer and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S15	0	(13/245432).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:29
S16	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S17	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S18	9	("3900241" | "5168124" | "20080194154" | "20070107767" | "3900241" | "20060049358" | "7342171" | "7485982" | "20080099062" | "6307144").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S19	2628	fuse and (different with material) and elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:39
S20	743	fuse and (different with material) and thermoplastic elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:40
S21	239	S12 and material	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:42
S22	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S23	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S24	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:13
S25	24	("4023071" | "4188561" | "4199736" | "4335415" | "4359764" | "4633359" | "5224012" | "5278720" | "5384679" | "5508873").PN. OR ("5726851").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:27

S26	2	("3243551").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:42
S27	2	("2839636").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:46
S28	2	("2049309").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:49
S29	184	fuse and polyphenylene ether and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:57
S30	0	fuse and photovlotaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:02
S31	2971	fuse and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:02
S32	539034	"361".clas. or "136".clas. or "174".clas. or "439".clas. or "337".clas.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S33	707	S32 and S31	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S34	602	S33 not S2	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S35	0	fuse holder and polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:30
S36	9	fuse holder and polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:31

S37	2	("2316036").URPN.	USPAT	ADJ	OFF	2016/10/04 15:57
S38	53	("1028328" | "1036510" | "1099589" | "1508839" | "1511838" | "1889585" | "1927905" | "1971809" | "20020113684" | "20070236323" | "2316036" | "2524550" | "2838639" | "2873327" | "2877321" | "2946974" | "3205467" | "3447240" | "3562162" | "3838374" | "3870863" | "3912903" | "4084145" | "4237440" | "4563809" | "4680567" | "4929921" | "5003280" | "5361058" | "5418516" | "5903208" | "6664886" | "6774760" | "7645645" | "RE23219").PN. OR ("8629750").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 15:57
S39	1	(13/208149).APP.	US-PGPUB; USOCR	ADJ	OFF	2016/10/04 16:08
S40	1	(13/208149).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 16:11
S41	27	("20130037294" | "3356806" | "3417359" | "3518600" | "3629808" | "3753192" | "4734059" | "4759730" | "4826454" | "4909761" | "5018991" | "5088683" | "5335160" | "5427542" | "5648749" | "5888098" | "5993246" | "D326845" | "RE40228").PN. OR ("8517768").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 16:12
S42	1	("20130037294").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 07:39
S43	26	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 07:49
S44	7	S43 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:50
S45	13	("5726851" | "4909761" | "8454390" | "5018991" | "5648749" | "5888098" | "20100207716" | "20050141164" | "20120295456" | "5137478" | "4734059" | "5714923" | "3848215").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S46	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2016/10/05 07:52

			EPO; JPO			
S47	26	S43 and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S48	4	S43 and S46	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:53
S49	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 08:05
S50	8	polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:25
S51	21694	polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S52	141	S51 and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S53	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S54	3	polyphenylene ether and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:28
S55	18	PPE and fuse with holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S56	18	PPE and (fuse with holder)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29

S57	9	PPE and fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S58	5	S43 and amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:40
S59	11	S43 and (rated or rating)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:42
S60	4	polyphenylene ether with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:55
S61	0	polyphenylene ether with fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:56
S62	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:03
S63	9151	fuse with voltage with current	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S64	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S65	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S66	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S67	253	(337/227).CCLS.	US-PGPUB;	OR	OFF	2016/10/05 09:26

			USPAT; USOCR			
S68	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S69	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S70	1380	S64 or S65 or S66 or S67 or S68 or S69	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S71	184	S70 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:27
S72	95	fuse with voltage with amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S73	6	S72 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S74	7	female and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:39
S75	51	photovoltaic and fuse and (connector with lock$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:23
S76	27	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 10:24

		3231966-$ or US-3132223-$ or US-2049309-$).did.				
S77	9	S76 and lock$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:24
S78	7	(("20120309232") or ("20130037294") or ("5316502") or ("20110104925") or ("20110232963") or ("3296399")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:04
S79	6337	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S80	10	S79 and fuse and elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S81	170	S79 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S82	20	((Dean) near2 (Solon)).INV.	US-PGPUB; USPAT	ADJ	OFF	2016/10/05 13:37
S83	0	("2010302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S84	1	("20100302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S85	49	(("8937249") or ("20110209741") or ("8690595") or ("20130344727") or ("5309625") or ("5755579") or ("4280748") or ("4850884") or ("4884050") or ("4906195") or ("4940419") or ("4943241") or ("4950168") or ("4963099") or ("5011417") or ("5057026") or ("5327644") or ("5403193") or ("5489885") or ("5662496") or ("5697813") or ("5722863") or ("5735713") or ("5739739") or ("5749739") or ("5785532") or ("5877944") or ("5883560") or ("5897385") or ("5928004") or ("6007350") or ("6011319") or ("6109973") or ("6144539") or ("6172302") or ("6186633") or ("6224397") or ("6224397") or ("6252477") or ("6262537") or ("6411190") or ("6430054") or ("6600236") or ("6712623") or ("6719572") or ("6791207") or ("6796808") or ("6851956") or ("7021962") or	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:18

		("7132761")).PN.				
S86	1	("14700742").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:41
S87	0	("14295132").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:21
S88	3	(("20120309232") or ("20130037294") or ("5316502")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:22
S89	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:23
S90	7658	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:07
S91	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/04 15:08
S92	8198	S91 or S90	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:09
S93	30	S92 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:09
S94	39	("1175103" | "1579596" | "2414865" | "2872501" | "3422213" | "3601737" | "3766307" | "3766509" | "4280748" | "4308515" | "4333701" | "4365226" | "4391485" | "4679877" | "4734059" | "4831353" | "4880943" | "4958426" | "5018991" | "5162773" | "5241134" | "5298877" | "5304740" | "5329065" | "5345210" | "5391836" | "5493069" | "5591366").PN. OR ("6046665").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/04 15:11
S95	4	("1175103").URPN.	USPAT	ADJ	OFF	2017/02/04 15:14
S96	20	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/06 07:50
S97	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 13:40

S98	2	fuse same overmold same undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:47
S99	25	overmold$4 same undermold$4 and (water or moisture)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:48
S100	2164	(second with overmold$4) and (water or moisture)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:49
S101	89	(second with overmold$4) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:50
S102	5	(second overmold or second overmolding) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:52
S103	9	("20100139733" | "20110104925" | "20110232963" | "20120309232" | "20130037294" | "20130077249" | "3296399" | "5316502").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:58
S104	2	(("20100139733") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 15:01
S105	1	("20110232963").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:01
S106	8165	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:06
S107	1102	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:06
S108	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:06

S109	9807	S108 or S107 or S106	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:08
S110	2	S109 and overmold and fuse and solar	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S111	2	S109 and overmold and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S112	391	S109 and mold$4 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S113	49	S109 and mold$4 and fuse and solar	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S114	23	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/08/30 16:10
S115	640	(("20170214234") or ("8113890") or ("20120085040") or ("20110275232") or ("20090318004") or ("7850476") or ("20160072431") or ("20100105238") or ("20150162870") or ("8907230") or ("20110147076") or ("20090178701") or ("20100139733") or ("20130056047") or ("7445508") or ("20160142008") or ("7387537") or ("20080160819") or ("20080160804") or ("20130104982") or ("6307144") or ("20130043055") or ("20080006321") or ("5232518") or ("7824191") or ("20120279150") or ("8695291") or ("20120031473") or ("20130050956") or ("6498289") or ("20130077249") or ("6201180") or ("20120031472") or ("20070157963") or ("8196360") or ("20100078058") or ("5280133") or ("20130087197") or ("20120186622") or ("20020129849") or ("8796536") or ("8809699") or ("6730841") or ("20120227783") or ("9653634") or ("9112080") or ("9634606") or ("20150000727") or ("9466961") or ("20140352998") or ("20130133721") or ("6576830") or ("8656661") or ("20020134421") or ("20160027944") or ("20080110488") or ("20110114158") or	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:11

("20110253192") or ("20130212959") or ("20130081338") or ("20100180523") or ("20110017281") or ("20120023842") or ("7918694") or ("20090120484") or ("20140113500") or ("4310211") or ("20080149170") or ("20090255573") or ("5951785") or ("8911264") or ("9437985") or ("8671630") or ("8604342") or ("20150140849") or ("8937249") or ("8227942") or ("20100065107") or ("20140284101") or ("20080302408") or ("20040147172") or ("20120104872") or ("7442077") or ("20090078306") or ("4636577") or ("6344612") or ("8779623") or ("9647159") or ("20050032416") or ("20110220187") or ("20110140528") or ("20120132249") or ("8454390") or ("8013237") or ("5590495") or ("8207637") or ("20120152349") or ("20120048349") or ("20110011642") or ("8137115") or ("20120071025") or ("20120309232") or ("20140041935") or ("20170019061") or ("20140041934") or ("9130096") or ("6242685") or ("4233085") or ("20050133082") or ("20060042680") or ("20080302031") or ("7642449") or ("8097818") or ("20120240978") or ("20100018569") or ("20110168238") or ("20110084556") or ("20110308833") or ("20080236886") or ("20080113567") or ("20110056535") or ("20110209741") or ("20140034111") or ("7291036") or ("8336264") or ("8530737") or ("20030070368") or ("20110283635") or ("20110047903")).PN. or (("8209920") or ("20160344334") or ("6672018") or ("20080302409") or ("8273981") or ("20050061360") or ("8450601") or ("9225286") or ("20130263909") or ("5830779") or ("20090126782") or ("7963813") or ("20110195585") or ("8128439") or ("9413286") or ("8468757") or ("6093884") or ("20120317901") or ("20080163918") or ("8227684") or ("20110210085") or ("5513075") or ("20080110487") or ("6331671") or ("20100282294") or ("9391223") or ("9401676") or ("20090095339") or ("5059296") or ("20080110490") or ("20080110492") or ("20140000709") or ("20160065119") or ("6121542") or ("20130340811") or ("8943765") or ("20150194557") or ("9263986") or ("20160118936") or ("20160149539") or ("20140144489") or ("7655859") or ("20070251567") or ("20100031996") or ("20150222225") or ("20170201205") or ("20050022859") or ("7900407") or ("20050072456") or ("9010041") or ("6928775") or ("20120013191") or ("20110168230") or ("20070084504") or ("20110272061") or ("20130340358") or ("20130000694") or ("8523609") or ("20130263910") or ("20100282290") or

("20130008482") or ("20120312346") or ("8656659") or ("8632358") or ("20110197524") or ("20140246074") or ("8434276") or ("20130000230") or ("5252141") or ("20120270450") or ("20150263668") or ("20140000676") or ("9130091") or ("5112408") or ("6469242") or ("6960716") or ("6753468") or ("8733035") or ("8261496") or ("20090114261") or ("20040031219") or ("20040144043") or ("20080121267") or ("20110240089") or ("20110297205") or ("4677248") or ("20100258157") or ("6008450") or ("7342171") or ("20010050102") or ("20110023390") or ("20150340990") or ("8723370") or ("20120152327") or ("20120125395") or ("20110232212") or ("20170237392") or ("20080253092") or ("20080011289") or ("20130276854") or ("20110000535") or ("6265242") or ("20130340810") or ("20110247678") or ("9091461") or ("8796064") or ("20120118355") or ("8683761") or ("20080257402") or ("20040011354") or ("6268559") or ("20130098447") or ("7592537") or ("7824189") or ("7012188") or ("20140083483") or ("8631613") or ("7811098") or ("8061091") or ("8362739") or ("20120152325") or ("9273885") or ("20170201207") or ("8823315") or ("20130052773") or ("20140366464") or ("8699209") or ("20110125338") or ("20120167986") or ("8291654")).PN. or (("20110138599") or ("20120275066") or ("20110067751") or ("20130176662") or ("20140305494") or ("20100263714") or ("6521821") or ("20120247538") or ("20170025993") or ("20110067691") or ("20110017262") or ("9294032") or ("20100012172") or ("20100193008") or ("20070199561") or ("20110108085") or ("20110239450") or ("20160028345") or ("8435063") or ("7694466") or ("5800631") or ("20080169018") or ("7880098") or ("20090320905") or ("20150129016") or ("20150187975") or ("9147786") or ("8615941") or ("20120315783") or ("20160356406") or ("20120125394") or ("20100132275") or ("8684758") or ("20130014809") or ("20100031997") or ("20110138711") or ("7678990") or ("9184324") or ("20150318427") or ("9525380") or ("8671639") or ("20100064605") or ("20130160814") or ("20130084726") or ("20130025652") or ("9006751") or ("8387319") or ("20120024356") or ("20140261639") or ("20100151725") or ("20140150357") or ("9281430") or ("20120118349") or ("8309840") or ("20130055662") or ("20140030841") or ("20080099063") or ("20120118360") or ("6207889") or ("8439712") or ("9059350") or ("9170034")

or ("8829539") or ("20040000334") or ("20060032527") or ("20070181174") or ("9653635") or ("20050178429") or ("20010050101") or ("20170163206") or ("20110220185") or ("20150027069") or ("20120067613") or ("8500462") or ("20100147362") or ("20140318602") or ("20150129517") or ("20160254776") or ("20150194552") or ("9482449") or ("20140216527") or ("20130118545") or ("20120180845") or ("7663055") or ("20120152302") or ("9608559") or ("8656660") or ("9331213") or ("20130125975") or ("4860509") or ("8448407") or ("20120060919") or ("20060054213") or ("20140083028") or ("9059348") or ("20170005614") or ("8793941") or ("9590557") or ("4724010") or ("5092939") or ("9083121") or ("8915030") or ("9249995") or ("9236832") or ("8162677") or ("20150372638") or ("8235749") or ("5733382") or ("9160092") or ("9331631") or ("20160226433") or ("20160036377") or ("6175075") or ("20140060621") or ("20140060622") or ("20090320896") or ("20130000229") or ("8991116") or ("7858874") or ("8545239") or ("20130276856") or ("9147785") or ("20130033894") or ("9294033") or ("20150038011") or ("9664835") or ("8181402") or ("20070227580") or ("20120071024") or ("20110036386")).PN. or (("20120320621") or ("20150180406") or ("8308504") or ("20130098420") or ("20140158650") or ("20110094570") or ("20120315787") or ("8927850") or ("20110290303") or ("20150280640") or ("20100170715") or ("20100275534") or ("20140261638") or ("8507784") or ("4097308") or ("20080302030") or ("20050126622") or ("8959848") or ("20170179878") or ("20120312347") or ("20110192441") or ("20110269347") or ("9362442") or ("20150311371") or ("7868244") or ("20130180575") or ("20110239554") or ("20070102038") or ("9032672") or ("20140144485") or ("20090320389") or ("20170025994") or ("20130008103") or ("20110183531") or ("8895852") or ("9018518") or ("5022381") or ("8511006") or ("9270224") or ("20120186630") or ("20140130429") or ("20120312354") or ("20090014058") or ("8424256") or ("8601754") or ("9316417") or ("20130125482") or ("20130160816") or ("20150059158") or ("20100031998") or ("20150326170") or ("20100018135") or ("8555872") or ("20110247282") or ("8471141") or ("20140165480") or ("20160126885") or ("9029683") or ("8950128") or ("20120279747") or ("9103564") or ("8177566") or ("9403477") or ("6323478") or ("20160049903") or ("20100269891") or ("8631614") or

("20120060898") or ("20110212647") or ("8203075") or ("20100275991") or ("20140060624") or ("20150318819") or ("20050178430") or ("20170110280") or ("20110067327") or ("8418417") or ("20110088753") or ("8680656") or ("20090056792") or ("8418415") or ("6693237") or ("4106952") or ("20060235717") or ("7678991") or ("20100012343") or ("9706660") or ("20120055553") or ("20140369063") or ("20140216525") or ("20150287858") or ("20160118932") or ("8969714") or ("20110232728") or ("20140001129") or ("20080235949") or ("5409549") or ("20140190096") or ("20080236649") or ("20080236650") or ("20080236740") or ("20050133086") or ("8910433") or ("20100300508") or ("20140166082") or ("8776455") or ("20120222670") or ("6809251") or ("20120210660") or ("9735728") or ("4210122") or ("20120151856") or ("9455664") or ("20130199598") or ("20090133740") or ("20140240998") or ("9035168") or ("20110241243") or ("20130067836") or ("20040007260") or ("9331224") or ("7681363") or ("20130125973") or ("9003728") or ("20140311547") or ("20100077680") or ("20130139871") or ("20150059828")).PN. or (("8033859") or ("20150270803") or ("20120118359") or ("20120024337") or ("20080083449") or ("20130033115") or ("20110138710") or ("8695289") or ("20080178922") or ("8372226") or ("4078944") or ("20080313977") or ("5164020") or ("9615470") or ("6506970") or ("20120247721") or ("20110259402") or ("20110000601") or ("20030111103") or ("20140208670") or ("20120132260") or ("20100146878") or ("20110303285") or ("20140305493") or ("20020043277") or ("20110067758") or ("8627617") or ("20100139760") or ("7666466") or ("8123565") or ("9142691") or ("20150311861") or ("20080245405") or ("20080057776") or ("20140090866") or ("20150214889") or ("20050115176") or ("20140246078") or ("8613169") or ("8366471") or ("20140130848") or ("6786012") or ("7708593") or ("8063301") or ("20160329857") or ("20100126651") or ("20160134229") or ("8633376") or ("9171980") or ("9171982") or ("20110162315") or ("20120285502") or ("20080314434") or ("7435897") or ("20090308431") or ("20120318319") or ("20160315581") or ("20170040928") or ("20150038005") or ("20120129401") or ("20170179876") or ("20110277811") or ("20120103401") or ("20110214367") or ("20090314335") or ("20100173511") or ("8853530") or ("20100132305") or

		("20080142071") or ("20110214368") or ("20100263704") or ("8033857") or ("20110114149") or ("20080099062") or ("20160197580") or ("20090293932") or ("20140182678") or ("20070259103") or ("20110214366") or ("20070256727") or ("20160013346") or ("8435056") or ("6606830") or ("9541308") or ("20080264468") or ("20130146125") or ("9564545") or ("7812247") or ("8853525") or ("20060219291") or ("20050161074") or ("6201179") or ("5542989") or ("8316619") or ("20120145221") or ("8307606") or ("9640692") or ("6075201") or ("20110155203") or ("20110088744") or ("8336277") or ("20160164453") or ("8316618") or ("20140318599") or ("7963802") or ("20090098775") or ("20160230394") or ("20110023935") or ("20130092216") or ("20150043200") or ("8943766") or ("20090014051") or ("20100326498") or ("20120204927") or ("20100068926") or ("8633406") or ("20160105145") or ("20010034982") or ("7910392") or ("20120234377") or ("7740497") or ("20130008490") or ("20100071749")).PN.				
S116	60	S115 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:12
S117	2	(("20100139733") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/27 11:41
S118	2	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/27 11:47
S119	5	("2700085").URPN.	USPAT	ADJ	OFF	2018/03/27 11:51
S120	32	("2700085" | "2839636" | "3085138" | "3843050").PN. OR ("4734059").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 11:53
S121	5	("2700085").URPN.	USPAT	ADJ	OFF	2018/03/27 11:58
S122	0	("3231966").URPN.	USPAT	ADJ	OFF	2018/03/27 12:04
S123	0	("3231966").URPN.	USPAT	ADJ	OFF	2018/03/27 12:04
S124	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 12:14

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S125	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 12:18
S126	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 08:44
S127	41	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$ or US-20130037294-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$ or US-6046665-$ or US-3766509-$ or US-4918420-$ or US-3085138-$ or US-2839636-$ or US-2700085-$ or US-9325122-$ or US-7327213-$ or US-4060785-$ or US-3818407-$ or US-3578896-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$ or US-3296399-$ or US-3015008-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 09:18
S128	5	S127 and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 09:18
S129	2	"20130037294"	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 10:01
S130	2	(("20130037294") or ("5903209")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 10:01
S131	3	(("20130037294") or ("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 10:45
S132	1	("9575466").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 11:26
S133	8579	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2018/03/28 13:45

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			EPO; JPO			
S134	1114	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
S135	617	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 13:45
S136	10234	S135 or S134 or S133	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
S137	46	S136 and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
S138	2324	thermoplastic elastomer and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
S139	6	S138 and S136	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
S140	25	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 14:04
S141	7	S140 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 14:04
S142	2	(("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/06/27 09:55
S143	2	(("20140042293") or ("20140055938")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/06/27 10:54
S144	2	(("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR;	OR	OFF	2018/07/02 14:30

			JPO			
S145	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 14:30
S146	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/02 14:43
S147	3613	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/02 14:44
S148	4004	S147 or S146	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/02 14:44
S149	94	S148 and thermoplastic and fuse	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/02 14:44
S150	1	(12/081584).APP.	USPAT; USOCR	ADJ	OFF	2018/07/02 14:53
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S152	1	(12/081584).APP.	US-PGPUB; USOCR	ADJ	OFF	2018/07/02 15:03
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Ex.1002-117

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S168	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 15:40

S169	25	((("Solon") near3 ("Dean"))).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/03 15:41
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EAST Search History (Interference)

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5/ 15/ 2019 11:32:27 AM
C:\ Users\ ssawyer\ Documents\ EAST\ Workspaces\ 14295132.wsp

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	14295132	Filing Date	2014-06-03	Docket Number (if applicable)	SHOALS-25	Art Unit	2847
First Named Inventor	Dean Solon			Examiner Name	Sawyer, Steven T.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 506268

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

X Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Carla L. Gannon/	Date (YYYY-MM-DD)	2019-05-10
Name	Carla L. Gannon	Registration Number	56358

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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Electronic Patent Application Fee Transmittal

Application Number:	14295132
Filing Date:	03-Jun-2014
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Filer:	Carla L. Gannon/Donna Braam
Attorney Docket Number:	SHOALS-25

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	2253	1	700	700
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	2820	1	950	950
		Total in USD ($)		**1650**

Electronic Acknowledgement Receipt

EFS ID:	35977170
Application Number:	14295132
International Application Number:	
Confirmation Number:	6619
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Customer Number:	57825
Filer:	Carla L. Gannon/Donna Braam
Filer Authorized By:	Carla L. Gannon
Attorney Docket Number:	SHOALS-25
Receipt Date:	10-MAY-2019
Filing Date:	03-JUN-2014
Time Stamp:	13:07:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1650
RAM confirmation Number	051019INTEFSW13102700
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response After Final Action	Response_111318OA_SHOALS-25.pdf	179675 2dc724f0d6d3d186b1a320ede5c8a9909add4a3f	no	10
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	RCEtransmittal_SHOALS-25.pdf	1349935 14051d942e3f7d895cde49bec74bca17fa0932c8	no	3
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32433 a659519b265f16ea96b323292df9655e33aff509	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1562043		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	DEAN SOLON		
Serial No.:	14/295,132	**Examiner:**	SAWYER, STEVEN T.
Filed:	06/03/2014	**Art Unit:**	2847
Confirmation No.:	6619		

For: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO FINAL OFFICE ACTION,

REQUEST FOR EXTENSION OF TIME,

AND REQUEST FOR CONTINUED EXAMINATION

This paper responds to the Office Action mailed November 13, 2018.

Applicant requests a Three-Month Extension of Time, thereby expanding the window for response to the outstanding Office Action until May 13, 2019.

The requisite Extension of Time fee of $700.00 is submitted contemporaneously.

A Request for Continued Examination, and the requisite fee of $950 for a small entity's 3rd RCE, is submitted contemporaneously with this Response.

In the event an additional extension of time or other fee is required, Applicant requests that this be considered the requisite petition.

The Commissioner is hereby authorized to charge any fees associated with this case to 506268.

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Ex.1002-129

RESPONSE TO FINAL OFFICE ACTION

Amendments to the Claims

The current status of the claims is listed in the "Listing of the Claims" below. This replaces all previous versions of claims.

Listing of the Claims

1) (**Currently Amended**) An in line assembly for a solar installation including:
   a. A photovoltaic fuse having **a solid outer surface including** a first end**,** **[[and]]** a second end **and a middle section there between**, [[and]] **said solid outer surface** defining an outline;
   b. An undermold surrounding and sealing said fuse, said undermold defining an outline, wherein the outline of said undermold has a similar contour and orientation relative to the outline of said ~~**fuse**~~ **solid outer surface**;
   c. An overmold defining an outline and surrounding said undermold, said undermold and said overmold each constructed of a single unit and each constructed of dissimilar materials, wherein the outline of said overmold has a similar contour and orientation relative to the outline of said undermold; and
   d. A first photovoltaic connector engaged with said first end, wherein said assembly provides electrical insulation.

2) (Original) The assembly of claim 1 further including a second photovoltaic connector engaged with said second end.

3) (Original) The assembly of claim 2 wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

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4) (Original) The assembly of claim 1 wherein said first and second connectors are locking type connectors.

5) (Previously Amended) The assembly of claim 4 further comprising a tool for unlocking said connectors.

6) (Original) The assembly of claim 1 wherein said undermold is a modified polyphenylene ether plastic.

7) (Original) The assembly of claim 1 wherein said overmold is a thermoplastic elastomer.

8) (Original) The assembly of claim 6 wherein said fuse is rated at 2-30 amps.

9) (Original) The assembly of claim 8 wherein said fuse is rated at 600-2000V.

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10) (Previously Withdrawn) A photovoltaic wire harness including:

a. A trunk wire having a plurality of branch wires extending there from in pairs, said branch wires and said trunk wire forming angles having vertices of approximately 90 degrees; and

b. A plurality of fuse assemblies engaged only with said branch wires in a ratio of one fuse assembly per branch wire.

11) (Previously Withdrawn) The photovoltaic wire harness of claim 10 wherein said fuse assemblies each include one or two connectors.

12) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said fuse assemblies each include a pair selected from the group consisting of one male type connector and one female type connector; one male type connector and one wire; and one female type connector and one wire.

13) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said angles are surrounded by an encasement.

14) (Previously Withdrawn) The photovoltaic wire assembly of claim 13 wherein said encasement defines tie-downs that span between adjacent protrusions.

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15) (Previously Withdrawn) A method of configuring a solar installation including the steps of:

a. Engaging the trunk of a wire harness with a combiner box wherein said combiner box lacks fuses and circuit breakers; and
b. Engaging each terminal branch of said wire harness with one solar panel wherein each terminal branch includes exactly one in line fuse assembly.

16) (Previously Withdrawn) The method of claim 15 wherein said step of engaging each terminal branch with one solar panel includes the step of uniting a male connector with a female connector.

17) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a male connector integrated with said in line fuse assembly.

18) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a female connector integrated with said in line fuse assembly.

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Remarks

Applicant gratefully acknowledges the Office Action dated 11/13/18. Upon considering the Office's cited art and remarks, claim 1 has been amended. Claims 10-18 were previously withdrawn. Accordingly, claims 1-9 are currently pending, and claims 1-9 are currently under consideration, with no claims allowable at this time.

This Response specifically addresses the following issues:

I. 35 USC §103 Rejection of Claims 1, 2 and 7 as Obvious in view of Yen and Jonczyk (Examiner's ¶3)

A. The Claimed Invention Doesn't Relate to a "generic fuse in general"

As a preliminary matter, Applicant respectfully disagrees with The Office's contention that "*As the claim language as a whole relates to a generic fuse in general it would appear reasonable to modify the fuse taught by Yen with the fuse photovoltaic system a taught by Jonczyk et al. to arrive at the claimed invention.*"[1] The claim language doesn't relate to generic fuses in general. Rather, the preamble and first claim element unambiguously limit the invention to photovoltaic fuses in solar installations:

1) *An in line assembly for a **solar installation** including:*
   A) *A **photovoltaic fuse** having…*

On this basis Applicant reiterates that Yen is not analogous art and should not be applied.

[1] See page 10 of 11/13/18 Office Action.

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B. Yen Doesn't Teach A Fuse Having An Outline

The Office argues that Yen teaches a fuse "...being both the wire 22 and the space 25 containing a gas 251..."[2]. The Office also argues that Yen's inner layer 211 constitutes an undermold.[3]

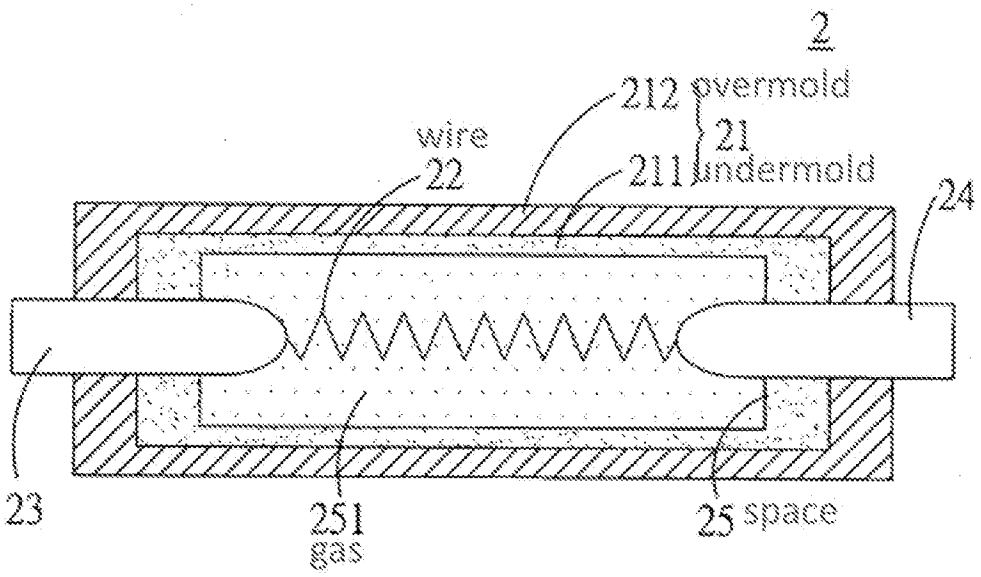


FIG.3

Very simply, a gas-filled space is not reasonably an "outline". Moreover, the inner perimeter of Yen's inner layer 211 can't constitute the "outline" because that structure is the undermold itself.

On this basis Applicant respectfully requests withdrawal of the 103 rejection in view of Yen not teaching an "outline".

[2] See page 11 of 11/13/18 Office Action.

[3] See page 3, section b of 11/13/18 Office Action.

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C. Yen Doesn't Teach A Fuse Having a Solid Outer Surface

While Applicant believes that Yen is improperly applied and doesn't teach an "outline" for the reasons discussed in Sections A and B respectively, claim 1 has been amended to expedite prosecution.

Amended claim 1 recites, in relevant part:

1) An in line assembly for a solar installation including:

a. A photovoltaic fuse having a solid outer surface including a first end, [[and]] a second end and a middle section there between, [[and]] said solid outer surface defining an outline;

b. An undermold surrounding and sealing said fuse, said undermold defining an outline, wherein the outline of said undermold has a similar contour and orientation relative to the outline of said ~~fuse~~ solid outer surface;

Amended claim 1 clearly overcomes the Yen reference at least because Yen doesn't teach a fuse having a solid outer surface. Yen's outer surface is gas 251 within space 25, which is neither solid nor a surface. Moreover, it would be improper to point to the inner perimeter of Yen's inner layer 211 as teaching the "solid outer surface" of the fuse because this structure allegedly constitutes the undermold.

On this basis amended claim 1 overcomes Yen.

Applicant notes that a "solid outer surface" and "middle section there between" is disclosed although not named, *inter alia,* in originally filed FIG. 6:

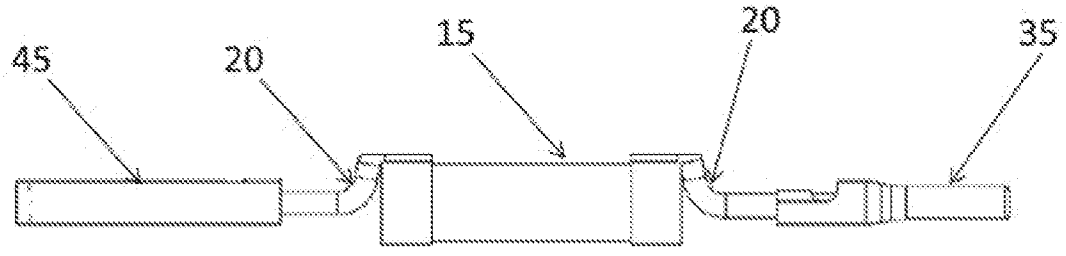


FIG. 6

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No new matter has been introduced.

Applicant further notes that upon allowance of the claim, the specification and figures will be amended to include claimed structures of first end; second end; middle section; and outer surface.

2) **35 USC §103 Rejection of Claims 3 and 4 as Obvious in view of Yen, Jonczyk and Loet (Examiner's ¶7)**

This rejection is deemed moot in view of claim 1 overcoming the Yen reference, and claims 3 and 4 depending from claim 1.

3) **35 USC §103 Rejection of Claim 5 as Obvious in view of Yen, Jonczyk, Loet and Quiter (Examiner's ¶8)**

This rejection is deemed moot in view of claim 1 overcoming the Yen reference, and claim 5's dependence on claim 1.

4) **35 USC §103 Rejection of Claim 6 as Obvious in view of Yen, Jonczyk and Kono (Examiner's ¶9)**

This rejection is deemed moot in view of claim 1 overcoming the Yen reference, and claim 6's dependence on claim 1.

5) **35 USC §103 Rejection of Claims 8 and 9 as Obvious in view of Yen, Jonczyk, Kono and F. J. Kozackz (Examiner's ¶10)**

This rejection is deemed moot in view of claim 1 overcoming the Yen reference, and claims 8 and 9 depending from claim 1.

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Conclusion

For the reasons set forth herein, Applicant believes all claims are allowable over the art of record. Examiner Sawyer is encouraged to contact Attorney Gannon by telephone or email to discuss the case.

Respectfully submitted,

/Carla L. Gannon, 56,358/

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Date: May 10, 2019
File No. SHOALS-25

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PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/295,132	Filing Date 06/03/2014	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	05/10/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 18	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/CHRISTINE MOLLISH/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

57825 7590 11/13/2018

CARLA GANNON LAW
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EXAMINER	
SAWYER, STEVEN T	

ART UNIT	PAPER NUMBER
2847	

NOTIFICATION DATE	DELIVERY MODE
11/13/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

carlagannon@yahoo.com
cgannon@carlagannonlaw.com
docketing@carlagannonlaw.com

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Ex.1002-140

Office Action Summary	Application No. 14/295,132	Applicant(s) Solon, Dean	
	Examiner STEVEN T SAWYER	Art Unit 2847	AIA Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 10/10/2018.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-18 is/are pending in the application.

5a) Of the above claim(s) 10-18 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-9 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

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1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/19/2018 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 7 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen (US PG. Pub. 2010/0207716) in view of Jonczyk et al. (US PG. Pub. 2010/0139733).

Regarding claim 1 - Yen teaches an in line assembly (fig. 3, 2 [paragraph 0021] Yen states, "overcurrent protection structure 2") including:

a. A fuse (element 22 in combination with surrounding space 25 [paragraph 0019] Yen states, "fuse structure unit 22") having a first end (left end) and a second end (right

end), and defining an outline;

b. An undermold (211 [paragraph 0027] Yen states, "inner layer 211 can be made of the arc resistant material") surrounding and sealing said fuse, said undermold defining an outline, wherein the outline of said undermold has a similar contour and orientation relative to the outline of said fuse (figure 3 shows the undermold following the contour of the fuse structure 22/25);

c. An overmold (212 [paragraph 0028] Yen states, "outer layer 212 can be made of the ordinary coating material") defining an outline and surrounding said undermold (claimed structure shown in figure 3), said undermold (211) and said overmold (212) each constructed of a single unit and each constructed of dissimilar materials ([paragraph 0020] Yen states, "The inner layer 211 can be made of an arc resistant material and the outer layer 212 can be made of an ordinary coating material"), wherein the profile outline of said overmold has a similar contour and orientation relative to the profile outline of said undermold (see fig. 3); and

d. A first connector (23 [paragraph 0019] Yen states, "electrode 23") engaged with said first end, wherein said assembly provides electrical insulation ([paragraph 0020] Yen states, "The coating 21 can be an arc resistant material, which can be a thermoplastic material or a thermosetting material").

Yen does not teach wherein the in line assembly is for a solar installation and the fuse is a photovoltaic fuse.

Jonczyk teaches wherein the in line assembly is for a solar installation ([title] Jonczyk states, "fused wiring harness for a photovoltaic system") and the fuse (fig. 6, 112 [paragraph 0033] Jonczyk states, "fuse 112") is a photovoltaic fuse ([paragraph

0005] Jonczyk states, "The photovoltaic system further includes a fused wiring harness having a fused wiring assembly and a second wiring assembly"); an undermold (fig. 6 [paragraph 0033] Jonczyk states, "fuse holder 110"; figure 6 shows the fuse holder 110 completely covering the fuse 112) covering the fuse and an overmold (fig. 10, 210 [paragraph 0038] Jonczyk states, "fuse overmold portion 210") covering the undermold (see figs. 10).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having a fuse as taught by Yen with the in line assembly being for a solar installation and with an undermold/overmold arrangement as taught by Jonczyk because Jonczyk states, " Accordingly, there is a need for a wiring harness for a PV system that protects each individual circuit and that provides for ease of installation during, for example, the deployment of large photovoltaic arrays." [paragraph 0003].

Regarding claim 2 – Yen in view of Jonczyk teach the assembly of claim 1 further including a second photovoltaic connector (Yen; fig. 3, 24; Jonczyk teaches a photovoltaic fuse structure as discussed in the rejection to claim 1 above) engaged with said second end (right end of fuse element 22).

Regarding claim 7 – Yen in view of Jonczyk teaches the assembly of claim 1 wherein said overmold (Jonczyk; fig. 10, 210) is a thermoplastic elastomer ([paragraph 0031] Jonczyk states, "overmold portions 82, 84 can be formed from a high-performance

thermoplastic material such as a thermoplastic elastomer (TPE)"; overmold 82 is considered equivalent to overmold 210).

7. Claims 3 and 4 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Jonczyk et al. as applied to claim 2 above, and further in view of Loet (US Patent 5316502).

Regarding claim 3 – Yen in view of Jonczyk teach the assembly of claim 2 but fails to teach wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, "fuse 26") with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20), wherein a first connector is a female type connector ([column 4 line 47] Loet states, "female connector 34"), and said second connector is a male type connector ([column 4 line 32] Loet states, "male connection element 22" [Abstract] Loet states, "a fuse, is mounted within the housing and arranged to electrically couple the male cable connector to the female cable connector").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Yen in view of Jonczyk with the connectors being of a male and female type as taught by Loet because Loet states, "The housing can be easily installed at any

location of a power distribution network by using the male and female connectors to couple one power cable to another power cable" [Abstract].

Regarding claim 4 – Yen in view of Jonczyk teach the assembly of claim 1 but fails to teach wherein said first and second connectors are locking type connectors.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, "fuse 26") with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20) wherein said first and second connectors are locking type connectors ([column 5 line 18-20] Loet states, "the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Yen in view of Jonczyk with the connectors being locking type connectors as taught by Loet because Loet states, "the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another"" [column 5 lines 18-20]. This locking arrangement will provide a strong mechanical connection.

8. Claim 5 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Jonczyk et al. and Loet as applied to claim 4 above, and further in view of Quiter et al. (US PG. Pub. 2011/0104925).

Regarding claim 5 – Yen in view of Jonczyk and Loet teach the assembly of claim 4, but fails to teach wherein a tool is used for unlocking said connectors.

Quiter teaches an assembly (fig. 1 [title] Quiter states, "connector system, use and method") having connectors (10 & 12 [paragraph 0077] Quiter states, "connector 10 and complementary connector 12") being of a locking type ([paragraph 0080] Quiter states, "connector 10 is locked with the complementary connector 12"), wherein a tool is used for unlocking said connectors ([paragraph 0083] Quiter states, "For unlocking, a tool (not shown) can be inserted…By means of the tool, the complementary latching element can be displaced in the unlocking direction ENR").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Yen in view of Jonczyk and Loet with the connectors being unlockable by a tool as taught by Quiter because this securing arrangement will prevent unintentional disconnection of the connectors.

9. Claim 6 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Jonczyk et al. as applied to claim 1 above, and further in view of Kono et al. (US PG. Pub. 2011/0232963).

Regarding claim 6 – Yen in view of Jonczyk teach the assembly of claim 1 wherein said undermold (Yen; fig. 3, 211) is formed of a polyphenylene plastic ([paragraph 0020] Yen states, "coating 21 can be an arc resistant material, which can be a thermoplastic material or a thermosetting material…polyphenylene sulfone").

Yen in view of Jonczyk do not explicitly teach the material being a modified polyphenylene ether plastic.

Kono teaches an in line assembly for a photovoltaic installation (fig. 2 [title] Kono states, "connection structure for photovoltaic power generation module") wherein a material is a modified polyphenylene ether plastic ([paragraph 0044] Kono states, "the connection structure of the present embodiments is produced by injection molding…consisting of a modified polyphenylene ether").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the undermold as taught by Yen in view of Jonczyk with the in line assembly using the material of modified polyphenylene ether in the structure as taught by Kono because Kono states, "Especially, from the viewpoint of strength, electrical characteristics, and long-term heat resistance, preferred is a resin composition containing at least one selected from the group consisting of a modified polyphenylene ether" [paragraph 0044].

10. Claims 8-9 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Jonczyk et al. and Kono et al. as applied to claim 6 above, and further in view of F. J. Kozackz (US Patent 3296399).

Regarding claim 8 – Yen in view of Jonczyk and Kono teach the assembly of claim 6, but fail to teach specifically wherein said fuse is rated at 2-30 amps.

Kozackz teaches a fuse (fig. 1, 5 [column 3 line 40] Kozackz states, "fusible element 5") wherein said fuse is rated at 2-30 amps ([column 3 line 40-42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the fuse as taught by Yen in view of Jonczyk and Kono with fuse having a rating of 2-30 amps as taught by Kozackz because this fuse rating will protect the connected solar device from overdrawing current and prevent damage to the solar device, the fuse will perform as a protection device.

Regarding claim 9 – Yen in view of Jonczyk, Kono and Kozackz teach the assembly of claim 8 wherein said fuse (Kozackz; fig. 1, 5) is rated at 600-2000V ([column 3 line 40-42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

Response to Arguments

Applicant's arguments filed 10/10/2018 have been fully considered but they are not persuasive.

Applicant argues that the primary reference Yen is not analogous art. Applicant states, "the Office would presumably concede that Yen is not from the same field of endeavor in view of the reference's silence regarding solar installations and photovoltaic

fuses…Yen pertains to overcurrent protection at high temperatures…The inventor would have no reason to look to Yen's technology area to solve the challenges his invention addresses" [REMARKS pages 6-7].

Examiner disagrees. In response to applicant's argument regarding nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, the primary reference Yen is related to a fuse that has a very similar structure to that of the current application. One having ordinary skill in the art would consider photovoltaic fuses and generic fuses to be analogous art. As the claim language as a whole relates to a generic fuse in general it would appear reasonable to modify the fuse taught by Yen with the fuse photovoltaic system as taught by Jonczyk et al. to arrive at the claimed invention. Therefore this argument is not found persuasive.

Applicant further argues "Yen refers to "fusible fuse structure unit 22", and nowhere discusses surrounding space 25 as being part of the fuse. This is consistent with the definition of a fuse, which is "a safety device consisting of a strip of wire that melts and breaks an electric circuit if the current exceeds a safe level…In short, Yen's "fuse" 22 is a zig-zag, and Yen's "undermold" 211 is substantially rectangular. The fuse and undermold don't have a similar contour" [REMARKS pages 7-8].

Examiner disagrees. The term "fuse" is somewhat broad and does not mean only a "strip of wire". For instance dictionary.com states a fuse is defined as "a

protective device, used in an electric circuit, containing a conductor that melts under heat produced by an excess current" [dictionary.com]. The rejection states the fuse being both the wire 22 and the space 25 containing a gas 251. These elements together would reasonably be considered a "protective device....containing a conductor".

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN T SAWYER whose telephone number is (571)270-5469. The examiner can normally be reached on M-F 8:30 am - 5pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an

interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thompson can be reached on 5712722342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEVEN T SAWYER/
Primary Examiner, Art Unit 2847

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/295,132	Solon, Dean
	Examiner	Art Unit
	STEVEN T SAWYER	2847

CPC - Searched*		
Symbol	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc.	11/06/2018	ss
H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	11/06/2018	ss

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
439	620.28 (updated)	7/2/2018	ss
337	227, 228 (updated)	7/2/2018	ss

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc., H01L31/0504. cpc., H01B7/0045.cpc., H01L31/18.cpc. (with text) (updated)	11/06/2018	ss
Inventor name search	11/06/2018	ss

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	Interference search attached	7/2/2018	ss

/STEVEN T SAWYER/ Primary Examiner.Art Unit 2847	

Voltage 116
Ex.1002-153

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	10470	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/11/07 08:42
L2	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/11/07 08:42
L3	9127	L2 or L1	US-PGPUB; USPAT	ADJ	OFF	2018/11/07 08:42
L4	9127	L3	US-PGPUB; USPAT	ADJ	OFF	2018/11/07 08:42
L5	1	4 and photovoltaic and fuse and undermold and overmold	US-PGPUB; USPAT	ADJ	OFF	2018/11/07 09:54
L6	1	4 and fuse and undermold and overmold	US-PGPUB; USPAT	ADJ	OFF	2018/11/07 09:55
L7	152	4 and photovoltaic and fuse	US-PGPUB; USPAT	ADJ	OFF	2018/11/07 09:55
L8	26	((("Solon") near3 ("Dean"))).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/11/07 09:59
S1	3	photovoltaic fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 10:48
S2	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 12:22
S3	1	(13/151984).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:37
S4	14	("2046221" | "3356806" | "3518600" | "3778741" | "4734059" | "4909761" | "5018991" | "5648749" | "5888098").PN. OR ("8454390").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:37

S5	26	("20050128045" | "20120161919" | "2700085" | "3356806" | "3465280" | "3551869" | "3778741" | "3843050" | "4060303" | "4333701" | "4391485" | "4531806" | "4734059" | "4909761" | "5444428" | "7377813" | "7445509" | "7777508" | "7988493" | "8098126" | "8342885" | "8454390").PN. OR ("9325122").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:38
S6	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S7	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S8	23	("4202589" | "4390225" | "4448476" | "6483417" | "2187427" | "3828291" | "4909761" | "3243551" | "7639113" | "2758295" | "4504815" | "6717505" | "20090184796" | "2614190" | "20120309232" | "4762509" | "6587028" | "2207837").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:42
S9	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:03
S10	1	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:11
S11	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:19
S12	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:19
S13	2063	fuse and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S14	34	fuse and thermoplastic elastomer and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S15	0	(13/245432).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:29
S16	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S17	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33

S18	9	("3900241" | "5168124" | "20080194154" | "20070107767" | "3900241" | "20060049358" | "7342171" | "7485982" | "20080099062" | "6307144").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S19	2628	fuse and (different with material) and elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:39
S20	743	fuse and (different with material) and thermoplastic elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:40
S21	239	S12 and material	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:42
S22	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S23	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S24	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:13
S25	24	("4023071" | "4188561" | "4199736" | "4335415" | "4359764" | "4633359" | "5224012" | "5278720" | "5384679" | "5508873").PN. OR ("5726851").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:27
S26	2	("3243551").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:42
S27	2	("2839636").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:46
S28	2	("2049309").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:49
S29	184	fuse and polyphenylene ether and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:57
S30	0	fuse and photovlotaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:02
S31	2971	fuse and photovoltaic	US-	ADJ	OFF	2016/10/04

			PGPUB; USPAT; USOCR; EPO; JPO			15:02
S32	539034	"361".clas. or "136".clas. or "174".clas. or "439".clas. or "337".clas.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S33	707	S32 and S31	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S34	602	S33 not S2	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S35	0	fuse holder and polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:30
S36	9	fuse holder and polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:31
S37	2	("2316036").URPN.	USPAT	ADJ	OFF	2016/10/04 15:57
S38	53	("1028328" | "1036510" | "1099589" | "1508839" | "1511838" | "1889585" | "1927905" | "1971809" | "20020113684" | "20070236323" | "2316036" | "2524550" | "2838639" | "2873327" | "2877321" | "2946974" | "3205467" | "3447240" | "3562162" | "3838374" | "3870863" | "3912903" | "4084145" | "4237440" | "4563809" | "4680567" | "4929921" | "5003280" | "5361058" | "5418516" | "5903208" | "6664886" | "6774760" | "7645645" | "RE23219").PN. OR ("8629750").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 15:57
S39	1	(13/208149).APP.	US-PGPUB; USOCR	ADJ	OFF	2016/10/04 16:08
S40	1	(13/208149).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 16:11
S41	27	("20130037294" | "3356806" | "3417359" | "3518600" | "3629808" | "3753192" | "4734059" | "4759730" | "4826454" | "4909761" | "5018991" | "5088683" | "5335160" | "5427542" | "5648749" |	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 16:12

		"5888098" | "5993246" | "D326845" | "RE40228").PN. OR ("8517768").URPN.				
S42	1	("20130037294").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 07:39
S43	26	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 07:49
S44	7	S43 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:50
S45	13	("5726851" | "4909761" | "8454390" | "5018991" | "5648749" | "5888098" | "20100207716" | "20050141164" | "20120295456" | "5137478" | "4734059" | "5714923" | "3848215").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S46	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S47	26	S43 and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S48	4	S43 and S46	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:53
S49	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 08:05
S50	8	polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:25

S51	21694	polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S52	141	S51 and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S53	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S54	3	polyphenylene ether and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:28
S55	18	PPE and fuse with holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S56	18	PPE and (fuse with holder)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S57	9	PPE and fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S58	5	S43 and amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:40
S59	11	S43 and (rated or rating)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:42
S60	4	polyphenylene ether with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:55

S61	0	polyphenylene ether with fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:56
S62	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:03
S63	9151	fuse with voltage with current	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S64	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S65	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S66	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S67	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S68	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S69	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S70	1380	S64 or S65 or S66 or S67 or S68 or S69	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S71	184	S70 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:27

S72	95	fuse with voltage with amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S73	6	S72 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S74	7	female and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:39
S75	51	photovoltaic and fuse and (connector with lock$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:23
S76	27	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 10:24
S77	9	S76 and lock$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:24
S78	7	(("20120309232") or ("20130037294") or ("5316502") or ("20110104925") or ("20110232963") or ("3296399")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:04
S79	6337	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S80	10	S79 and fuse and elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21

S81	170	S79 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S82	20	((Dean) near2 (Solon)).INV.	US-PGPUB; USPAT	ADJ	OFF	2016/10/05 13:37
S83	0	("2010302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S84	1	("20100302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S85	49	(("8937249") or ("20110209741") or ("8690595") or ("20130344727") or ("5309625") or ("5755579") or ("4280748") or ("4850884") or ("4884050") or ("4906195") or ("4940419") or ("4943241") or ("4950168") or ("4963099") or ("5011417") or ("5057026") or ("5327644") or ("5403193") or ("5489885") or ("5662496") or ("5697813") or ("5722863") or ("5735713") or ("5739739") or ("5749739") or ("5785532") or ("5877944") or ("5883560") or ("5897385") or ("5928004") or ("6007350") or ("6011319") or ("6109973") or ("6144539") or ("6172302") or ("6186633") or ("6224397") or ("6224397") or ("6252477") or ("6262537") or ("6411190") or ("6430054") or ("6600236") or ("6712623") or ("6719572") or ("6791207") or ("6796808") or ("6851956") or ("7021962") or ("7132761")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:18
S86	1	("14700742").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:41
S87	0	("14295132").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:21
S88	3	(("20120309232") or ("20130037294") or ("5316502")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:22
S89	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:23
S90	7658	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:07

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S91	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/04 15:08
S92	8198	S91 or S90	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:09
S93	30	S92 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:09
S94	39	("1175103" | "1579596" | "2414865" | "2872501" | "3422213" | "3601737" | "3766307" | "3766509" | "4280748" | "4308515" | "4333701" | "4365226" | "4391485" | "4679877" | "4734059" | "4831353" | "4880943" | "4958426" | "5018991" | "5162773" | "5241134" | "5298877" | "5304740" | "5329065" | "5345210" | "5391836" | "5493069" | "5591366").PN. OR ("6046665").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/04 15:11
S95	4	("1175103").URPN.	USPAT	ADJ	OFF	2017/02/04 15:14
S96	20	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/06 07:50
S97	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 13:40
S98	2	fuse same overmold same undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:47
S99	25	overmold$4 same undermold$4 and (water or moisture)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:48
S100	2164	(second with overmold$4) and (water or moisture)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:49
S101	89	(second with overmold$4) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:50

S102	5	(second overmold or second overmolding) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:52
S103	9	("20100139733" | "20110104925" | "20110232963" | "20120309232" | "20130037294" | "20130077249" | "3296399" | "5316502").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:58
S104	2	(("20100139733") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 15:01
S105	1	("20110232963").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:01
S106	8165	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:06
S107	1102	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:06
S108	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:06
S109	9807	S108 or S107 or S106	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:08
S110	2	S109 and overmold and fuse and solar	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S111	2	S109 and overmold and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S112	391	S109 and mold$4 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09

S113	49	S109 and mold$4 and fuse and solar	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S114	23	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/08/30 16:10
S115	640	(("20170214234") or ("8113890") or ("20120085040") or ("20110275232") or ("20090318004") or ("7850476") or ("20160072431") or ("20100105238") or ("20150162870") or ("8907230") or ("20110147076") or ("20090178701") or ("20100139733") or ("20130056047") or ("7445508") or ("20160142008") or ("7387537") or ("20080160819") or ("20080160804") or ("20130104982") or ("6307144") or ("20130043055") or ("20080006321") or ("5232518") or ("7824191") or ("20120279150") or ("8695291") or ("20120031473") or ("20130050956") or ("6498289") or ("20130077249") or ("6201180") or ("20120031472") or ("20070157963") or ("8196360") or ("20100078058") or ("5280133") or ("20130087197") or ("20120186622") or ("20020129849") or ("8796536") or ("8809699") or ("6730841") or ("20120227783") or ("9653634") or ("9112080") or ("9634606") or ("20150000727") or ("9466961") or ("20140352998") or ("20130133721") or ("6576830") or ("8656661") or ("20020134421") or ("20160027944") or ("20080110488") or ("20110114158") or ("20110253192") or ("20130212959") or ("20130081338") or ("20100180523") or ("20110017281") or ("20120023842") or ("7918694") or ("20090120484") or ("20140113500") or ("4310211") or ("20080149170") or ("20090255573") or ("5951785") or ("8911264") or ("9437985") or ("8671630") or ("8604342") or ("20150140849") or ("8937249") or ("8227942") or ("20100065107") or ("20140284101") or ("20080302408") or ("20040147172") or ("20120104872") or ("7442077") or ("20090078306") or ("4636577") or ("6344612") or ("8779623") or ("9647159") or ("20050032416") or ("20110220187") or ("20110140528") or ("20120132249") or ("8454390") or ("8013237") or ("5590495") or ("8207637") or ("20120152349") or ("20120048349") or ("20110011642") or ("8137115") or ("20120071025") or ("20120309232") or ("20140041935") or ("20170019061") or ("20140041934") or ("9130096") or ("6242685") or ("4233085") or ("20050133082") or ("20060042680") or ("20080302031") or ("7642449") or	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:11

("8097818") or ("20120240978") or ("20100018569") or ("20110168238") or ("20110084556") or ("20110308833") or ("20080236886") or ("20080113567") or ("20110056535") or ("20110209741") or ("20140034111") or ("7291036") or ("8336264") or ("8530737") or ("20030070368") or ("20110283635") or ("20110047903")).PN. or (("8209920") or ("20160344334") or ("6672018") or ("20080302409") or ("8273981") or ("20050061360") or ("8450601") or ("9225286") or ("20130263909") or ("5830779") or ("20090126782") or ("7963813") or ("20110195585") or ("8128439") or ("9413286") or ("8468757") or ("6093884") or ("20120317901") or ("20080163918") or ("8227684") or ("20110210085") or ("5513075") or ("20080110487") or ("6331671") or ("20100282294") or ("9391223") or ("9401676") or ("20090095339") or ("5059296") or ("20080110490") or ("20080110492") or ("20140000709") or ("20160065119") or ("6121542") or ("20130340811") or ("8943765") or ("20150194557") or ("9263986") or ("20160118936") or ("20160149539") or ("20140144489") or ("7655859") or ("20070251567") or ("20100031996") or ("20150222225") or ("20170201205") or ("20050022859") or ("7900407") or ("20050072456") or ("9010041") or ("6928775") or ("20120013191") or ("20110168230") or ("20070084504") or ("20110272061") or ("20130340358") or ("20130000694") or ("8523609") or ("20130263910") or ("20100282290") or ("20130008482") or ("20120312346") or ("8656659") or ("8632358") or ("20110197524") or ("20140246074") or ("8434276") or ("20130000230") or ("5252141") or ("20120270450") or ("20150263668") or ("20140000676") or ("9130091") or ("5112408") or ("6469242") or ("6960716") or ("6753468") or ("8733035") or ("8261496") or ("20090114261") or ("20040031219") or ("20040144043") or ("20080121267") or ("20110240089") or ("20110297205") or ("4677248") or ("20100258157") or ("6008450") or ("7342171") or ("20010050102") or ("20110023390") or ("20150340990") or ("8723370") or ("20120152327") or ("20120125395") or ("20110232212") or ("20170237392") or ("20080253092") or ("20080011289") or ("20130276854") or ("20110000535") or ("6265242") or ("20130340810") or ("20110247678") or ("9091461") or ("8796064") or ("20120118355") or ("8683761") or ("20080257402") or ("20040011354") or ("6268559") or ("20130098447") or ("7592537") or

("7824189") or ("7012188") or ("20140083483") or ("8631613") or ("7811098") or ("8061091") or ("8362739") or ("20120152325") or ("9273885") or ("20170201207") or ("8823315") or ("20130052773") or ("20140366464") or ("8699209") or ("20110125338") or ("20120167986") or ("8291654")).PN. or (("20110138599") or ("20120275066") or ("20110067751") or ("20130176662") or ("20140305494") or ("20100263714") or ("6521821") or ("20120247538") or ("20170025993") or ("20110067691") or ("20110017262") or ("9294032") or ("20100012172") or ("20100193008") or ("20070199561") or ("20110108085") or ("20110239450") or ("20160028345") or ("8435063") or ("7694466") or ("5800631") or ("20080169018") or ("7880098") or ("20090320905") or ("20150129016") or ("20150187975") or ("9147786") or ("8615941") or ("20120315783") or ("20160356406") or ("20120125394") or ("20100132275") or ("8684758") or ("20130014809") or ("20100031997") or ("20110138711") or ("7678990") or ("9184324") or ("20150318427") or ("9525380") or ("8671639") or ("20100064605") or ("20130160814") or ("20130084726") or ("20130025652") or ("9006751") or ("8387319") or ("20120024356") or ("20140261639") or ("20100151725") or ("20140150357") or ("9281430") or ("20120118349") or ("8309840") or ("20130055662") or ("20140030841") or ("20080099063") or ("20120118360") or ("6207889") or ("8439712") or ("9059350") or ("9170034") or ("8829539") or ("20040000334") or ("20060032527") or ("20070181174") or ("9653635") or ("20050178429") or ("20010050101") or ("20170163206") or ("20110220185") or ("20150027069") or ("20120067613") or ("8500462") or ("20100147362") or ("20140318602") or ("20150129517") or ("20160254776") or ("20150194552") or ("9482449") or ("20140216527") or ("20130118545") or ("20120180845") or ("7663055") or ("20120152302") or ("9608559") or ("8656660") or ("9331213") or ("20130125975") or ("4860509") or ("8448407") or ("20120060919") or ("20060054213") or ("20140083028") or ("9059348") or ("20170005614") or ("8793941") or ("9590557") or ("4724010") or ("5092939") or ("9083121") or ("8915030") or ("9249995") or ("9236832") or ("8162677") or ("20150372638") or ("8235749") or ("5733382") or ("9160092") or ("9331631") or ("20160226433") or ("20160036377") or ("6175075") or ("20140060621") or ("20140060622") or ("20090320896") or ("20130000229") or

		("8991116") or ("7858874") or ("8545239") or ("20130276856") or ("9147785") or ("20130033894") or ("9294033") or ("20150038011") or ("9664835") or ("8181402") or ("20070227580") or ("20120071024") or ("20110036386")).PN. or (("20120320621") or ("20150180406") or ("8308504") or ("20130098420") or ("20140158650") or ("20110094570") or ("20120315787") or ("8927850") or ("20110290303") or ("20150280640") or ("20100170715") or ("20100275534") or ("20140261638") or ("8507784") or ("4097308") or ("20080302030") or ("20050126622") or ("8959848") or ("20170179878") or ("20120312347") or ("20110192441") or ("20110269347") or ("9362442") or ("20150311371") or ("7868244") or ("20130180575") or ("20110239554") or ("20070102038") or ("9032672") or ("20140144485") or ("20090320389") or ("20170025994") or ("20130008103") or ("20110183531") or ("8895852") or ("9018518") or ("5022381") or ("8511006") or ("9270224") or ("20120186630") or ("20140130429") or ("20120312354") or ("20090014058") or ("8424256") or ("8601754") or ("9316417") or ("20130125482") or ("20130160816") or ("20150059158") or ("20100031998") or ("20150326170") or ("20100018135") or ("8555872") or ("20110247282") or ("8471141") or ("20140165480") or ("20160126885") or ("9029683") or ("8950128") or ("20120279747") or ("9103564") or ("8177566") or ("9403477") or ("6323478") or ("20160049903") or ("20100269891") or ("8631614") or ("20120060898") or ("20110212647") or ("8203075") or ("20100275991") or ("20140060624") or ("20150318819") or ("20050178430") or ("20170110280") or ("20110067327") or ("8418417") or ("20110088753") or ("8680656") or ("20090056792") or ("8418415") or ("6693237") or ("4106952") or ("20060235717") or ("7678991") or ("20100012343") or ("9706660") or ("20120055553") or ("20140369063") or ("20140216525") or ("20150287858") or ("20160118932") or ("8969714") or ("20110232728") or ("20140001129") or ("20080235949") or ("5409549") or ("20140190096") or ("20080236649") or ("20080236650") or ("20080236740") or ("20050133086") or ("8910433") or ("20100300508") or ("20140166082") or ("8776455") or ("20120222670") or ("6809251") or ("20120210660") or ("9735728") or ("4210122") or ("20120151856") or ("9455664") or ("20130199598") or ("20090133740") or ("20140240998") or ("9035168") or ("20110241243") or ("20130067836") or				

("20040007260") or ("9331224") or
("7681363") or ("20130125973") or
("9003728") or ("20140311547") or
("20100077680") or ("20130139871") or
("20150059828")).PN. or (("8033859") or
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("20120024337") or ("20080083449") or
("20130033115") or ("20110138710") or
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("8372226") or ("4078944") or
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("9615470") or ("6506970") or
("20120247721") or ("20110259402") or
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("20140305493") or ("20020043277") or
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("20100139760") or ("7666466") or
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("20150311861") or ("20080245405") or
("20080057776") or ("20140090866") or
("20150214889") or ("20050115176") or
("20140246078") or ("8613169") or
("8366471") or ("20140130848") or
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or ("20160329857") or ("20100126651") or
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("20080314434") or ("7435897") or
("20090308431") or ("20120318319") or
("20160315581") or ("20170040928") or
("20150038005") or ("20120129401") or
("20170179876") or ("20110277811") or
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("20090314335") or ("20100173511") or
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("20100263704") or ("8033857") or
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("20140182678") or ("20070259103") or
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("20160013346") or ("8435056") or
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or ("20060219291") or ("20050161074") or
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or ("20120145221") or ("8307606") or
("9640692") or ("6075201") or
("20110155203") or ("20110088744") or
("8336277") or ("20160164453") or
("8316618") or ("20140318599") or
("7963802") or ("20090098775") or
("20160230394") or ("20110023935") or
("20130092216") or ("20150043200") or
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("20100326498") or ("20120204927") or
("20100068926") or ("8633406") or
("20160105145") or ("20010034982") or
("7910392") or ("20120234377") or
("7740497") or ("20130008490") or

		("20100071749")).PN.				
S116	60	S115 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:12
S117	2	(("20100139733") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/27 11:41
S118	2	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/27 11:47
S119	5	("2700085").URPN.	USPAT	ADJ	OFF	2018/03/27 11:51
S120	32	("2700085" | "2839636" | "3085138" | "3843050").PN. OR ("4734059").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 11:53
S121	5	("2700085").URPN.	USPAT	ADJ	OFF	2018/03/27 11:58
S122	0	("3231966").URPN.	USPAT	ADJ	OFF	2018/03/27 12:04
S123	0	("3231966").URPN.	USPAT	ADJ	OFF	2018/03/27 12:04
S124	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 12:14
S125	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 12:18
S126	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 08:44
S127	41	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$ or US-20130037294-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$ or US-6046665-$ or US-	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 09:18

		3766509-$ or US-4918420-$ or US-3085138-$ or US-2839636-$ or US-2700085-$ or US-9325122-$ or US-7327213-$ or US-4060785-$ or US-3818407-$ or US-3578896-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$ or US-3296399-$ or US-3015008-$).did.				
S128	5	S127 and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 09:18
S129	2	"20130037294"	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 10:01
S130	2	(("20130037294") or ("5903209")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 10:01
S131	3	(("20130037294") or ("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 10:45
S132	1	("9575466").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 11:26
S133	8579	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
S134	1114	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
S135	617	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 13:45
S136	10234	S135 or S134 or S133	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
S137	46	S136 and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46

S138	2324	thermoplastic elastomer and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
S139	6	S138 and S136	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
S140	25	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 14:04
S141	7	S140 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 14:04
S142	2	(("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/06/27 09:55
S143	2	(("20140042293") or ("20140055938")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/06/27 10:54
S144	2	(("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/02 14:30
S145	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 14:30
S146	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/02 14:43
S147	3613	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/02 14:44
S148	4004	S147 or S146	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/02 14:44
S149	94	S148 and thermoplastic and fuse	US-PGPUB;	ADJ	OFF	2018/07/02 14:44

			USPAT; USOCR; JPO			
S150	1	(12/081584).APP.	USPAT; USOCR	ADJ	OFF	2018/07/02 14:53
S151	41	("20020041944" | "20030001716" | "20040104801" | "20060055497" | "20060170332" | "20070159292" | "20080084267" | "3911385" | "4091353" | "4140988" | "4157486" | "4309684" | "4417226" | "4503415" | "4636765" | "4656453" | "4684915" | "4873506" | "4899123" | "4918420" | "4924203" | "5179436" | "5198791" | "5280261" | "5406245" | "5572181" | "5664320" | "5675308" | "5714923" | "5774037" | "5812046" | "5858454" | "5994994" | "6147585" | "6222438" | "6507265" | "6664886" | "6903649" | "7119652" | "7320171" | "RE33137").PN. OR ("8179224").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 14:54
S152	1	(12/081584).APP.	US-PGPUB; USOCR	ADJ	OFF	2018/07/02 15:03
S153	38	("2441692" | "2809254" | "2843704" | "3235688" | "3304390" | "3599138").PN. OR ("3863187").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:05
S154	22239	(PCB or circuit board or FPC or flex ciruit) with (ring or circular or circle)	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:12
S155	299612	"174".clas. or "361".clas.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:12
S156	2299	S155 and S154	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:12
S157	283	S155 and S154 and sensor	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:13
S158	5	("20120006907" | "5508781" | "20140067056" | "20130141913" | "5508781" | "5436745" | "20140067056").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:14
S159	17	("3670639" | "4596454" | "4682871" | "4964697" | "4990948" | "4999656" | "5327184").PN. OR ("5508781").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:15
S160	1	(14/015542).APP.	USPAT; USOCR	ADJ	OFF	2018/07/02 15:21
S161	200	("0845816" | "0888654" | "1026101" | "20040236420" | "20050004421" | "20050147512" | "20070100196" | "20080068815" | "20090064755" | "20090234447" | "20100130809" | "20100150749" | "20100152526" |	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:21

		"20100241223" | "20100327687" | "20110002794" | "20110031836" | "20110054239" | "20110071337" | "20110144413" | "20110156197" | "20110187217" | "20110237863" | "20110245582" | "20110313237" | "20120032629" | "20120035411" | "20120046514" | "20120059212" | "20120112347" | "20120126795" | "20120134832" | "20120226097" | "20120245680" | "20120245681" | "20120253103" | "20120310036" | "20130164161" | "20130331934" | "20140062462" | "20140100413" | "20140194985" | "20140275723" | "20140303426" | "20140357937" | "20150051438" | "2128988" | "2747512" | "2864552" | "3005117" | "3066849" | "3122101" | "3225608" | "3401640" | "3499274" | "3575536" | "3597022" | "3608088" | "3611815" | "3647324" | "3650581" | "3938913" | "3957389" | "4082376" | "4135253" | "4167296" | "4213207" | "4340260" | "4382199" | "4398773" | "4405286" | "4408966" | "4475866" | "4507048" | "4547039" | "4589822" | "4642036" | "4688998" | "4704121" | "4763032" | "4779614" | "4844707" | "4876492" | "4878831" | "4898759" | "4922199" | "4929158" | "4944748" | "4957504" | "5055005" | "5078741" | "5106273" | "5112200" | "5112202" | "5126612" | "5127792" | "5159219" | "5177387" | "5195877" | "5220232" | "5341059" | "5385581" | "5470208" | "5652473" | "5708346" | "5725357" | "5798454" | "5808437" | "5917297" | "5928131").PN. OR ("5947703" | "6023115" | "6053705" | "6100618" | "6121704" | "6130494" | "6146325" | "6191513" | "6222290" | "6227797" | "6232687" | "6234772" | "6249067" | "6259179" | "6264635" | "6278251" | "6293901" | "6302661" | "6348752" | "6351048" | "6355998" | "6394769" | "6447266" | "6468041" | "6559567" | "6575717" | "6589030" | "6605032" | "6623475" | "6626644" | "6634224" | "6640617" | "6688861" | "6707200" | "6711943" | "6717311" | "6817836" | "6879074" | "6949066" | "7070398" | "7112903" | "7138776" | "7150711" | "7160242" | "7229258" | "7229474" | "7239098" | "7284956" | "7338521" | "7462019" | "7497116" | "7511443" | "7578782" | "7591777" | "7645225" | "7699588" | "7854631" | "7861582" | "7887479" | "7951062" | "7963705" | "7976271" | "8152493" | "8157720" | "8303482" | "8382830" | "8506470" | "8517699" | "8556795" | "8597350" | "8764621" | "8870739" | "8882477" | "8956275" | "8981245" | "D534548").PN. OR ("9492599").URPN.				

S162	1	("20100207716").PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 11:57
S163	2	(("20100207716") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 13:15
S164	2	(("20100207716") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 13:21
S165	8894	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/03 15:39
S166	1119	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/03 15:39
S167	3619	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/03 15:39
S168	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 15:40
S169	25	((("Solon") near3 ("Dean"))).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/03 15:41
S170	10478	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/11/06 16:59
S171	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/11/06 16:59
S172	9135	S171 or S170	US-PGPUB; USPAT	ADJ	OFF	2018/11/06 16:59

EAST Search History (Interference)

< This search history is empty>

11/ 7/ 2018 10:00:08 AM
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Electronic Acknowledgement Receipt

EFS ID:	33966522
Application Number:	14295132
International Application Number:	
Confirmation Number:	6619
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Customer Number:	57825
Filer:	Carla L. Gannon/Donna Braam
Filer Authorized By:	Carla L. Gannon
Attorney Docket Number:	SHOALS-25
Receipt Date:	10-OCT-2018
Filing Date:	03-JUN-2014
Time Stamp:	12:26:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	Response_071118OA_SHOALS-25.pdf	117741 6f00cbffa790643591d21139b24a06aa20acb8f4	no	10

Warnings:

Information:	
Total Files Size (in bytes):	117741

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	DEAN SOLON		
Serial No.:	14/295,132	**Examiner:**	SAWYER, STEVEN T.
Filed:	06/03/2014	**Art Unit:**	2847
Confirmation No.:	6619		

For: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO NON-FINAL OFFICE ACTION

This paper responds to the Office Action mailed July 11, 2018.

In the event an extension of time or other fee is required, Applicant requests that this be considered the requisite petition.

The Commissioner is hereby authorized to charge any fees associated with this case to 506268.

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Ex.1002-179

RESPONSE TO FINAL OFFICE ACTION

Amendments to the Claims

The current status of the claims is listed in the "Listing of the Claims" below. This replaces all previous versions of claims.

Listing of the Claims

1) (**Previously Amended**) An in line assembly for a solar installation including:
   a. A photovoltaic fuse having a first end and a second end, and defining an outline;
   b. An undermold surrounding and sealing said fuse, said undermold defining an outline, wherein the outline of said undermold has a similar contour and orientation relative to the outline of said fuse;
   c. An overmold defining an outline and surrounding said undermold, said undermold and said overmold each constructed of a single unit and each constructed of dissimilar materials, wherein the outline of said overmold has a similar contour and orientation relative to the ~~profile~~ outline of said undermold; and
   d. A first photovoltaic connector engaged with said first end, wherein said assembly provides electrical insulation.

2) (Original) The assembly of claim 1 further including a second photovoltaic connector engaged with said second end.

3) (Original) The assembly of claim 2 wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

4) (Original) The assembly of claim 1 wherein said first and second connectors are locking type connectors.

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Ex.1002-180

5) (Previously Amended) The assembly of claim 4 further comprising a tool for unlocking said connectors.

6) (Original) The assembly of claim 1 wherein said undermold is a modified polyphenylene ether plastic.

7) (Original) The assembly of claim 1 wherein said overmold is a thermoplastic elastomer.

8) (Original) The assembly of claim 6 wherein said fuse is rated at 2-30 amps.

9) (Original) The assembly of claim 8 wherein said fuse is rated at 600-2000V.

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Ex.1002-181

10) (Previously Withdrawn) A photovoltaic wire harness including:

a. A trunk wire having a plurality of branch wires extending there from in pairs, said branch wires and said trunk wire forming angles having vertices of approximately 90 degrees; and

b. A plurality of fuse assemblies engaged only with said branch wires in a ratio of one fuse assembly per branch wire.

11) (Previously Withdrawn) The photovoltaic wire harness of claim 10 wherein said fuse assemblies each include one or two connectors.

12) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said fuse assemblies each include a pair selected from the group consisting of one male type connector and one female type connector; one male type connector and one wire; and one female type connector and one wire.

13) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said angles are surrounded by an encasement.

14) (Previously Withdrawn) The photovoltaic wire assembly of claim 13 wherein said encasement defines tie-downs that span between adjacent protrusions.

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Ex.1002-182

15) (Previously Withdrawn) A method of configuring a solar installation including the steps of:

a. Engaging the trunk of a wire harness with a combiner box wherein said combiner box lacks fuses and circuit breakers; and
b. Engaging each terminal branch of said wire harness with one solar panel wherein each terminal branch includes exactly one in line fuse assembly.

16) (Previously Withdrawn) The method of claim 15 wherein said step of engaging each terminal branch with one solar panel includes the step of uniting a male connector with a female connector.

17) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a male connector integrated with said in line fuse assembly.

18) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a female connector integrated with said in line fuse assembly.

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Ex.1002-183

Remarks

Applicant gratefully acknowledges the Office Action dated 7/11/18. Upon considering the Office's cited art and remarks, no claims have been amended. Claims 10-18 were previously withdrawn. Accordingly, claims 1-9 are currently pending, and claims 1-9 are currently under consideration, with no claims allowable at this time.

This Response specifically addresses the following issues:

I. 35 USC §103 Rejection of Claims 1, 2 and 7 as Obvious in view of Yen and Jonczyk (Examiner's ¶3)

Applicant respectfully disagrees that the combination of Yen and Jonczyk renders claim 1 obvious for at least the following reasons:

A. Yen is Not Analogous Art

While Applicant concedes that the scope of analogous prior art may be wide, The Federal Circuit is very clear that it is not without limit.[1] More specifically, art must be: (1) from the same field of endeavor as the claimed invention; or (2) reasonably pertinent to the particular problem faced by the inventor.[2] Art is "reasonably pertinent" when it would "logically commend itself" to an inventor's attention in considering his problem.[3]

Here, the Office would presumably concede that Yen is not from the same field of endeavor in view of the reference's silence regarding solar installations and photovoltaic fuses. Thus the applicability of the reference rests on whether or not Yen would logically commend itself to the inventor's attention.

Yen would not logically commend itself to the inventor's attention because Yen pertains to overcurrent protection at high temperatures. More specifically,

---

[1] *See* In re Klein, 647F.3d 1343 (Fed. Cir. 2011)

[2] See In re Bigio, 381 F.3d 1320 (Fed. Cir. 2004)

[3] *See* In re Icon Health and Fitness, Inc., 496 F.3d 1374, 1379-80 (Fed. Cir. 2007) (citing In re Clay, 966 F.2d 656, 658-59 (Fed. Cir. 1992)).See also MPEP § 2141.01(a).

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Ex.1002-184

Yen teaches an overcurrent protection structure that provides a fuse (12) but no fuse body (11), because in conventional fuse units the heated fuse bodies that are in contact with the fuses dissipate current, and therefore may not blow at high temperatures. [4]

Very simply, the present invention pertains to a connector assembly that provides circuit protection to wire harnesses in photovoltaic installations. A primary benefit of the present invention is that it reduces the number of combiner boxes required in a solar field. It has absolutely nothing to do with preventing fuse failure at high temperatures. The inventor would have no reason to look to Yen's technology area to solve the challenges his invention addresses.

In short, Yen is non-analogous to the claimed invention, does not qualify as prior art under 35 USC §103, and therefore cannot support an obviousness rejection of independent claim 1. Withdrawal of the rejection of claims 1, 2 and 7 is respectfully requested.

B. Yen Doesn't Teach Undermold With Similar Contour As Fuse

Assuming arguendo that Yen were applicable prior art, it doesn't reach an undermold having a similar contour as the fuse. Yen's "fuse" is element 22, and not element 22 in combination with surrounding space 25 as asserted by the Office.

As a preliminary matter, Yen refers to "fusible fuse structure unit 22", and nowhere discusses surrounding space 25 as being part of the fuse. This is consistent with the definition of a fuse, which is "*a safety device consisting of* ***a strip of wire*** *that melts and breaks an electric circuit if the current exceeds a safe level.*"[5] [Emphasis added].

---

[4] See, *inter alia,* [0006] – [0008]

[5] See https://www.google.com/search?q=what+is+a+fuse&rlz=1C1GGRV_enUS753US753&oq=what +is+ a+fuse&aqs=chrome..69i57j0l5.2221j0j7&sourceid=chrome&ie=UTF-8, accessed 10/10/18

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Ex.1002-185

Indeed, surrounding space 25 is filled with gas 251, whose shape would be amorphous. Moreover, gas 251 is to prevent dissipation of heat[6], and therefore acts as an insulator, not a fuse.

In short, Yen's "fuse" 22 is a zig-zag, and Yen's "undermold" 211 is substantially rectangular. The fuse and undermold don't have a similar contour.

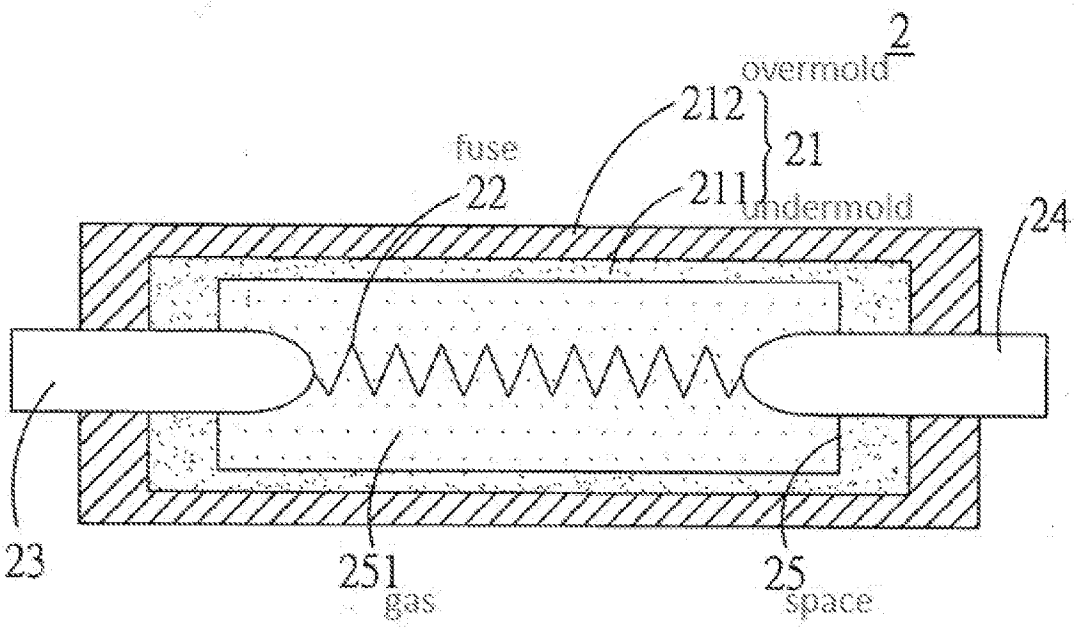


FIG.3

C. Yen Doesn't Teach An In Line Assembly

Finally, Yen doesn't reasonably teach an in line assembly. Yen teaches a high temperature fuse with electrodes 23, 24. While it is true that electrodes are configured to connect to other components, the same is true for all fuses. It strains credulity to contend that a fuse is an "in line assembly" in accordance with the claimed invention.

[6] See [0008].

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Ex.1002-186

II. 35 USC §103 Rejection of Claims 3 and 4 as Obvious in view of Yen, Jonczyk and Loet (Examiner's ¶7)

This rejection is deemed moot in view of claim 1, from which claims 3 and 4 depend, overcoming the Yen reference as set forth in Section I above.

III. 35 USC §103 Rejection of Claim 5 as Obvious in view of Yen, Jonczyk, Loet and Quiter (Examiner's ¶8)

This rejection is deemed moot in view of claim 1, from which claim 5 depends, overcoming the Yen reference as set forth in Section I above.

IV. 35 USC §103 Rejection of Claim 6 as Obvious in view of Yen, Jonczyk and Kono (Examiner's ¶9)

This rejection is deemed moot in view of claim 1, from which claim 6 depends, overcoming the Yen reference as set forth in Section I above.

V. 35 USC §103 Rejection of Claims 8 and 9 as Obvious in view of Yen, Jonczyk, Kono and F. J. Kozackz (Examiner's ¶10)

This rejection is deemed moot in view of claim 1, from which claims 8 and 9 depend, overcoming the Yen reference as set forth in Section I above.

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Ex.1002-187

Conclusion

For the reasons set forth herein, Applicant believes all claims are allowable over the art of record. Examiner Sawyer is encouraged to contact Attorney Gannon by telephone or email to discuss the case.

Respectfully submitted,

/Carla L. Gannon, 56,358/

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Date: October 10, 2018
File No. SHOALS-25

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Ex.1002-188

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/295,132	Filing Date 06/03/2014	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	10/10/2018	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 18	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	terrance R lawrence
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

57825 7590 07/11/2018

CARLA GANNON LAW
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8903 E. Oak Island Dr.
Suite 9
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EXAMINER	
SAWYER, STEVEN T	

ART UNIT	PAPER NUMBER
2847	

NOTIFICATION DATE	DELIVERY MODE
07/11/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

cgannon@carlagannonlaw.com
carlagannon@yahoo.com
docketing@carlagannonlaw.com

Voltage LLC
Ex.1002-190

Office Action Summary	Application No. 14/295,132	Applicant(s) SOLON, DEAN	
	Examiner STEVEN T. SAWYER	Art Unit 2847	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/19/2018*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-18* is/are pending in the application.

5a) Of the above claim(s) *10-18* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-9* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

Voltage LLC
Ex.1002-191

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/19/2018 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 7 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen (US PG. Pub. 2010/0207716) in view of Jonczyk et al. (US PG. Pub. 2010/0139733).

Regarding claim 1 - Yen teaches an in line assembly (fig. 3, 2 [paragraph 0021] Yen states, “overcurrent protection structure 2”) including:

a. A fuse (element 22 in combination with surrounding space 25 [paragraph 0019] Yen

states, “fuse structure unit 22”) having a first end (left end) and a second end (right end), and defining an outline;

b. An undermold (211 [paragraph 0027] Yen states, “inner layer 211 can be made of the arc resistant material”) surrounding and sealing said fuse, said undermold defining an outline, wherein the outline of said undermold has a similar contour and orientation relative to the outline of said fuse (figure 3 shows the undermold following the contour of the fuse structure 22/25);

c. An overmold (212 [paragraph 0028] Yen states, “outer layer 212 can be made of the ordinary coating material”) defining an outline and surrounding said undermold (claimed structure shown in figure 3), said undermold (211) and said overmold (212) each constructed of a single unit and each constructed of dissimilar materials ([paragraph 0020] Yen states, “The inner layer 211 can be made of an arc resistant material and the outer layer 212 can be made of an ordinary coating material”), wherein the profile outline of said overmold has a similar contour and orientation relative to the profile outline of said undermold (see fig. 3); and

d. A first connector (23 [paragraph 0019] Yen states, “electrode 23”) engaged with said first end, wherein said assembly provides electrical insulation ([paragraph 0020] Yen states, “The coating 21 can be an arc resistant material, which can be a thermoplastic material or a thermosetting material”).

Yen does not teach wherein the in line assembly is for a solar installation and the fuse is a photovoltaic fuse.

Jonczyk teaches wherein the in line assembly is for a solar installation ([title] Jonczyk states, “fused wiring harness for a photovoltaic system”) and the fuse (fig. 6, 112 [paragraph 0033] Jonczyk states, “fuse 112”) is a photovoltaic fuse ([paragraph 0005] Jonczyk states, “The photovoltaic system further includes a fused wiring harness having a fused wiring assembly and a second wiring assembly”); an undermold (fig. 6 [paragraph 0033] Jonczyk states, “fuse holder 110”; figure 6 shows the fuse holder 110 completely covering the fuse 112) covering the fuse and an overmold (fig. 10, 210 [paragraph 0038] Jonczyk states, “fuse overmold portion 210”) covering the undermold (see figs. 10).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having a fuse as taught by Yen with the in line assembly being for a solar installation and with an undermold/overmold arrangement as taught by Jonczyk because Jonczyk states, " Accordingly, there is a need for a wiring harness for a PV system that protects each individual circuit and that provides for ease of installation during, for example, the deployment of large photovoltaic arrays." [paragraph 0003].

Regarding claim 2 – Yen in view of Jonczyk teach the assembly of claim 1 further including a second photovoltaic connector (Yen; fig. 3, 24; Jonczyk teaches a photovoltaic fuse structure as discussed in the rejection to claim 1 above) engaged with said second end (right end of fuse element 22).

Regarding claim 7 – Yen in view of Jonczyk teaches the assembly of claim 1 wherein said overmold (Jonczyk; fig. 10, 210) is a thermoplastic elastomer ([paragraph 0031] Jonczyk states, "overmold portions 82, 84 can be formed from a high-performance thermoplastic material such as a thermoplastic elastomer (TPE)"; overmold 82 is considered equivalent to overmold 210).

7. Claims 3 and 4 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Jonczyk et al. as applied to claim 2 above, and further in view of Loet (US Patent 5316502).

Regarding claim 3 – Yen in view of Jonczyk teach the assembly of claim 2 but fails to teach wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, "fuse 26") with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20), wherein a first connector is a female type connector ([column 4 line 47] Loet states, "female connector 34"), and said second connector is a male type connector ([column 4 line 32] Loet states, "male connection element 22" [Abstract] Loet states, "a fuse, is mounted within the housing and arranged to electrically couple the male cable connector to the female cable connector").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Yen in view of Jonczyk with the connectors being of a male and female type as taught by Loet because Loet states, "The housing can be easily installed at any location of a power distribution network by using the male and female connectors to couple one power cable to another power cable" [Abstract].

Regarding claim 4 – Yen in view of Jonczyk teach the assembly of claim 1 but fails to teach wherein said first and second connectors are locking type connectors.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, "fuse 26") with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20) wherein said first and second connectors are locking type connectors ([column 5 line 18-20] Loet states, "the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Yen in view of Jonczyk with the connectors being locking type connectors as taught by Loet because Loet states, "the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another"" [column 5 lines 18-20]. This locking arrangement will provide a strong mechanical connection.

8. Claim 5 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Jonczyk et al. and Loet as applied to claim 4 above, and further in view of Quiter et al. (US PG. Pub. 2011/0104925).

Regarding claim 5 – Yen in view of Jonczyk and Loet teach the assembly of claim 4, but fails to teach wherein a tool is used for unlocking said connectors.

Quiter teaches an assembly (fig. 1 [title] Quiter states, "connector system, use and method") having connectors (10 & 12 [paragraph 0077] Quiter states, "connector 10 and complementary connector 12") being of a locking type ([paragraph 0080] Quiter states, "connector 10 is locked with the complementary connector 12"), wherein a tool is used for unlocking said connectors ([paragraph 0083] Quiter states, "For unlocking, a tool (not shown) can be inserted…By means of the tool, the complementary latching element can be displaced in the unlocking direction ENR").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Yen in view of Jonczyk and Loet with the connectors being unlockable by a tool as taught by Quiter because this securing arrangement will prevent unintentional disconnection of the connectors.

9. Claim 6 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Jonczyk et al. as applied to claim 1 above, and further in view of Kono et al. (US PG. Pub. 2011/0232963).

Regarding claim 6 – Yen in view of Jonczyk teach the assembly of claim 1 wherein said undermold (Yen; fig. 3, 211) is formed of a polyphenylene plastic ([paragraph 0020] Yen states, "coating 21 can be an arc resistant material, which can be a thermoplastic material or a thermosetting material…polyphenylene sulfone").

Yen in view of Jonczyk do not explicitly teach the material being a modified polyphenylene ether plastic.

Kono teaches an in line assembly for a photovoltaic installation (fig. 2 [title] Kono states, "connection structure for photovoltaic power generation module") wherein a material is a modified polyphenylene ether plastic ([paragraph 0044] Kono states, "the connection structure of the present embodiments is produced by injection molding…consisting of a modified polyphenylene ether").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the undermold as taught by Yen in view of Jonczyk with the in line assembly using the material of modified polyphenylene ether in the structure as taught by Kono because Kono states, "Especially, from the viewpoint of strength, electrical characteristics, and long-term heat resistance, preferred is a resin composition containing at least one

selected from the group consisting of a modified polyphenylene ether" [paragraph 0044].

10. Claims 8-9 is/are rejected under 35 U.S.C. 103 as being unpatentable over Yen in view of Jonczyk et al. and Kono et al. as applied to claim 6 above, and further in view of F. J. Kozackz (US Patent 3296399).

Regarding claim 8 – Yen in view of Jonczyk and Kono teach the assembly of claim 6, but fail to teach specifically wherein said fuse is rated at 2-30 amps.

Kozackz teaches a fuse (fig. 1, 5 [column 3 line 40] Kozackz states, "fusible element 5") wherein said fuse is rated at 2-30 amps ([column 3 line 40-42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the fuse as taught by Yen in view of Jonczyk and Kono with fuse having a rating of 2-30 amps as taught by Kozackz because this fuse rating will protect the connected solar device from overdrawing current and prevent damage to the solar device, the fuse will perform as a protection device.

Regarding claim 9 – Yen in view of Jonczyk, Kono and Kozackz teach the assembly of claim 8 wherein said fuse (Kozackz; fig. 1, 5) is rated at 600-2000V ([column 3 line 40-

42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

Response to Arguments

11. Applicant's arguments with respect to claims 1-9 and 10-18 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN T. SAWYER whose telephone number is (571)270-5469. The examiner can normally be reached on Mon-Thu 7:00-5:30 (est).

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thompson can be reached on 5712722342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEVEN T SAWYER/
Primary Examiner, Art Unit 2847

Notice of References Cited	Application/Control No. 14/295,132	Applicant(s)/Patent Under Reexamination SOLON, DEAN	
	Examiner STEVEN T. SAWYER	Art Unit 2847	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2010/0207716 A1	08-2010	Yen; Chun-Chang	H01H69/02	337/159
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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Ex.1002-202

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14295132	SOLON, DEAN
	Examiner	Art Unit
	STEVEN T SAWYER	2847

CPC- SEARCHED		
Symbol	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc.	7/2/2018	ss
H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	7/2/2018	ss

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
439	620.28 (updated)	7/2/2018	ss
337	227, 228 (updated)	7/2/2018	ss

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc., H01L31/0504.cpc., H01B7/0045.cpc., H01L31/18.cpc. (with text) (updated)	7/2/2018	ss
Inventor name search	7/2/2018	ss

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	Interference search attached	7/2/2018	ss

	/STEVEN T SAWYER/ Primary Examiner.Art Unit 2847

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Ex.1002-203

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	8894	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/03 15:39
L2	1119	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/03 15:39
L3	3619	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/03 15:39
L4	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 15:40
L5	25	((("Solon") near3 ("Dean"))).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/03 15:41
S1	3	photovoltaic fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 10:48
S2	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 12:22
S3	1	(13/151984).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:37
S4	14	("2046221" | "3356806" | "3518600" | "3778741" | "4734059" | "4909761" | "5018991" | "5648749" | "5888098").PN. OR ("8454390").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:37
S5	26	("20050128045" | "20120161919" | "2700085" | "3356806" | "3465280" | "3551869" | "3778741" | "3843050" | "4060303" | "4333701" | "4391485" | "4531806" | "4734059" | "4909761" | "5444428" | "7377813" | "7445509" | "7777508" | "7988493" | "8098126" | "8342885" | "8454390").PN. OR	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:38

		("9325122").URPN.				
S6	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S7	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S8	23	("4202589" | "4390225" | "4448476" | "6483417" | "2187427" | "3828291" | "4909761" | "3243551" | "7639113" | "2758295" | "4504815" | "6717505" | "20090184796" | "2614190" | "20120309232" | "4762509" | "6587028" | "2207837").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:42
S9	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:03
S10	1	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:11
S11	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:19
S12	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:19
S13	2063	fuse and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S14	34	fuse and thermoplastic elastomer and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S15	0	(13/245432).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:29
S16	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S17	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
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S19	2628	fuse and (different with material) and elastomer	US-PGPUB; USPAT;	ADJ	OFF	2016/10/04 13:39

			USOCR			
S20	743	fuse and (different with material) and thermoplastic elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:40
S21	239	S12 and material	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:42
S22	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S23	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S24	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:13
S25	24	("4023071" | "4188561" | "4199736" | "4335415" | "4359764" | "4633359" | "5224012" | "5278720" | "5384679" | "5508873").PN. OR ("5726851").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:27
S26	2	("3243551").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:42
S27	2	("2839636").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:46
S28	2	("2049309").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:49
S29	184	fuse and polyphenylene ether and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:57
S30	0	fuse and photovlotaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:02
S31	2971	fuse and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:02
S32	539034	"361".clas. or "136".clas. or "174".clas. or "439".clas. or "337".clas.	US-PGPUB;	ADJ	OFF	2016/10/04 15:03

			USPAT; USOCR; EPO; JPO			
S33	707	S32 and S31	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S34	602	S33 not S2	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S35	0	fuse holder and polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:30
S36	9	fuse holder and polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:31
S37	2	("2316036").URPN.	USPAT	ADJ	OFF	2016/10/04 15:57
S38	53	("1028328" | "1036510" | "1099589" | "1508839" | "1511838" | "1889585" | "1927905" | "1971809" | "20020113684" | "20070236323" | "2316036" | "2524550" | "2838639" | "2873327" | "2877321" | "2946974" | "3205467" | "3447240" | "3562162" | "3838374" | "3870863" | "3912903" | "4084145" | "4237440" | "4563809" | "4680567" | "4929921" | "5003280" | "5361058" | "5418516" | "5903208" | "6664886" | "6774760" | "7645645" | "RE23219").PN. OR ("8629750").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 15:57
S39	1	(13/208149).APP.	US-PGPUB; USOCR	ADJ	OFF	2016/10/04 16:08
S40	1	(13/208149).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 16:11
S41	27	("20130037294" | "3356806" | "3417359" | "3518600" | "3629808" | "3753192" | "4734059" | "4759730" | "4826454" | "4909761" | "5018991" | "5088683" | "5335160" | "5427542" | "5648749" | "5888098" | "5993246" | "D326845" | "RE40228").PN. OR ("8517768").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 16:12
S42	1	("20130037294").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 07:39
S43	26	(US-20150137934-$ or US-20120309232-$	US-	ADJ	OFF	2016/10/05

		or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	PGPUB; USPAT; USOCR			07:49
S44	7	S43 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:50
S45	13	("5726851" | "4909761" | "8454390" | "5018991" | "5648749" | "5888098" | "20100207716" | "20050141164" | "20120295456" | "5137478" | "4734059" | "5714923" | "3848215").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S46	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S47	26	S43 and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S48	4	S43 and S46	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:53
S49	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 08:05
S50	8	polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:25
S51	21694	polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S52	141	S51 and photovoltaic	US-PGPUB;	ADJ	OFF	2016/10/05 08:26

			USPAT; USOCR; EPO; JPO			
S53	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S54	3	polyphenylene ether and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:28
S55	18	PPE and fuse with holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S56	18	PPE and (fuse with holder)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S57	9	PPE and fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S58	5	S43 and amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:40
S59	11	S43 and (rated or rating)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:42
S60	4	polyphenylene ether with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:55
S61	0	polyphenylene ether with fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:56
S62	14	S51 and photovoltaic and fuse	US-PGPUB;	ADJ	OFF	2016/10/05 09:03

			USPAT; USOCR; EPO; JPO			
S63	9151	fuse with voltage with current	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S64	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S65	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S66	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S67	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S68	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S69	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S70	1380	S64 or S65 or S66 or S67 or S68 or S69	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S71	184	S70 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:27
S72	95	fuse with voltage with amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S73	6	S72 and S70	US-PGPUB;	ADJ	OFF	2016/10/05 09:28

			USPAT; USOCR; EPO; JPO			
S74	7	female and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:39
S75	51	photovoltaic and fuse and (connector with lock$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:23
S76	27	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 10:24
S77	9	S76 and lock$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:24
S78	7	(("20120309232") or ("20130037294") or ("5316502") or ("20110104925") or ("20110232963") or ("3296399")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:04
S79	6337	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S80	10	S79 and fuse and elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S81	170	S79 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S82	20	((Dean) near2 (Solon)).INV.	US-PGPUB;	ADJ	OFF	2016/10/05 13:37

			USPAT			
S83	0	("2010302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S84	1	("20100302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S85	49	(("8937249") or ("20110209741") or ("8690595") or ("20130344727") or ("5309625") or ("5755579") or ("4280748") or ("4850884") or ("4884050") or ("4906195") or ("4940419") or ("4943241") or ("4950168") or ("4963099") or ("5011417") or ("5057026") or ("5327644") or ("5403193") or ("5489885") or ("5662496") or ("5697813") or ("5722863") or ("5735713") or ("5739739") or ("5749739") or ("5785532") or ("5877944") or ("5883560") or ("5897385") or ("5928004") or ("6007350") or ("6011319") or ("6109973") or ("6144539") or ("6172302") or ("6186633") or ("6224397") or ("6224397") or ("6252477") or ("6262537") or ("6411190") or ("6430054") or ("6600236") or ("6712623") or ("6719572") or ("6791207") or ("6796808") or ("6851956") or ("7021962") or ("7132761")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:18
S86	1	("14700742").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:41
S87	0	("14295132").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:21
S88	3	(("20120309232") or ("20130037294") or ("5316502")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:22
S89	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:23
S90	7658	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:07
S91	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/04 15:08
S92	8198	S91 or S90	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2017/02/04 15:09

Voltage LLC
Ex.1002-212

			EPO; JPO			
S93	30	S92 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:09
S94	39	("1175103" | "1579596" | "2414865" | "2872501" | "3422213" | "3601737" | "3766307" | "3766509" | "4280748" | "4308515" | "4333701" | "4365226" | "4391485" | "4679877" | "4734059" | "4831353" | "4880943" | "4958426" | "5018991" | "5162773" | "5241134" | "5298877" | "5304740" | "5329065" | "5345210" | "5391836" | "5493069" | "5591366").PN. OR ("6046665").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/04 15:11
S95	4	("1175103").URPN.	USPAT	ADJ	OFF	2017/02/04 15:14
S96	20	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/06 07:50
S97	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 13:40
S98	2	fuse same overmold same undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:47
S99	25	overmold$4 same undermold$4 and (water or moisture)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:48
S100	2164	(second with overmold$4) and (water or moisture)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:49
S101	89	(second with overmold$4) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:50
S102	5	(second overmold or second overmolding) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:52
S103	9	("20100139733" | "20110104925" | "20110232963" | "20120309232" |	US-PGPUB;	ADJ	OFF	2017/08/30 13:58

		"20130037294" | "20130077249" | "3296399" | "5316502").PN.	USPAT; USOCR; EPO; JPO			
S104	2	(("20100139733") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 15:01
S105	1	("20110232963").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:01
S106	8165	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:06
S107	1102	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:06
S108	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:06
S109	9807	S108 or S107 or S106	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:08
S110	2	S109 and overmold and fuse and solar	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S111	2	S109 and overmold and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S112	391	S109 and mold$4 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S113	49	S109 and mold$4 and fuse and solar	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S114	23	(("SOLON") near3 ("Dean")).INV.	US-PGPUB;	ADJ	OFF	2017/08/30 16:10

			USPAT; USOCR			
S115	640	(("20170214234") or ("8113890") or ("20120085040") or ("20110275232") or ("20090318004") or ("7850476") or ("20160072431") or ("20100105238") or ("20150162870") or ("8907230") or ("20110147076") or ("20090178701") or ("20100139733") or ("20130056047") or ("7445508") or ("20160142008") or ("7387537") or ("20080160819") or ("20080160804") or ("20130104982") or ("6307144") or ("20130043055") or ("20080006321") or ("5232518") or ("7824191") or ("20120279150") or ("8695291") or ("20120031473") or ("20130050956") or ("6498289") or ("20130077249") or ("6201180") or ("20120031472") or ("20070157963") or ("8196360") or ("20100078058") or ("5280133") or ("20130087197") or ("20120186622") or ("20020129849") or ("8796536") or ("8809699") or ("6730841") or ("20120227783") or ("9653634") or ("9112080") or ("9634606") or ("20150000727") or ("9466961") or ("20140352998") or ("20130133721") or ("6576830") or ("8656661") or ("20020134421") or ("20160027944") or ("20080110488") or ("20110114158") or ("20110253192") or ("20130212959") or ("20130081338") or ("20100180523") or ("20110017281") or ("20120023842") or ("7918694") or ("20090120484") or ("20140113500") or ("4310211") or ("20080149170") or ("20090255573") or ("5951785") or ("8911264") or ("9437985") or ("8671630") or ("8604342") or ("20150140849") or ("8937249") or ("8227942") or ("20100065107") or ("20140284101") or ("20080302408") or ("20040147172") or ("20120104872") or ("7442077") or ("20090078306") or ("4636577") or ("6344612") or ("8779623") or ("9647159") or ("20050032416") or ("20110220187") or ("20110140528") or ("20120132249") or ("8454390") or ("8013237") or ("5590495") or ("8207637") or ("20120152349") or ("20120048349") or ("20110011642") or ("8137115") or ("20120071025") or ("20120309232") or ("20140041935") or ("20170019061") or ("20140041934") or ("9130096") or ("6242685") or ("4233085") or ("20050133082") or ("20060042680") or ("20080302031") or ("7642449") or ("8097818") or ("20120240978") or ("20100018569") or ("20110168238") or ("20110084556") or ("20110308833") or ("20080236886") or ("20080113567") or ("20110056535") or ("20110209741") or ("20140034111") or ("7291036") or ("8336264") or ("8530737") or ("20030070368") or ("20110283635") or	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:11

("20110047903")).PN. or (("8209920") or ("20160344334") or ("6672018") or ("20080302409") or ("8273981") or ("20050061360") or ("8450601") or ("9225286") or ("20130263909") or ("5830779") or ("20090126782") or ("7963813") or ("20110195585") or ("8128439") or ("9413286") or ("8468757") or ("6093884") or ("20120317901") or ("20080163918") or ("8227684") or ("20110210085") or ("5513075") or ("20080110487") or ("6331671") or ("20100282294") or ("9391223") or ("9401676") or ("20090095339") or ("5059296") or ("20080110490") or ("20080110492") or ("20140000709") or ("20160065119") or ("6121542") or ("20130340811") or ("8943765") or ("20150194557") or ("9263986") or ("20160118936") or ("20160149539") or ("20140144489") or ("7655859") or ("20070251567") or ("20100031996") or ("20150222225") or ("20170201205") or ("20050022859") or ("7900407") or ("20050072456") or ("9010041") or ("6928775") or ("20120013191") or ("20110168230") or ("20070084504") or ("20110272061") or ("20130340358") or ("20130000694") or ("8523609") or ("20130263910") or ("20100282290") or ("20130008482") or ("20120312346") or ("8656659") or ("8632358") or ("20110197524") or ("20140246074") or ("8434276") or ("20130000230") or ("5252141") or ("20120270450") or ("20150263668") or ("20140000676") or ("9130091") or ("5112408") or ("6469242") or ("6960716") or ("6753468") or ("8733035") or ("8261496") or ("20090114261") or ("20040031219") or ("20040144043") or ("20080121267") or ("20110240089") or ("20110297205") or ("4677248") or ("20100258157") or ("6008450") or ("7342171") or ("20010050102") or ("20110023390") or ("20150340990") or ("8723370") or ("20120152327") or ("20120125395") or ("20110232212") or ("20170237392") or ("20080253092") or ("20080011289") or ("20130276854") or ("20110000535") or ("6265242") or ("20130340810") or ("20110247678") or ("9091461") or ("8796064") or ("20120118355") or ("8683761") or ("20080257402") or ("20040011354") or ("6268559") or ("20130098447") or ("7592537") or ("7824189") or ("7012188") or ("20140083483") or ("8631613") or ("7811098") or ("8061091") or ("8362739") or ("20120152325") or ("9273885") or ("20170201207") or ("8823315") or ("20130052773") or ("20140366464") or ("8699209") or ("20110125338") or ("20120167986") or ("8291654")).PN. or

		(("20110138599") or ("20120275066") or ("20110067751") or ("20130176662") or ("20140305494") or ("20100263714") or ("6521821") or ("20120247538") or ("20170025993") or ("20110067691") or ("20110017262") or ("9294032") or ("20100012172") or ("20100193008") or ("20070199561") or ("20110108085") or ("20110239450") or ("20160028345") or ("8435063") or ("7694466") or ("5800631") or ("20080169018") or ("7880098") or ("20090320905") or ("20150129016") or ("20150187975") or ("9147786") or ("8615941") or ("20120315783") or ("20160356406") or ("20120125394") or ("20100132275") or ("8684758") or ("20130014809") or ("20100031997") or ("20110138711") or ("7678990") or ("9184324") or ("20150318427") or ("9525380") or ("8671639") or ("20100064605") or ("20130160814") or ("20130084726") or ("20130025652") or ("9006751") or ("8387319") or ("20120024356") or ("20140261639") or ("20100151725") or ("20140150357") or ("9281430") or ("20120118349") or ("8309840") or ("20130055662") or ("20140030841") or ("20080099063") or ("20120118360") or ("6207889") or ("8439712") or ("9059350") or ("9170034") or ("8829539") or ("20040000334") or ("20060032527") or ("20070181174") or ("9653635") or ("20050178429") or ("20010050101") or ("20170163206") or ("20110220185") or ("20150027069") or ("20120067613") or ("8500462") or ("20100147362") or ("20140318602") or ("20150129517") or ("20160254776") or ("20150194552") or ("9482449") or ("20140216527") or ("20130118545") or ("20120180845") or ("7663055") or ("20120152302") or ("9608559") or ("8656660") or ("9331213") or ("20130125975") or ("4860509") or ("8448407") or ("20120060919") or ("20060054213") or ("20140083028") or ("9059348") or ("20170005614") or ("8793941") or ("9590557") or ("4724010") or ("5092939") or ("9083121") or ("8915030") or ("9249995") or ("9236832") or ("8162677") or ("20150372638") or ("8235749") or ("5733382") or ("9160092") or ("9331631") or ("20160226433") or ("20160036377") or ("6175075") or ("20140060621") or ("20140060622") or ("20090320896") or ("20130000229") or ("8991116") or ("7858874") or ("8545239") or ("20130276856") or ("9147785") or ("20130033894") or ("9294033") or ("20150038011") or ("9664835") or ("8181402") or ("20070227580") or ("20120071024") or ("20110036386")).PN. or (("20120320621") or ("20150180406") or ("8308504") or ("20130098420") or				

("20140158650") or ("20110094570") or ("20120315787") or ("8927850") or ("20110290303") or ("20150280640") or ("20100170715") or ("20100275534") or ("20140261638") or ("8507784") or ("4097308") or ("20080302030") or ("20050126622") or ("8959848") or ("20170179878") or ("20120312347") or ("20110192441") or ("20110269347") or ("9362442") or ("20150311371") or ("7868244") or ("20130180575") or ("20110239554") or ("20070102038") or ("9032672") or ("20140144485") or ("20090320389") or ("20170025994") or ("20130008103") or ("20110183531") or ("8895852") or ("9018518") or ("5022381") or ("8511006") or ("9270224") or ("20120186630") or ("20140130429") or ("20120312354") or ("20090014058") or ("8424256") or ("8601754") or ("9316417") or ("20130125482") or ("20130160816") or ("20150059158") or ("20100031998") or ("20150326170") or ("20100018135") or ("8555872") or ("20110247282") or ("8471141") or ("20140165480") or ("20160126885") or ("9029683") or ("8950128") or ("20120279747") or ("9103564") or ("8177566") or ("9403477") or ("6323478") or ("20160049903") or ("20100269891") or ("8631614") or ("20120060898") or ("20110212647") or ("8203075") or ("20100275991") or ("20140060624") or ("20150318819") or ("20050178430") or ("20170110280") or ("20110067327") or ("8418417") or ("20110088753") or ("8680656") or ("20090056792") or ("8418415") or ("6693237") or ("4106952") or ("20060235717") or ("7678991") or ("20100012343") or ("9706660") or ("20120055553") or ("20140369063") or ("20140216525") or ("20150287858") or ("20160118932") or ("8969714") or ("20110232728") or ("20140001129") or ("20080235949") or ("5409549") or ("20140190096") or ("20080236649") or ("20080236650") or ("20080236740") or ("20050133086") or ("8910433") or ("20100300508") or ("20140166082") or ("8776455") or ("20120222670") or ("6809251") or ("20120210660") or ("9735728") or ("4210122") or ("20120151856") or ("9455664") or ("20130199598") or ("20090133740") or ("20140240998") or ("9035168") or ("20110241243") or ("20130067836") or ("20040007260") or ("9331224") or ("7681363") or ("20130125973") or ("9003728") or ("20140311547") or ("20100077680") or ("20130139871") or ("20150059828")).PN. or (("8033859") or ("20150270803") or ("20120118359") or ("20120024337") or ("20080083449") or ("20130033115") or ("20110138710") or

		("8695289") or ("20080178922") or ("8372226") or ("4078944") or ("20080313977") or ("5164020") or ("9615470") or ("6506970") or ("20120247721") or ("20110259402") or ("20110000601") or ("20030111103") or ("20140208670") or ("20120132260") or ("20100146878") or ("20110303285") or ("20140305493") or ("20020043277") or ("20110067758") or ("8627617") or ("20100139760") or ("7666466") or ("8123565") or ("9142691") or ("20150311861") or ("20080245405") or ("20080057776") or ("20140090866") or ("20150214889") or ("20050115176") or ("20140246078") or ("8613169") or ("8366471") or ("20140130848") or ("6786012") or ("7708593") or ("8063301") or ("20160329857") or ("20100126651") or ("20160134229") or ("8633376") or ("9171980") or ("9171982") or ("20110162315") or ("20120285502") or ("20080314434") or ("7435897") or ("20090308431") or ("20120318319") or ("20160315581") or ("20170040928") or ("20150038005") or ("20120129401") or ("20170179876") or ("20110277811") or ("20120103401") or ("20110214367") or ("20090314335") or ("20100173511") or ("8853530") or ("20100132305") or ("20080142071") or ("20110214368") or ("20100263704") or ("8033857") or ("20110114149") or ("20080099062") or ("20160197580") or ("20090293932") or ("20140182678") or ("20070259103") or ("20110214366") or ("20070256727") or ("20160013346") or ("8435056") or ("6606830") or ("9541308") or ("20080264468") or ("20130146125") or ("9564545") or ("7812247") or ("8853525") or ("20060219291") or ("20050161074") or ("6201179") or ("5542989") or ("8316619") or ("20120145221") or ("8307606") or ("9640692") or ("6075201") or ("20110155203") or ("20110088744") or ("8336277") or ("20160164453") or ("8316618") or ("20140318599") or ("7963802") or ("20090098775") or ("20160230394") or ("20110023935") or ("20130092216") or ("20150043200") or ("8943766") or ("20090014051") or ("20100326498") or ("20120204927") or ("20100068926") or ("8633406") or ("20160105145") or ("20010034982") or ("7910392") or ("20120234377") or ("7740497") or ("20130008490") or ("20100071749")).PN.				
S116	60	S115 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:12
S117	2	(("20100139733") or	US-	OR	OFF	2018/03/27

		("20130037294")).PN.	PGPUB; USPAT; USOCR			11:41
S118	2	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/27 11:47
S119	5	("2700085").URPN.	USPAT	ADJ	OFF	2018/03/27 11:51
S120	32	("2700085" | "2839636" | "3085138" | "3843050").PN. OR ("4734059").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 11:53
S121	5	("2700085").URPN.	USPAT	ADJ	OFF	2018/03/27 11:58
S122	0	("3231966").URPN.	USPAT	ADJ	OFF	2018/03/27 12:04
S123	0	("3231966").URPN.	USPAT	ADJ	OFF	2018/03/27 12:04
S124	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 12:14
S125	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 12:18
S126	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 08:44
S127	41	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$ or US-20130037294-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$ or US-6046665-$ or US-3766509-$ or US-4918420-$ or US-3085138-$ or US-2839636-$ or US-2700085-$ or US-9325122-$ or US-7327213-$ or US-4060785-$ or US-3818407-$ or US-3578896-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$ or US-3296399-$ or US-3015008-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 09:18

S128	5	S127 and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 09:18
S129	2	"20130037294"	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 10:01
S130	2	(("20130037294") or ("5903209")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 10:01
S131	3	(("20130037294") or ("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 10:45
S132	1	("9575466").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 11:26
S133	8579	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
S134	1114	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
S135	617	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 13:45
S136	10234	S135 or S134 or S133	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
S137	46	S136 and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
S138	2324	thermoplastic elastomer and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
S139	6	S138 and S136	US-PGPUB;	ADJ	OFF	2018/03/28 13:46

			USPAT; USOCR; EPO; JPO			
S140	25	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 14:04
S141	7	S140 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 14:04
S142	2	(("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/06/27 09:55
S143	2	(("20140042293") or ("20140055938")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/06/27 10:54
S144	2	(("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/02 14:30
S145	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 14:30
S146	476	((439/620.28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/02 14:43
S147	3613	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/02 14:44
S148	4004	S147 or S146	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/02 14:44
S149	94	S148 and thermoplastic and fuse	US-PGPUB; USPAT; USOCR; JPO	ADJ	OFF	2018/07/02 14:44
S150	1	(12/081584).APP.	USPAT; USOCR	ADJ	OFF	2018/07/02 14:53
S151	41	("20020041944" | "20030001716" | "20040104801" | "20060055497" | "20060170332" | "20070159292" |	US-PGPUB; USPAT;	ADJ	OFF	2018/07/02 14:54

Voltage LLC
Ex.1002-222

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S152	1	(12/081584).APP.	US-PGPUB; USOCR	ADJ	OFF	2018/07/02 15:03
S153	38	("2441692" | "2809254" | "2843704" | "3235688" | "3304390" | "3599138").PN. OR ("3863187").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:05
S154	22239	(PCB or circuit board or FPC or flex ciruit) with (ring or circular or circle)	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:12
S155	299612	"174".clas. or "361".clas.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:12
S156	2299	S155 and S154	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:12
S157	283	S155 and S154 and sensor	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:13
S158	5	("20120006907" | "5508781" | "20140067056" | "20130141913" | "5508781" | "5436745" | "20140067056").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:14
S159	17	("3670639" | "4596454" | "4682871" | "4964697" | "4990948" | "4999656" | "5327184").PN. OR ("5508781").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:15
S160	1	(14/015542).APP.	USPAT; USOCR	ADJ	OFF	2018/07/02 15:21
S161	200	("0845816" | "0888654" | "1026101" | "20040236420" | "20050004421" | "20050147512" | "20070100196" | "20080068815" | "20090064755" | "20090234447" | "20100130809" | "20100150749" | "20100152526" | "20100241223" | "20100327687" | "20110002794" | "20110031836" | "20110054239" | "20110071337" | "20110144413" | "20110156197" | "20110187217" | "20110237863" | "20110245582" | "20110313237" | "20120032629" | "20120035411" | "20120046514" | "20120059212" |	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/07/02 15:21

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S162	1	("20100207716").PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 11:57
S163	2	(("20100207716") or ("20100139733")).PN.	US-PGPUB; USPAT;	OR	OFF	2018/07/03 13:15

			USOCR; JPO			
S164	2	(("20100207716") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR; JPO	OR	OFF	2018/07/03 13:21

EAST Search History (Interference)

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7/ 3/ 2018 3:42:14 PM
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Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	14295132	Filing Date	2014-06-03	Docket Number (if applicable)	SHOALS-25	Art Unit	2847
First Named Inventor	Dean Solon			Examiner Name	Sawyer, Steven T.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 506268

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

X Patent Practitioner Signature

Applicant Signature

Voltage LLC
Ex.1002-226

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Signature of Registered U.S. Patent Practitioner			
Signature	/Carla L. Gannon/	Date (YYYY-MM-DD)	2018-06-19
Name	Carla L. Gannon	Registration Number	56358

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	DEAN SOLON		
Serial No.:	14/295,132	**Examiner:**	SAWYER, STEVEN T.
Filed:	06/03/2014	**Art Unit:**	2847
Confirmation No.:	6619		

For: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO FINAL OFFICE ACTION

AND REQUEST FOR CONTINUED EXAMINATION

This paper responds to the Office Action mailed April 3, 2018.

A Request for Continued Examination, and the requisite fee of $950 for a small entity's 2nd RCE, is submitted contemporaneously with this Response.

In the event an additional extension of time or other fee is required, Applicant requests that this be considered the requisite petition.

The Commissioner is hereby authorized to charge any fees associated with this case to 506268.

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Ex.1002-229

RESPONSE TO FINAL OFFICE ACTION

Amendments to the Claims

The current status of the claims is listed in the "Listing of the Claims" below. This replaces all previous versions of claims.

Listing of the Claims

1) (**Currently Amended**) An in line assembly for a solar installation including:
   a. A photovoltaic fuse having a first end and a second end**, and defining an outline**;
   b. An undermold surrounding and sealing said fuse, said undermold defining an outline**, wherein the outline of said undermold has a similar contour and orientation relative to the outline of said fuse**;
   c. An ~~**overmolddefining**~~ **overmold defining** an outline ~~**andsurrounding**~~ **and surrounding** said undermold, said undermold and said ~~**overmoldeach**~~ **overmold each** constructed of a single unit and each constructed ~~**ofdissimilar**~~ **of dissimilar** materials, wherein the ~~**profile**~~ **outline** of said overmold ~~**is similarly shaped and oriented**~~ **has a similar contour and orientation** relative to the ~~**profile**~~ **outline** of said undermold; and
   d. A first photovoltaic connector engaged with said first end**, wherein said assembly provides electrical insulation**.

2) (Original) The assembly of claim 1 further including a second photovoltaic connector engaged with said second end.

3) (Original) The assembly of claim 2 wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

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4) (Original) The assembly of claim 1 wherein said first and second connectors are locking type connectors.

5) (Previously Amended) The assembly of claim 4 further comprising a tool for unlocking said connectors.

6) (Original) The assembly of claim 1 wherein said undermold is a modified polyphenylene ether plastic.

7) (Original) The assembly of claim 1 wherein said overmold is a thermoplastic elastomer.

8) (Original) The assembly of claim 6 wherein said fuse is rated at 2-30 amps.

9) (Original) The assembly of claim 8 wherein said fuse is rated at 600-2000V.

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10) (Previously Withdrawn) A photovoltaic wire harness including:

a. A trunk wire having a plurality of branch wires extending there from in pairs, said branch wires and said trunk wire forming angles having vertices of approximately 90 degrees; and

b. A plurality of fuse assemblies engaged only with said branch wires in a ratio of one fuse assembly per branch wire.

11) (Previously Withdrawn) The photovoltaic wire harness of claim 10 wherein said fuse assemblies each include one or two connectors.

12) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said fuse assemblies each include a pair selected from the group consisting of one male type connector and one female type connector; one male type connector and one wire; and one female type connector and one wire.

13) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said angles are surrounded by an encasement.

14) (Previously Withdrawn) The photovoltaic wire assembly of claim 13 wherein said encasement defines tie-downs that span between adjacent protrusions.

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15) (Previously Withdrawn) A method of configuring a solar installation including the steps of:

a. Engaging the trunk of a wire harness with a combiner box wherein said combiner box lacks fuses and circuit breakers; and
b. Engaging each terminal branch of said wire harness with one solar panel wherein each terminal branch includes exactly one in line fuse assembly.

16) (Previously Withdrawn) The method of claim 15 wherein said step of engaging each terminal branch with one solar panel includes the step of uniting a male connector with a female connector.

17) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a male connector integrated with said in line fuse assembly.

18) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a female connector integrated with said in line fuse assembly.

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Remarks

Applicant gratefully acknowledges the Office Action dated 4/3/18. Upon considering the Office's cited art and remarks, originally filed claim 1 has been amended. Claims 10-18 were previously withdrawn. Accordingly, claims 1-9 are currently pending, and claims 1-9 are currently under consideration, with no claims allowable at this time.

This Response specifically addresses the following issues:

I. Objection to Informalities in Claim 1 (Examiner's ¶2)

The spacing errors contained in Claim 1 have been amended pursuant to the Examiner's suggestions.

II. 35 USC §112 Rejection of Claims 1 – 9 as being Indefinite (Examiner's ¶4)

Claim 1 has been amended to recite, in relevant part:

> *"… said overmold ~~is similarly shaped and oriented~~ has a similar contour and orientation relative to…"*

It is believed that this amendment overcomes the indefiniteness rejection.

III. 35 USC §103 Rejection of Claims 1, 2 and 7 as Obvious in view of Stepniak and Jonczyk (Examiner's ¶6)

Claim 1 has been amended to recite, in relevant part:

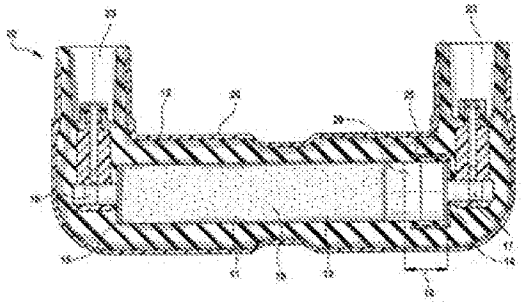
> *"…wherein the outline of said undermold has a similar contour and orientation relative to the outline of said fuse…"*

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It is believed that this amendment structurally and patentably distinguishes the present invention over the Stepniak reference as discussed below:

Stepniak Reference

FIG-3



The outline of fuse (11) does **not** have a similar contour and orientation relative to the outline of undermold (12)
(Red added for emphasis)

Present Invention

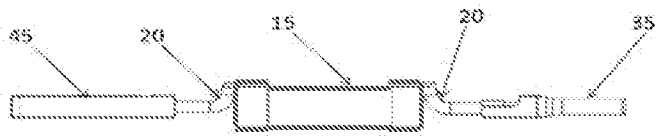


FIG. 6

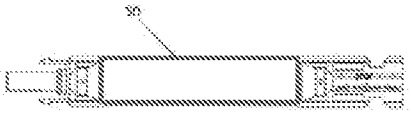


FIG. 8

The outline of fuse (15) **does** have a similar contour and orientation relative to the outline of undermold (50)
(Red added for emphasis)

In addition, claim 1 has been amended to recite, in relevant part:

"…wherein said assembly provides electrical insulation…"

Stepniak teaches a "conductive jacket 28"[1], which the Office cites as the structural equivalent of overmold 60 of the present invention. Given the intentional conductivity of Stepniak's outermost surface, his assembly presumably would not provide electrical insulation.

It is believed that either of the amendments offered herein overcome the Stepniak reference.

[1] See column 5, lined 4-6.

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IV. 35 USC §103 Rejection of Claims 3 and 4 as Obvious in view of Stepniak, Jonczyk and Loet (Examiner's ¶7)

This rejection is deemed moot in view of claim 1 overcoming the Stepniak reference, as discussed above in Section III.

V. 35 USC §103 Rejection of Claim 5 as Obvious in view of Stepniak, Jonczyk, Loet and Quiter (Examiner's ¶8)

This rejection is deemed moot in view of claim 1 overcoming the Stepniak reference, as discussed above in Section III.

VI. 35 USC §103 Rejection of Claim 6 as Obvious in view of Stepniak, Jonczyk and Kono (Examiner's ¶9)

This rejection is deemed moot in view of claim 1 overcoming the Stepniak reference, as discussed above in Section III.

VII. 35 USC §103 Rejection of Claims 8 and 9 as Obvious in view of Stepniak, Jonczyk, Kono and F. J. Kozackz (Examiner's ¶10)

This rejection is deemed moot in view of claim 1 overcoming the Stepniak reference, as discussed above in Section III.

VIII. Other Amendments

Previously pending claims erroneously recited "outline" and "profile" and used these terms interchangeably. This is corrected in the Listing of Claims.

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Conclusion

For the reasons set forth herein, Applicant believes all claims are allowable over the art of record. Examiner Sawyer is encouraged to contact Attorney Gannon by telephone or email to discuss the case.

Respectfully submitted,

/Carla L. Gannon, 56,358/

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Date: June 19, 2018
File No. SHOALS-25

Voltage LLC
Ex.1002-237

Electronic Patent Application Fee Transmittal

Application Number:	14295132
Filing Date:	03-Jun-2014
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Filer:	Carla L. Gannon/Donna Braam
Attorney Docket Number:	SHOALS-25

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	2820	1	950	950
		Total in USD ($)		**950**

Electronic Acknowledgement Receipt

EFS ID:	32933157
Application Number:	14295132
International Application Number:	
Confirmation Number:	6619
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Customer Number:	57825
Filer:	Carla L. Gannon/Donna Braam
Filer Authorized By:	Carla L. Gannon
Attorney Docket Number:	SHOALS-25
Receipt Date:	19-JUN-2018
Filing Date:	03-JUN-2014
Time Stamp:	10:38:42
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$950
RAM confirmation Number	061918INTEFSW10554100
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	RCEtransmittal_SHOALS-25.pdf	1349894 00fc502e011466f3a93ef26efac719e2201e3417	no	3
Warnings:					
Information:					
2	Response After Final Action	Response_040318OA_SHOALS-25.pdf	166136 a22606a5df99d6bf5719c3c6f55608bea6be8641	no	9
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30313 bada211a337375f9194cc8cc8a7ef988b592168f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1546343		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/295,132	Filing Date 06/03/2014	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)			
FOR	NUMBER FILED	NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	06/19/2018	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 18	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $ 0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $ 0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	DeShonne T Martino
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

57825 7590 04/03/2018

CARLA GANNON LAW
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Oak Island, NC 28465

EXAMINER	
SAWYER, STEVEN T	

ART UNIT	PAPER NUMBER
2847	

NOTIFICATION DATE	DELIVERY MODE
04/03/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

cgannon@carlagannonlaw.com
carlagannon@yahoo.com
docketing@carlagannonlaw.com

Voltage LLC
Ex.1002-243

Office Action Summary	Application No. 14/295,132	Applicant(s) SOLON, DEAN	
	Examiner STEVEN T. SAWYER	Art Unit 2847	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *2/6/2018*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-18* is/are pending in the application.

5a) Of the above claim(s) *10-18* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-9* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

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Ex.1002-244

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

Claim Objections

2. Claim 1 is objected to because of the following informalities: Claim 1 states, "overmolddefining…andsurrounding…overmoldeach….ofdissimilar". A space between the words is required. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-9 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention. Claim 1 states, "said overmold is similarly shaped". The term "similarly shaped" is not well defined and additional wording is required to help define its meaning. For the purposes of examination the term shall be interpreted to mean similar contour.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2 and 7 is/are rejected under 35 U.S.C. 103 as being unpatentable over Stepniak (US Patent 5903209) in view of Jonczyk et al. (US PG. Pub. 2010/0139733).

Regarding claim 1 – Stepniak teaches an in line assembly (fig. 3 [title] Stepniak states, “Encapsulated fuse with corona shield”) including:

a. A fuse (11 [column 4 line 5] Stepniak states, “fuse 11”) having a first end (14) and a second end (15);

b. An undermold (12 [column 4 line 52-53] Stepniak states, “insulative outer housing 12 is a single integral unit molded directly around the coated fuse 11”) surrounding and sealing said fuse (discussed above), said undermold defining an outline (see "outline" shown in figure 3);

c. An overmold (28 [column 5 line 4] Stepniak states, “conductive jacket 28”) defining an outline (see “outline” shown in figure 3) and surrounding said undermold (claimed structure shown in figure 3), said undermold and said overmold each constructed of a single unit (see fig. 3) and each constructed of dissimilar materials (the insulative housing 12 will be different than the conductive jacket 28), wherein the profile of said

overmold is similarly shaped and oriented relative to the profile of said undermold (claimed structure shown in figure 3); and

d. A first connector (16 [column 4 line 23] Stepniak states, “terminals 16 and 17”) engaged with said first end.

Stepniak does not teach wherein the in line assembly is for a solar installation and the fuse is a photovoltaic fuse.

Jonczyk teaches wherein the in line assembly is for a solar installation ([title] Jonczyk states, “fused wiring harness for a photovoltaic system”) and the fuse (fig. 6, 112 [paragraph 0033] Jonczyk states, “fuse 112”) is a photovoltaic fuse ([paragraph 0005] Jonczyk states, “The photovoltaic system further includes a fused wiring harness having a fused wiring assembly and a second wiring assembly”); an undermold (fig. 6 [paragraph 0033] Jonczyk states, “fuse holder 110”; figure 6 shows the fuse holder 110 completely covering the fuse 112) covering the fuse and an overmold (fig. 10, 210 [paragraph 0038] Jonczyk states, “fuse overmold portion 210”) covering the undermold (see figs. 10).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having a fuse as taught by Stepniak with the in line assembly being for a solar installation and with an undermold/overmold arrangement as taught by Jonczyk because Jonczyk states, " Accordingly, there is a need for a wiring harness for a PV system that protects each individual circuit and that provides for ease of installation during, for example, the deployment of large photovoltaic arrays." [paragraph 0003].

Regarding claim 2 – Stepniak in view of Jonczyk teaches the assembly of claim 1 further including a second photovoltaic connector (fig. 3, 16) engaged with said second end (15).

Regarding claim 7 – Stepniak in view of Jonczyk teaches the assembly of claim 1 wherein said overmold (Jonczyk; fig. 10, 210) is a thermoplastic elastomer ([paragraph 0031] Jonczyk states, "overmold portions 82, 84 can be formed from a high-performance thermoplastic material such as a thermoplastic elastomer (TPE)"; overmold 82 is considered equivalent to overmold 210).

7. Claims 3 and 4 is/are rejected under 35 U.S.C. 103 as being unpatentable over Stepniak in view of Jonczyk et al. as applied to claim 2 above, and further in view of Loet (US Patent 5316502).

Regarding claim 3 – Stepniak in view of Jonczyk teach the assembly of claim 2 but fails to teach wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, "fuse 26") with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20), wherein a first connector is a female type connector ([column 4 line 47] Loet states, "female connector 34"), and said

second connector is a male type connector ([column 4 line 32] Loet states, “male connection element 22” [Abstract] Loet states, “a fuse, is mounted within the housing and arranged to electrically couple the male cable connector to the female cable connector”).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Stepniak in view of Jonczyk with the connectors being of a male and female type as taught by Loet because Loet states, “The housing can be easily installed at any location of a power distribution network by using the male and female connectors to couple one power cable to another power cable” [Abstract].

Regarding claim 4 – Stepniak in view of Jonczyk teach the assembly of claim 1 but fails to teach wherein said first and second connectors are locking type connectors.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, “fuse 26”) with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20) wherein said first and second connectors are locking type connectors ([column 5 line 18-20] Loet states, “the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another”).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Stepniak in view of Jonczyk with the connectors being locking type connectors

as taught by Loet because Loet states, "the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another"" [column 5 lines 18-20]. This locking arrangement will provide a strong mechanical connection.

8. Claim 5 is/are rejected under 35 U.S.C. 103 as being unpatentable over Stepniak in view of Jonczyk et al. and Loet as applied to claim 4 above, and further in view of Quiter et al. (US PG. Pub. 2011/0104925).

Regarding claim 5 – Stepniak in view of Jonczyk and Loet teach the assembly of claim 4, but fails to teach wherein a tool is used for unlocking said connectors.

Quiter teaches an assembly (fig. 1 [title] Quiter states, "connector system, use and method") having connectors (10 & 12 [paragraph 0077] Quiter states, "connector 10 and complementary connector 12") being of a locking type ([paragraph 0080] Quiter states, "connector 10 is locked with the complementary connector 12"), wherein a tool is used for unlocking said connectors ([paragraph 0083] Quiter states, "For unlocking, a tool (not shown) can be inserted…By means of the tool, the complementary latching element can be displaced in the unlocking direction ENR").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Stepniak in view of Jonczyk and Loet with the connectors being unlockable by

a tool as taught by Quiter because this securing arrangement will prevent unintentional disconnection of the connectors.

9. Claim 6 is/are rejected under 35 U.S.C. 103 as being unpatentable over Stepniak in view of Jonczyk et al. as applied to claim 1 above, and further in view of Kono et al. (US PG. Pub. 2011/0232963).

Regarding claim 6 – Stepniak in view of Jonczyk teach the assembly of claim 1 wherein said undermold (Stepniak; fig. 3, 28) is formed of an insulating material (Discussed in the rejection to claim 1 above).

Stepniak in view of Jonczyk do not teach the material being a modified polyphenylene ether plastic.

Kono teaches an in line assembly for a photovoltaic installation (fig. 2 [title] Kono states, “connection structure for photovoltaic power generation module”) wherein a material is a modified polyphenylene ether plastic ([paragraph 0044] Kono states, “the connection structure of the present embodiments is produced by injection molding…consisting of a modified polyphenylene ether”).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the undermold as taught by Stepniak in view of Jonczyk with the in line assembly using the material of modified polyphenylene ether in the structure as taught by Kono because Kono states, “Especially, from the viewpoint of strength, electrical characteristics, and

long-term heat resistance, preferred is a resin composition containing at least one selected from the group consisting of a modified polyphenylene ether" [paragraph 0044].

10. Claims 8-9 is/are rejected under 35 U.S.C. 103 as being unpatentable over Stepniak in view of Jonczyk et al. and Kono et al. as applied to claim 6 above, and further in view of F. J. Kozackz (US Patent 3296399).

Regarding claim 8 – Stepniak in view of Jonczyk and Kono teach the assembly of claim 6, but fail to teach specifically wherein said fuse is rated at 2-30 amps.

Kozackz teaches a fuse (fig. 1, 5 [column 3 line 40] Kozackz states, "fusible element 5") wherein said fuse is rated at 2-30 amps ([column 3 line 40-42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the fuse as taught by Stepniak in view of Jonczyk and Kono with fuse having a rating of 2-30 amps as taught by Kozackz because this fuse rating will protect the connected solar device from overdrawing current and prevent damage to the solar device, the fuse will perform as a protection device.

Regarding claim 9 – Stepniak in view of Jonczyk, Kono and Kozackz teach the assembly of claim 8 wherein said fuse (Kozackz; fig. 1, 5) is rated at 600-2000V ([column 3 line 40-42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

Response to Arguments

11. Applicant's arguments with respect to claims 1-9 and 10-18 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN T. SAWYER whose telephone number is (571)270-5469. The examiner can normally be reached on Mon-Thu 7:00-5:30 (est).

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thompson can be reached on 5712722342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEVEN T SAWYER/
Primary Examiner, Art Unit 2847

Notice of References Cited	Application/Control No. 14/295,132	Applicant(s)/Patent Under Reexamination SOLON, DEAN	
	Examiner STEVEN T. SAWYER	Art Unit 2847	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-5,903,209 A	05-1999	Stepniak; Frank	H01H85/042	337/199
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14295132	SOLON, DEAN
	Examiner	Art Unit
	STEVEN T SAWYER	2847

CPC- SEARCHED		
Symbol	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc.	3/28/2018	ss
H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	3/28/2018	ss

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
439	620.28 (updated)	3/28/2018	ss
337	227, 228 (updated)	3/28/2018	ss

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc., H01L31/0504.cpc., H01B7/0045.cpc., H01L31/18.cpc. (with text) (updated)	3/28/2018	ss
Inventor name search	3/28/2018	ss

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/STEVEN T SAWYER/ Primary Examiner.Art Unit 2847

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	8579	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
L2	1114	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
L3	617	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 13:45
L4	10234	L3 or L2 or L1	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:45
L5	46	4 and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
L6	2324	thermoplastic elastomer and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
L7	6	6 and 4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 13:46
L8	25	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 14:04
L9	7	8 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 14:04

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S1	3	photovoltaic fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 10:48
S2	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 12:22
S3	1	(13/151984).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:37
S4	14	("2046221" | "3356806" | "3518600" | "3778741" | "4734059" | "4909761" | "5018991" | "5648749" | "5888098").PN. OR ("8454390").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:37
S5	26	("20050128045" | "20120161919" | "2700085" | "3356806" | "3465280" | "3551869" | "3778741" | "3843050" | "4060303" | "4333701" | "4391485" | "4531806" | "4734059" | "4909761" | "5444428" | "7377813" | "7445509" | "7777508" | "7988493" | "8098126" | "8342885" | "8454390").PN. OR ("9325122").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:38
S6	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S7	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S8	23	("4202589" | "4390225" | "4448476" | "6483417" | "2187427" | "3828291" | "4909761" | "3243551" | "7639113" | "2758295" | "4504815" | "6717505" | "20090184796" | "2614190" | "20120309232" | "4762509" | "6587028" | "2207837").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:42
S9	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:03
S10	1	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:11
S11	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:19
S12	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:19

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S13	2063	fuse and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S14	34	fuse and thermoplastic elastomer and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S15	0	(13/245432).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:29
S16	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S17	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S18	9	("3900241" | "5168124" | "20080194154" | "20070107767" | "3900241" | "20060049358" | "7342171" | "7485982" | "20080099062" | "6307144").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S19	2628	fuse and (different with material) and elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:39
S20	743	fuse and (different with material) and thermoplastic elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:40
S21	239	S12 and material	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:42
S22	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S23	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S24	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:13
S25	24	("4023071" | "4188561" | "4199736" | "4335415" | "4359764" | "4633359" | "5224012" | "5278720" | "5384679" | "5508873").PN. OR ("5726851").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:27
S26	2	("3243551").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:42
S27	2	("2839636").PN.	US-PGPUB; USPAT;	OR	OFF	2016/10/04 14:46

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			USOCR			
S28	2	("2049309").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:49
S29	184	fuse and polyphenylene ether and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:57
S30	0	fuse and photovlotaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:02
S31	2971	fuse and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:02
S32	539034	"361".clas. or "136".clas. or "174".clas. or "439".clas. or "337".clas.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S33	707	S32 and S31	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S34	602	S33 not S2	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S35	0	fuse holder and polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:30
S36	9	fuse holder and polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:31
S37	2	("2316036").URPN.	USPAT	ADJ	OFF	2016/10/04 15:57
S38	53	("1028328" | "1036510" | "1099589" | "1508839" | "1511838" | "1889585" | "1927905" | "1971809" | "20020113684" | "20070236323" | "2316036" | "2524550" | "2838639" | "2873327" | "2877321" |	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 15:57

		"2946974" | "3205467" | "3447240" | "3562162" | "3838374" | "3870863" | "3912903" | "4084145" | "4237440" | "4563809" | "4680567" | "4929921" | "5003280" | "5361058" | "5418516" | "5903208" | "6664886" | "6774760" | "7645645" | "RE23219").PN. OR ("8629750").URPN.				
S39	1	(13/208149).APP.	US-PGPUB; USOCR	ADJ	OFF	2016/10/04 16:08
S40	1	(13/208149).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 16:11
S41	27	("20130037294" | "3356806" | "3417359" | "3518600" | "3629808" | "3753192" | "4734059" | "4759730" | "4826454" | "4909761" | "5018991" | "5088683" | "5335160" | "5427542" | "5648749" | "5888098" | "5993246" | "D326845" | "RE40228").PN. OR ("8517768").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 16:12
S42	1	("20130037294").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 07:39
S43	26	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 07:49
S44	7	S43 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:50
S45	13	("5726851" | "4909761" | "8454390" | "5018991" | "5648749" | "5888098" | "20100207716" | "20050141164" | "20120295456" | "5137478" | "4734059" | "5714923" | "3848215").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S46	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S47	26	S43 and S43	US-PGPUB; USPAT; USOCR; EPO;	ADJ	OFF	2016/10/05 07:52

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			JPO			
S48	4	S43 and S46	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:53
S49	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 08:05
S50	8	polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:25
S51	21694	polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S52	141	S51 and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S53	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S54	3	polyphenylene ether and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:28
S55	18	PPE and fuse with holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S56	18	PPE and (fuse with holder)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S57	9	PPE and fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S58	5	S43 and amps	US-	ADJ	OFF	2016/10/05

Voltage LLC
Ex.1002-263

			PGPUB; USPAT; USOCR; EPO; JPO			08:40
S59	11	S43 and (rated or rating)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:42
S60	4	polyphenylene ether with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:55
S61	0	polyphenylene ether with fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:56
S62	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:03
S63	9151	fuse with voltage with current	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S64	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S65	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S66	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S67	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S68	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S69	261	H01H85/201.cpc.	US-	ADJ	OFF	2016/10/05

Voltage LLC
Ex.1002-264

			PGPUB; USPAT; USOCR; EPO; JPO			09:26
S70	1380	S64 or S65 or S66 or S67 or S68 or S69	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S71	184	S70 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:27
S72	95	fuse with voltage with amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S73	6	S72 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S74	7	female and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:39
S75	51	photovoltaic and fuse and (connector with lock$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:23
S76	27	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 10:24
S77	9	S76 and lock$4	US-PGPUB; USPAT; USOCR; EPO;	ADJ	OFF	2016/10/05 10:24

			JPO			
S78	7	(("20120309232") or ("20130037294") or ("5316502") or ("20110104925") or ("20110232963") or ("3296399")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:04
S79	6337	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S80	10	S79 and fuse and elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S81	170	S79 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S82	20	((Dean) near2 (Solon)).INV.	US-PGPUB; USPAT	ADJ	OFF	2016/10/05 13:37
S83	0	("2010302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S84	1	("20100302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S85	49	(("8937249") or ("20110209741") or ("8690595") or ("20130344727") or ("5309625") or ("5755579") or ("4280748") or ("4850884") or ("4884050") or ("4906195") or ("4940419") or ("4943241") or ("4950168") or ("4963099") or ("5011417") or ("5057026") or ("5327644") or ("5403193") or ("5489885") or ("5662496") or ("5697813") or ("5722863") or ("5735713") or ("5739739") or ("5749739") or ("5785532") or ("5877944") or ("5883560") or ("5897385") or ("5928004") or ("6007350") or ("6011319") or ("6109973") or ("6144539") or ("6172302") or ("6186633") or ("6224397") or ("6224397") or ("6252477") or ("6262537") or ("6411190") or ("6430054") or ("6600236") or ("6712623") or ("6719572") or ("6791207") or ("6796808") or ("6851956") or ("7021962") or ("7132761")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:18
S86	1	("14700742").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:41
S87	0	("14295132").PN.	US-	OR	OFF	2017/01/09

			PGPUB; USPAT; USOCR			08:21
S88	3	(("20120309232") or ("20130037294") or ("5316502")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:22
S89	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:23
S90	7658	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:07
S91	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/04 15:08
S92	8198	S91 or S90	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:09
S93	30	S92 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:09
S94	39	("1175103" | "1579596" | "2414865" | "2872501" | "3422213" | "3601737" | "3766307" | "3766509" | "4280748" | "4308515" | "4333701" | "4365226" | "4391485" | "4679877" | "4734059" | "4831353" | "4880943" | "4958426" | "5018991" | "5162773" | "5241134" | "5298877" | "5304740" | "5329065" | "5345210" | "5391836" | "5493069" | "5591366").PN. OR ("6046665").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/04 15:11
S95	4	("1175103").URPN.	USPAT	ADJ	OFF	2017/02/04 15:14
S96	20	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/06 07:50
S97	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 13:40
S98	2	fuse same overmold same undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:47
S99	25	overmold$4 same undermold$4 and (water	US-	ADJ	OFF	2017/08/30

		or moisture)	PGPUB; USPAT; USOCR; EPO; JPO			13:48
S100	2164	(second with overmold$4) and (water or moisture)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:49
S101	89	(second with overmold$4) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:50
S102	5	(second overmold or second overmolding) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:52
S103	9	("20100139733" | "20110104925" | "20110232963" | "20120309232" | "20130037294" | "20130077249" | "3296399" | "5316502").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:58
S104	2	(("20100139733") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 15:01
S105	1	("20110232963").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:01
S106	8165	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:06
S107	1102	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:06
S108	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:06
S109	9807	S108 or S107 or S106	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:08
S110	2	S109 and overmold and fuse and solar	US-	ADJ	OFF	2017/08/30

			PGPUB; USPAT; USOCR; EPO; JPO			16:09
S111	2	S109 and overmold and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S112	391	S109 and mold$4 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S113	49	S109 and mold$4 and fuse and solar	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
S114	23	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/08/30 16:10
S115	640	(("20170214234") or ("8113890") or ("20120085040") or ("20110275232") or ("20090318004") or ("7850476") or ("20160072431") or ("20100105238") or ("20150162870") or ("8907230") or ("20110147076") or ("20090178701") or ("20100139733") or ("20130056047") or ("7445508") or ("20160142008") or ("7387537") or ("20080160819") or ("20080160804") or ("20130104982") or ("6307144") or ("20130043055") or ("20080006321") or ("5232518") or ("7824191") or ("20120279150") or ("8695291") or ("20120031473") or ("20130050956") or ("6498289") or ("20130077249") or ("6201180") or ("20120031472") or ("20070157963") or ("8196360") or ("20100078058") or ("5280133") or ("20130087197") or ("20120186622") or ("20020129849") or ("8796536") or ("8809699") or ("6730841") or ("20120227783") or ("9653634") or ("9112080") or ("9634606") or ("20150000727") or ("9466961") or ("20140352998") or ("20130133721") or ("6576830") or ("8656661") or ("20020134421") or ("20160027944") or ("20080110488") or ("20110114158") or ("20110253192") or ("20130212959") or ("20130081338") or ("20100180523") or ("20110017281") or ("20120023842") or ("7918694") or ("20090120484") or ("20140113500") or ("4310211") or ("20080149170") or ("20090255573") or ("5951785") or ("8911264") or ("9437985")	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:11

		or ("8671630") or ("8604342") or ("20150140849") or ("8937249") or ("8227942") or ("20100065107") or ("20140284101") or ("20080302408") or ("20040147172") or ("20120104872") or ("7442077") or ("20090078306") or ("4636577") or ("6344612") or ("8779623") or ("9647159") or ("20050032416") or ("20110220187") or ("20110140528") or ("20120132249") or ("8454390") or ("8013237") or ("5590495") or ("8207637") or ("20120152349") or ("20120048349") or ("20110011642") or ("8137115") or ("20120071025") or ("20120309232") or ("20140041935") or ("20170019061") or ("20140041934") or ("9130096") or ("6242685") or ("4233085") or ("20050133082") or ("20060042680") or ("20080302031") or ("7642449") or ("8097818") or ("20120240978") or ("20100018569") or ("20110168238") or ("20110084556") or ("20110308833") or ("20080236886") or ("20080113567") or ("20110056535") or ("20110209741") or ("20140034111") or ("7291036") or ("8336264") or ("8530737") or ("20030070368") or ("20110283635") or ("20110047903")).PN. or (("8209920") or ("20160344334") or ("6672018") or ("20080302409") or ("8273981") or ("20050061360") or ("8450601") or ("9225286") or ("20130263909") or ("5830779") or ("20090126782") or ("7963813") or ("20110195585") or ("8128439") or ("9413286") or ("8468757") or ("6093884") or ("20120317901") or ("20080163918") or ("8227684") or ("20110210085") or ("5513075") or ("20080110487") or ("6331671") or ("20100282294") or ("9391223") or ("9401676") or ("20090095339") or ("5059296") or ("20080110490") or ("20080110492") or ("20140000709") or ("20160065119") or ("6121542") or ("20130340811") or ("8943765") or ("20150194557") or ("9263986") or ("20160118936") or ("20160149539") or ("20140144489") or ("7655859") or ("20070251567") or ("20100031996") or ("20150222225") or ("20170201205") or ("20050022859") or ("7900407") or ("20050072456") or ("9010041") or ("6928775") or ("20120013191") or ("20110168230") or ("20070084504") or ("20110272061") or ("20130340358") or ("20130000694") or ("8523609") or ("20130263910") or ("20100282290") or ("20130008482") or ("20120312346") or ("8656659") or ("8632358") or ("20110197524") or ("20140246074") or ("8434276") or ("20130000230") or ("5252141") or ("20120270450") or ("20150263668") or ("20140000676") or ("9130091") or ("5112408") or ("6469242")				

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("20110114149") or ("20080099062") or
("20160197580") or ("20090293932") or
("20140182678") or ("20070259103") or
("20110214366") or ("20070256727") or
("20160013346") or ("8435056") or

		("6606830") or ("9541308") or ("20080264468") or ("20130146125") or ("9564545") or ("7812247") or ("8853525") or ("20060219291") or ("20050161074") or ("6201179") or ("5542989") or ("8316619") or ("20120145221") or ("8307606") or ("9640692") or ("6075201") or ("20110155203") or ("20110088744") or ("8336277") or ("20160164453") or ("8316618") or ("20140318599") or ("7963802") or ("20090098775") or ("20160230394") or ("20110023935") or ("20130092216") or ("20150043200") or ("8943766") or ("20090014051") or ("20100326498") or ("20120204927") or ("20100068926") or ("8633406") or ("20160105145") or ("20010034982") or ("7910392") or ("20120234377") or ("7740497") or ("20130008490") or ("20100071749")).PN.				
S116	60	S115 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:12
S117	2	(("20100139733") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/27 11:41
S118	2	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/27 11:47
S119	5	("2700085").URPN.	USPAT	ADJ	OFF	2018/03/27 11:51
S120	32	("2700085" | "2839636" | "3085138" | "3843050").PN. OR ("4734059").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 11:53
S121	5	("2700085").URPN.	USPAT	ADJ	OFF	2018/03/27 11:58
S122	0	("3231966").URPN.	USPAT	ADJ	OFF	2018/03/27 12:04
S123	0	("3231966").URPN.	USPAT	ADJ	OFF	2018/03/27 12:04
S124	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 12:14
S125	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/27 12:18

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S126	25	("1930804" | "1954037" | "2877322" | "3015008" | "3559141" | "3578896" | "3684995" | "3727108" | "3781745" | "3783181" | "3818407" | "3946351" | "4059816" | "4060785" | "4136339" | "4419651").PN. OR ("5903209").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 08:44
S127	41	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$ or US-20130037294-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$ or US-6046665-$ or US-3766509-$ or US-4918420-$ or US-3085138-$ or US-2839636-$ or US-2700085-$ or US-9325122-$ or US-7327213-$ or US-4060785-$ or US-3818407-$ or US-3578896-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$ or US-3296399-$ or US-3015008-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2018/03/28 09:18
S128	5	S127 and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 09:18
S129	2	"20130037294"	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2018/03/28 10:01
S130	2	(("20130037294") or ("5903209")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 10:01
S131	3	(("20130037294") or ("5903209") or ("20100139733")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 10:45
S132	1	("9575466").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/28 11:26

EAST Search History (Interference)

< This search history is empty>

3/ 28/ 2018 2:05:17 PM
C:\ Users\ ssawyer\ Documents\ EAST\ Workspaces\ 14295132.wsp

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Ex.1002-276

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	DEAN SOLON		
Serial No.:	14/295,132	**Examiner:**	SAWYER, STEVEN T.
Filed:	06/03/2014	**Art Unit:**	2847
Confirmation No.:	6619		

For: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRATED FUSE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO NON-FINAL OFFICE ACTION

This paper responds to the Office Action mailed September 8, 2017.

Applicant requests a 2 month extension of time, thereby broadening the time for response to February 8, 2018. The requisite fee of $300.00 is contemporaneously submitted.

In the event an additional extension of time or other fee is required, Applicant requests that this be considered the requisite petition.

The Commissioner is hereby authorized to charge any fees associated with this case to 506268.

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RESPONSE TO NON-FINAL OFFICE ACTION

Amendments to the Claims

The current status of the claims is listed in the "Listing of the Claims" below. This replaces all previous versions of claims.

Listing of the Claims

1) (**Currently Amended**) An in line assembly for a solar installation including:
   a. A photovoltaic fuse having a first end and a second end;
   b. An undermold surrounding and sealing said fuse**, said undermold defining an outline**;
   c. An overmold**defining an outline and**surrounding said undermold, said undermold and said overmoldeach constructed of a single unit and each constructed ofdissimilar materials**, wherein the profile of said overmold is similarly shaped and oriented relative to the profile of said undermold**; and
   d. A first photovoltaic connector engaged with said first end.

2) (Original) The assembly of claim 1 further including a second photovoltaic connector engaged with said second end.

3) (Original) The assembly of claim 2 wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

4) (Original) The assembly of claim 1 wherein said first and second connectors are locking type connectors.

5) (Previously Amended) The assembly of claim 4further comprising a tool for unlocking said connectors.

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6) (Original) The assembly of claim 1 wherein said undermold is a modifiedpolyphenylene ether plastic.

7) (Original) The assembly of claim 1 wherein said overmold is a thermoplastic elastomer.

8) (Original) The assembly of claim 6 wherein said fuse is rated at 2-30 amps.

9) (Original) The assembly of claim 8 wherein said fuse is rated at 600-2000V.

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10) (Previously Withdrawn) A photovoltaic wire harness including:

a. A trunk wire having a plurality of branch wires extending there from in pairs, said branch wires and said trunk wire forming angles having vertices of approximately 90 degrees; and

b. A plurality of fuse assemblies engaged only with said branch wires in a ratio of one fuse assembly per branch wire.

11) (Previously Withdrawn) The photovoltaic wire harness of claim 10 wherein said fuse assemblies each include one or two connectors.

12) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said fuse assemblies each include a pair selected from the group consisting of one male type connector and one female type connector; one male type connector and one wire; and one female type connector and one wire.

13) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said angles are surrounded by an encasement.

14) (Previously Withdrawn) The photovoltaic wire assembly of claim 13 wherein said encasement defines tie-downs that span between adjacent protrusions.

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15) (Previously Withdrawn) A method of configuring a solar installation including the steps of:

a. Engaging the trunk of a wire harness with a combiner box wherein said combiner box lacks fuses and circuit breakers; and
b. Engaging each terminal branch of said wire harness with one solar panel wherein each terminal branch includes exactly one in line fuse assembly.

16) (Previously Withdrawn) The method of claim 15 wherein said step of engaging each terminal branch with one solar panel includes the step of uniting a male connector with a female connector.

17) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a male connector integrated with said in line fuse assembly.

18) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a female connector integrated with said in line fuse assembly.

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Remarks

Applicant gratefully acknowledges the Office Action dated 9/8/17. Upon considering the Office's cited art and remarks, claim 1 has been amended. Claims 10-18 were previously withdrawn. Accordingly, claims 1-9 are currently pending, and claims 1-9 are currently under consideration, with no claims allowable at this time.

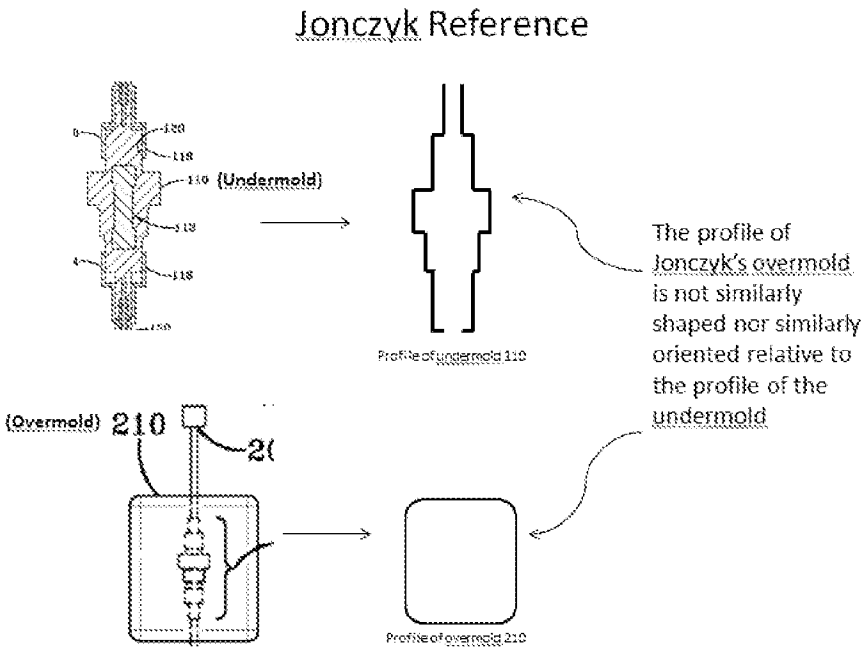
This Response specifically addresses the following issues:

I. 35 USC §103 Rejection of Claims 1, 2 and 7 as Obvious in view of Jonczyk and Blaha (Examiner's ¶4)

Claim 1 has been amended to recite, in relevant part:

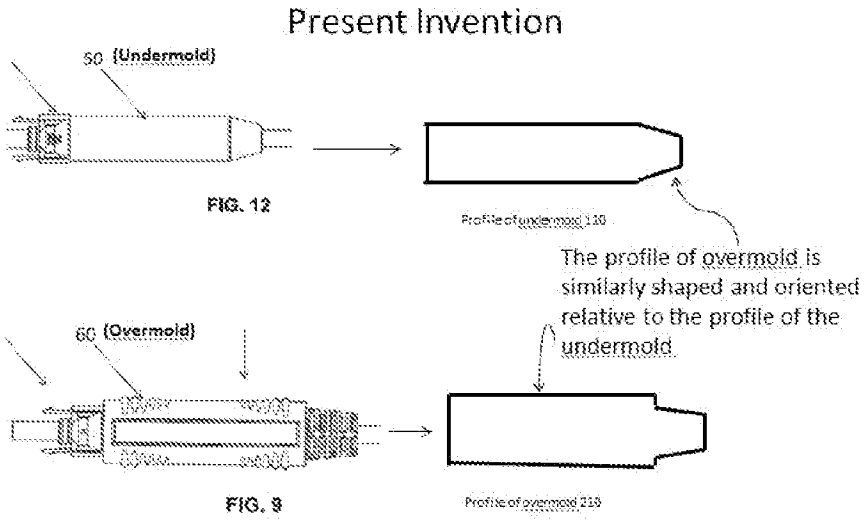
> *"…wherein the profile of said overmold is similarly shaped and oriented relative to the profile of said undermold…"*

This amendment overcomes the Jonczyk reference whose overmold and undermold differ in shape and orientation:



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By comparison:



Having the profiles of the undermold and overmold being similarly shaped and oriented is not merely a design choice. Rather, it is beneficial for the overmold to "contour" to the undermold so as to minimize materials; provide a lower profile and less "clunky" connector; and to retain the general size and shape of underlying structures so an operator on the field can readily identify structure/function of components of the assembly.

The rejections to claims 2 and 7 are deemed moot in view of amended independent claim 1 overcoming the Jonczyk reference.

Applicant notes that the undermold and the overmold each defining an outline is inherent, as solid objects have outlines. Accordingly no new matter has been introduced.

Applicant further notes that the specification does not specifically disclose that the undermold and the overmold are "similarly shaped and oriented", but these properties are depicted in, *inter alia*, FIGS. 9 and 12, and would be understood to the Person Of Ordinary Skill In The Art to be inherently taught. Accordingly, no new matter has been introduced.

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II. 35 USC §103 Rejection of Claims 3 and 4 as Obvious in view of Jonczyk, Blaha and Loet (Examiner's ¶2)

This rejection is deemed moot in view of amended independent claim 1 overcoming the Jonczyk reference, as detailed in Section I.

III. 35 USC §103 Rejection of Claim 5 as Obvious in view of Jonczyk, Blaha, Loet and Quiter (Examiner's ¶3)

This rejection is deemed moot in view of amended independent claim 1 overcoming the Jonczyk reference, as detailed in Section I.

IV. 35 USC §103 Rejection of Claim 6 as Obvious in view of Jonczyk, Blaha and Kono (Examiner's ¶4)

This rejection is deemed moot in view of amended independent claim 1 overcoming the Jonczyk reference, as detailed in Section I.

V. 35 USC §103 Rejection of Claims 8 and 9 as Obvious in view of Jonczyk, Blaha, Konoand F. J. Kozackz(Examiner's ¶5)

This rejection is deemed moot in view of amended independent claim 1 overcoming the Jonczyk reference, as detailed in Section I.

VI. Other Remarks

Applicant notes that the current Office Action Summary page identifies the present Office Action as being both FINAL and NON-FINAL. It is believed that the present Office Action is NON-FINAL in view of the 8/8/17 RCE, and that the FINAL designation is in error. Applicant's attorney respectfully requests a telephone call if this understanding is incorrect.

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Conclusion

For the reasons set forth herein, Applicant believes all claims are allowable over the art of record. Examiner Sawyer is encouraged to contact Attorney Gannon by telephone or email to discuss the case.

Respectfully submitted,

/Carla L. Gannon, 56,358/

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Registration No. 56,358
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Date: February 6, 2018
File No. SHOALS-25

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Ex.1002-285

Electronic Patent Application Fee Transmittal

Application Number:	14295132
Filing Date:	03-Jun-2014
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Filer:	Carla L. Gannon/Donna Braam
Attorney Docket Number:	SHOALS-25

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 2 months with $0 paid	2252	1	300	300
Miscellaneous:				
			Total in USD ($)	**300**

Electronic Acknowledgement Receipt

EFS ID:	31712419
Application Number:	14295132
International Application Number:	
Confirmation Number:	6619
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Customer Number:	57825
Filer:	Carla L. Gannon/Donna Braam
Filer Authorized By:	Carla L. Gannon
Attorney Docket Number:	SHOALS-25
Receipt Date:	06-FEB-2018
Filing Date:	03-JUN-2014
Time Stamp:	13:07:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$300
RAM confirmation Number	020618INTEFSW13125000
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	Response_090817OA_SHOALS-25.pdf	160188 8a006c8bbe13fe841103c7adf82c25766a10b809	no	9
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30494 f7e7d7f208a1b9ac7a8974fec1ca59396540ac48	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	190682		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
14/295,132	06/03/2014	

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **02/06/2018**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 18	Minus	** 20	= 0	X $50 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $230 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
ROBERT TALBERT

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

57825 7590 09/08/2017

CARLA GANNON LAW
Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465

EXAMINER	
SAWYER, STEVEN T	

ART UNIT	PAPER NUMBER
2847	

NOTIFICATION DATE	DELIVERY MODE
09/08/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

cgannon@carlagannonlaw.com
carlagannon@yahoo.com
docketing@carlagannonlaw.com

Voltage LLC
Ex.1002-291

Office Action Summary	Application No. 14/295,132	Applicant(s) SOLON, DEAN	
	Examiner STEVEN T. SAWYER	Art Unit 2847	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *8/8/2017*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-18* is/are pending in the application.

5a) Of the above claim(s) *10-18* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-9* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

Voltage LLC
Ex.1002-292

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/8/2017 has been entered.

DETAILED ACTION

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2 and 7 is/are rejected under 35 U.S.C. 103 as being unpatentable over Jonczyk et al. (US PG. Pub. 2010/0139733) in view of Blaha et al. (US PG. Pub. 2013/0037294).

Regarding claim 1 – Jonczyk teaches an in line assembly for a solar installation ([title] Jonczyk states, “fused wiring harness for a photovoltaic system”) including:

a. A photovoltaic fuse (fig. 6, 112 [paragraph 0033] Jonczyk states, "fuse 112") having a first end and a second end (see fig. 6);

b. An undermold (110 [paragraph 0033] Jonczyk states, "fuse holder 110 encloses a fuse 112; fuse holder 110 is shown to be molded around the fuse 112 and under the overmold 212 shown in figure 10) surrounding and sealing said fuse ([paragraph 0033] Jonczyk states, "fuse holder 110 encloses a fuse 112, thereby protecting fuse 112 from the environment and preventing contact by persons or objects"; fuse holder 110 is shown to be molded around the fuse 112);

c. An overmold (fig. 10, 210 [paragraph 0038] Jonczyk states, "discrete fuse overmold portion 210") surrounding said undermold (claimed structure shown in figure 10), said undermold and said overmold each constructed of a single unit (claimed structures shown in fig. 6 and fig. 10); and

d. A first photovoltaic connector (upper connector 98 [paragraph 0032] Jonczyk states, "conductive core 98") engaged with said first end (the first end of the fuse 112 will be electrically "engaged" with the upper connector 98 in order to perform the fuse functions) .

Jonczyk does not teach wherein the undermold and the overmold are constructed of dissimilar materials.

Blaha teaches an in line assembly (fig. 1 [title] Blaha states, "breakaway fuse holder") including a fuse (18 [paragraph 0016] Blaha states, "fuse 18") and an undermold (combination of elements 24/26 [paragraph 0016] Blaha states, "fuse holders 24/26 are preferably constructed from a polypropylene material, an olefin which is a wax

like material") surrounding said fuse (18); and an overmold (combination of elements 12 and 14 [paragraph 0015] Blaha states, "line side boot 12 and the load side boot 14 are preferably constructed from a thermoplastic vulcanized, often referred to as "TPV" and which is a thermoplastic elastomer") surrounding said undermold, said undermold and said overmold constructed of dissimilar materials (polypropylene is different than thermoplastic elastomer and appears consistent with applicants specification).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the overmold as taught by Jonczyk with the in line assembly having an undermold and overmold being made of dissimilar materials as taught by Blaha because Blaha states regarding the undermold material that this, "material has the advantage that water and moisture will bead up upon the material" [paragraph 0016]. Regarding the benefits of the overmold material Blaha states, "the above-mentioned materials are particularly advantageous when the fuse holder assembly 10 is to be used outdoors as the above-mentioned materials are unappealing to rodents and/or fire ants…"Amcoflex" sold by Amco, also have the advantage of being fire retardant" [paragraph 0015].

Regarding claim 2 – Jonczyk in view of Blaha teach the assembly of claim 1, further including a second photovoltaic connector (Jonczyk; fig, 6, lower connector 98) engaged with said second end (lower end of fuse 112).

Regarding claim 7 – Jonczyk in view of Blaha teach the assembly of claim 1 wherein said overmold (Jonczyk; fig. 10, 210) is a thermoplastic elastomer ([paragraph 0031] Jonczyk states, "overmold portions 82, 84 can be formed from a high-performance thermoplastic material such as a thermoplastic elastomer (TPE)"; overmolds 82 and 84 will be consistent with overmold 210).

2. Claims 3 and 4 is/are rejected under 35 U.S.C. 103 as being unpatentable over Jonczyk et al. in view of Blaha et al. as applied to claim 2 above, and further in view of Loet (US Patent 5316502).

Regarding claim 3 – Jonczyk in view of Blaha teach the assembly of claim 2 but fails to teach wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, "fuse 26") with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20), wherein a first connector is a female type connector ([column 4 line 47] Loet states, "female connector 34"), and said second connector is a male type connector ([column 4 line 32] Loet states, "male connection element 22" [Abstract] Loet states, "a fuse, is mounted within the housing and arranged to electrically couple the male cable connector to the female cable connector").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Jonczyk in view of Blaha with the connectors being of a male and female type as taught by Loet because Loet states, "The housing can be easily installed at any location of a power distribution network by using the male and female connectors to couple one power cable to another power cable" [Abstract].

Regarding claim 4 – Jonczyk in view of Blaha teach the assembly of claim 1 but fails to teach wherein said first and second connectors are locking type connectors.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, "fuse 26") with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20) wherein said first and second connectors are locking type connectors ([column 5 line 18-20] Loet states, "the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Jonczyk in view of Blaha with the connectors being locking type connectors as taught by Loet because Loet states, "the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another"" [column 5 lines 18-20]. This locking arrangement will provide a strong mechanical connection.

3. Claim 5 is/are rejected under 35 U.S.C. 103 as being unpatentable over Jonczyk et al. in view of Blaha et al. and Loet as applied to claim 4 above, and further in view of Quiter et al. (US PG. Pub. 2011/0104925).

Regarding claim 5 – Jonczyk in view of Blaha and Loet teach the assembly of claim 4, but fails to teach wherein a tool is used for unlocking said connectors.

Quiter teaches an assembly (fig. 1 [title] Quiter states, "connector system, use and method") having connectors (10 & 12 [paragraph 0077] Quiter states, "connector 10 and complementary connector 12") being of a locking type ([paragraph 0080] Quiter states, "connector 10 is locked with the complementary connector 12"), wherein a tool is used for unlocking said connectors ([paragraph 0083] Quiter states, "For unlocking, a tool (not shown) can be inserted…By means of the tool, the complementary latching element can be displaced in the unlocking direction ENR").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Jonczyk in view of Blaha and Loet with the connectors being unlockable by a tool as taught by Quiter because this securing arrangement will prevent unintentional disconnection of the connectors.

4. Claim 6 is/are rejected under 35 U.S.C. 103 as being unpatentable over Jonczyk et al. in view of Blaha et al. as applied to claim 1 above, and further in view of Kono et al. (US PG. Pub. 2011/0232963).

Regarding claim 6 – Jonczyk in view of Blaha teach the assembly of claim 1 wherein said undermold (Blaha; fig. 1, combination of elements 24/26) is formed of polypropylene ([paragraph 0016] Blaha states, "fuse holders 24/26 are preferably constructed from a polypropylene material, an olefin which is a wax like material").

Jonczyk in view of Blaha do not teach the material being a modified polyphenylene ether plastic.

Kono teaches an in line assembly for a photovoltaic installation (fig. 2 [title] Kono states, "connection structure for photovoltaic power generation module") wherein a material is a modified polyphenylene ether plastic ([paragraph 0044] Kono states, "the connection structure of the present embodiments is produced by injection molding…consisting of a modified polyphenylene ether").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the undermold as taught by Jonczyk in view of Blaha with the in line assembly using the material of modified polyphenylene ether in the structure as taught by Kono because Kono states, "Especially, from the viewpoint of strength, electrical characteristics, and long-term heat resistance, preferred is a resin composition containing at least one

selected from the group consisting of a modified polyphenylene ether" [paragraph 0044].

5. Claims 8-9 is/are rejected under 35 U.S.C. 103 as being unpatentable over Jonczyk et al. in view of Blaha et al. and Kono et al. as applied to claim 6 above, and further in view of F. J. Kozackz (US Patent 3296399).

Regarding claim 8 – Jonczyk in view of Blaha and Kono teach the assembly of claim 6, but fail to teach specifically wherein said fuse is rated at 2-30 amps.

Kozackz teaches a fuse (fig. 1, 5 [column 3 line 40] Kozackz states, "fusible element 5") wherein said fuse is rated at 2-30 amps ([column 3 line 40-42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the fuse as taught by Jonczyk in view of Blaha and Kono with fuse having a rating of 2-30 amps as taught by Kozackz because this fuse rating will protect the connected solar device from overdrawing current and prevent damage to the solar device, the fuse will perform as a protection device.

Regarding claim 9 – Jonczyk in view of Blaha, Kono and Kozackz teach the assembly of claim 8 wherein said fuse (Kozackz; fig. 1, 5) is rated at 600-2000V ([column 3 line 40-

42] Kozackz states, “The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps”).

Response to Arguments

5. Applicant’s arguments with respect to claims 1-18 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN T. SAWYER whose telephone number is (571)270-5469. The examiner can normally be reached on Mon-Thu 7:00-5:30 (est).

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Timothy Thompson can be reached on 5712722342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEVEN T SAWYER/
Primary Examiner, Art Unit 2847

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 13:40
L2	2	fuse same overmold same undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:47
L3	25	overmold$4 same undermold$4 and (water or moisture)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:48
L4	2164	(second with overmold$4) and (water or moisture)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:49
L5	89	(second with overmold$4) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:50
L6	5	(second overmold or second overmolding) and (water or moisture) and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:52
L7	9	("20100139733" | "20110104925" | "20110232963" | "20120309232" | "20130037294" | "20130077249" | "3296399" | "5316502").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 13:58
L8	2	(("20100139733") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 15:01
L9	1	("20110232963").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:01
L10	8165	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB;	ADJ	OFF	2017/08/30 16:06

			USPAT; USOCR; EPO; JPO			
L11	1102	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:06
L12	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/30 16:06
L13	9807	12 or 11 or 10	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:08
L14	2	13 and overmold and fuse and solar	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
L15	2	13 and overmold and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
L16	391	13 and mold$4 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
L17	49	13 and mold$4 and fuse and solar	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:09
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("20080110492") or ("20140000709") or ("20160065119") or ("6121542") or ("20130340811") or ("8943765") or ("20150194557") or ("9263986") or ("20160118936") or ("20160149539") or ("20140144489") or ("7655859") or ("20070251567") or ("20100031996") or ("20150222225") or ("20170201205") or ("20050022859") or ("7900407") or ("20050072456") or ("9010041") or ("6928775") or ("20120013191") or ("20110168230") or ("20070084504") or ("20110272061") or ("20130340358") or ("20130000694") or ("8523609") or ("20130263910") or ("20100282290") or ("20130008482") or ("20120312346") or ("8656659") or ("8632358") or ("20110197524") or ("20140246074") or ("8434276") or ("20130000230") or ("5252141") or ("20120270450") or ("20150263668") or ("20140000676") or ("9130091") or ("5112408") or ("6469242") or ("6960716") or ("6753468") or ("8733035") or ("8261496") or ("20090114261") or ("20040031219") or ("20040144043") or ("20080121267") or ("20110240089") or ("20110297205") or ("4677248") or ("20100258157") or ("6008450") or ("7342171") or ("20010050102") or ("20110023390") or ("20150340990") or ("8723370") or ("20120152327") or ("20120125395") or ("20110232212") or ("20170237392") or ("20080253092") or ("20080011289") or ("20130276854") or ("20110000535") or ("6265242") or ("20130340810") or ("20110247678") or ("9091461") or ("8796064") or ("20120118355") or ("8683761") or ("20080257402") or ("20040011354") or ("6268559") or ("20130098447") or ("7592537") or ("7824189") or ("7012188") or ("20140083483") or ("8631613") or ("7811098") or ("8061091") or ("8362739") or ("20120152325") or ("9273885") or ("20170201207") or ("8823315") or ("20130052773") or ("20140366464") or ("8699209") or ("20110125338") or ("20120167986") or ("8291654")).PN. or (("20110138599") or ("20120275066") or ("20110067751") or ("20130176662") or ("20140305494") or ("20100263714") or ("6521821") or ("20120247538") or ("20170025993") or ("20110067691") or ("20110017262") or ("9294032") or ("20100012172") or ("20100193008") or ("20070199561") or ("20110108085") or ("20110239450") or ("20160028345") or ("8435063") or ("7694466") or ("5800631") or ("20080169018") or ("7880098") or ("20090320905") or ("20150129016") or ("20150187975") or ("9147786") or ("8615941") or ("20120315783") or ("20160356406") or ("20120125394") or

("20100132275") or ("8684758") or ("20130014809") or ("20100031997") or ("20110138711") or ("7678990") or ("9184324") or ("20150318427") or ("9525380") or ("8671639") or ("20100064605") or ("20130160814") or ("20130084726") or ("20130025652") or ("9006751") or ("8387319") or ("20120024356") or ("20140261639") or ("20100151725") or ("20140150357") or ("9281430") or ("20120118349") or ("8309840") or ("20130055662") or ("20140030841") or ("20080099063") or ("20120118360") or ("6207889") or ("8439712") or ("9059350") or ("9170034") or ("8829539") or ("20040000334") or ("20060032527") or ("20070181174") or ("9653635") or ("20050178429") or ("20010050101") or ("20170163206") or ("20110220185") or ("20150027069") or ("20120067613") or ("8500462") or ("20100147362") or ("20140318602") or ("20150129517") or ("20160254776") or ("20150194552") or ("9482449") or ("20140216527") or ("20130118545") or ("20120180845") or ("7663055") or ("20120152302") or ("9608559") or ("8656660") or ("9331213") or ("20130125975") or ("4860509") or ("8448407") or ("20120060919") or ("20060054213") or ("20140083028") or ("9059348") or ("20170005614") or ("8793941") or ("9590557") or ("4724010") or ("5092939") or ("9083121") or ("8915030") or ("9249995") or ("9236832") or ("8162677") or ("20150372638") or ("8235749") or ("5733382") or ("9160092") or ("9331631") or ("20160226433") or ("20160036377") or ("6175075") or ("20140060621") or ("20140060622") or ("20090320896") or ("20130000229") or ("8991116") or ("7858874") or ("8545239") or ("20130276856") or ("9147785") or ("20130033894") or ("9294033") or ("20150038011") or ("9664835") or ("8181402") or ("20070227580") or ("20120071024") or ("20110036386")).PN. or (("20120320621") or ("20150180406") or ("8308504") or ("20130098420") or ("20140158650") or ("20110094570") or ("20120315787") or ("8927850") or ("20110290303") or ("20150280640") or ("20100170715") or ("20100275534") or ("20140261638") or ("8507784") or ("4097308") or ("20080302030") or ("20050126622") or ("8959848") or ("20170179878") or ("20120312347") or ("20110192441") or ("20110269347") or ("9362442") or ("20150311371") or ("7868244") or ("20130180575") or ("20110239554") or ("20070102038") or ("9032672") or ("20140144485") or ("20090320389") or ("20170025994") or ("20130008103") or ("20110183531") or

("8895852") or ("9018518") or ("5022381") or ("8511006") or ("9270224") or ("20120186630") or ("20140130429") or ("20120312354") or ("20090014058") or ("8424256") or ("8601754") or ("9316417") or ("20130125482") or ("20130160816") or ("20150059158") or ("20100031998") or ("20150326170") or ("20100018135") or ("8555872") or ("20110247282") or ("8471141") or ("20140165480") or ("20160126885") or ("9029683") or ("8950128") or ("20120279747") or ("9103564") or ("8177566") or ("9403477") or ("6323478") or ("20160049903") or ("20100269891") or ("8631614") or ("20120060898") or ("20110212647") or ("8203075") or ("20100275991") or ("20140060624") or ("20150318819") or ("20050178430") or ("20170110280") or ("20110067327") or ("8418417") or ("20110088753") or ("8680656") or ("20090056792") or ("8418415") or ("6693237") or ("4106952") or ("20060235717") or ("7678991") or ("20100012343") or ("9706660") or ("20120055553") or ("20140369063") or ("20140216525") or ("20150287858") or ("20160118932") or ("8969714") or ("20110232728") or ("20140001129") or ("20080235949") or ("5409549") or ("20140190096") or ("20080236649") or ("20080236650") or ("20080236740") or ("20050133086") or ("8910433") or ("20100300508") or ("20140166082") or ("8776455") or ("20120222670") or ("6809251") or ("20120210660") or ("9735728") or ("4210122") or ("20120151856") or ("9455664") or ("20130199598") or ("20090133740") or ("20140240998") or ("9035168") or ("20110241243") or ("20130067836") or ("20040007260") or ("9331224") or ("7681363") or ("20130125973") or ("9003728") or ("20140311547") or ("20100077680") or ("20130139871") or ("20150059828")).PN. or (("8033859") or ("20150270803") or ("20120118359") or ("20120024337") or ("20080083449") or ("20130033115") or ("20110138710") or ("8695289") or ("20080178922") or ("8372226") or ("4078944") or ("20080313977") or ("5164020") or ("9615470") or ("6506970") or ("20120247721") or ("20110259402") or ("20110000601") or ("20030111103") or ("20140208670") or ("20120132260") or ("20100146878") or ("20110303285") or ("20140305493") or ("20020043277") or ("20110067758") or ("8627617") or ("20100139760") or ("7666466") or ("8123565") or ("9142691") or ("20150311861") or ("20080245405") or ("20080057776") or ("20140090866") or ("20150214889") or ("20050115176") or

		("20140246078") or ("8613169") or ("8366471") or ("20140130848") or ("6786012") or ("7708593") or ("8063301") or ("20160329857") or ("20100126651") or ("20160134229") or ("8633376") or ("9171980") or ("9171982") or ("20110162315") or ("20120285502") or ("20080314434") or ("7435897") or ("20090308431") or ("20120318319") or ("20160315581") or ("20170040928") or ("20150038005") or ("20120129401") or ("20170179876") or ("20110277811") or ("20120103401") or ("20110214367") or ("20090314335") or ("20100173511") or ("8853530") or ("20100132305") or ("20080142071") or ("20110214368") or ("20100263704") or ("8033857") or ("20110114149") or ("20080099062") or ("20160197580") or ("20090293932") or ("20140182678") or ("20070259103") or ("20110214366") or ("20070256727") or ("20160013346") or ("8435056") or ("6606830") or ("9541308") or ("20080264468") or ("20130146125") or ("9564545") or ("7812247") or ("8853525") or ("20060219291") or ("20050161074") or ("6201179") or ("5542989") or ("8316619") or ("20120145221") or ("8307606") or ("9640692") or ("6075201") or ("20110155203") or ("20110088744") or ("8336277") or ("20160164453") or ("8316618") or ("20140318599") or ("7963802") or ("20090098775") or ("20160230394") or ("20110023935") or ("20130092216") or ("20150043200") or ("8943766") or ("20090014051") or ("20100326498") or ("20120204927") or ("20100068926") or ("8633406") or ("20160105145") or ("20010034982") or ("7910392") or ("20120234377") or ("7740497") or ("20130008490") or ("20100071749")).PN.				
L25	60	24 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/08/30 16:12
S1	3	photovoltaic fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 10:48
S2	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 12:22
S3	1	(13/151984).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:37

S4	14	("2046221" | "3356806" | "3518600" | "3778741" | "4734059" | "4909761" | "5018991" | "5648749" | "5888098").PN. OR ("8454390").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:37
S5	26	("20050128045" | "20120161919" | "2700085" | "3356806" | "3465280" | "3551869" | "3778741" | "3843050" | "4060303" | "4333701" | "4391485" | "4531806" | "4734059" | "4909761" | "5444428" | "7377813" | "7445509" | "7777508" | "7988493" | "8098126" | "8342885" | "8454390").PN. OR ("9325122").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:38
S6	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S7	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 12:41
S8	23	("4202589" | "4390225" | "4448476" | "6483417" | "2187427" | "3828291" | "4909761" | "3243551" | "7639113" | "2758295" | "4504815" | "6717505" | "20090184796" | "2614190" | "20120309232" | "4762509" | "6587028" | "2207837").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 12:42
S9	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:03
S10	1	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:11
S11	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:19
S12	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:19
S13	2063	fuse and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S14	34	fuse and thermoplastic elastomer and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:27
S15	0	(13/245432).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:29

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S16	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S17	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S18	9	("3900241" | "5168124" | "20080194154" | "20070107767" | "3900241" | "20060049358" | "7342171" | "7485982" | "20080099062" | "6307144").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:33
S19	2628	fuse and (different with material) and elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:39
S20	743	fuse and (different with material) and thermoplastic elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:40
S21	239	S12 and material	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:42
S22	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S23	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 13:59
S24	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:13
S25	24	("4023071" | "4188561" | "4199736" | "4335415" | "4359764" | "4633359" | "5224012" | "5278720" | "5384679" | "5508873").PN. OR ("5726851").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:27
S26	2	("3243551").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:42
S27	2	("2839636").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:46
S28	2	("2049309").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:49
S29	184	fuse and polyphenylene ether and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:57
S30	0	fuse and photovlotaic	US-PGPUB; USPAT;	ADJ	OFF	2016/10/04 15:02

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			USOCR; EPO; JPO			
S31	2971	fuse and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:02
S32	539034	"361".clas. or "136".clas. or "174".clas. or "439".clas. or "337".clas.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S33	707	S32 and S31	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S34	602	S33 not S2	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:03
S35	0	fuse holder and polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:30
S36	9	fuse holder and polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:31
S37	2	("2316036").URPN.	USPAT	ADJ	OFF	2016/10/04 15:57
S38	53	("1028328" | "1036510" | "1099589" | "1508839" | "1511838" | "1889585" | "1927905" | "1971809" | "20020113684" | "20070236323" | "2316036" | "2524550" | "2838639" | "2873327" | "2877321" | "2946974" | "3205467" | "3447240" | "3562162" | "3838374" | "3870863" | "3912903" | "4084145" | "4237440" | "4563809" | "4680567" | "4929921" | "5003280" | "5361058" | "5418516" | "5903208" | "6664886" | "6774760" | "7645645" | "RE23219").PN. OR ("8629750").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 15:57
S39	1	(13/208149).APP.	US-PGPUB; USOCR	ADJ	OFF	2016/10/04 16:08
S40	1	(13/208149).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 16:11
S41	27	("20130037294" | "3356806" | "3417359" |	US-	ADJ	OFF	2016/10/04

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		"3518600" | "3629808" | "3753192" | "4734059" | "4759730" | "4826454" | "4909761" | "5018991" | "5088683" | "5335160" | "5427542" | "5648749" | "5888098" | "5993246" | "D326845" | "RE40228").PN. OR ("8517768").URPN.	PGPUB; USPAT; USOCR			16:12
S42	1	("20130037294").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 07:39
S43	26	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 07:49
S44	7	S43 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:50
S45	13	("5726851" | "4909761" | "8454390" | "5018991" | "5648749" | "5888098" | "20100207716" | "20050141164" | "20120295456" | "5137478" | "4734059" | "5714923" | "3848215").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S46	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S47	26	S43 and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:52
S48	4	S43 and S46	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 07:53
S49	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 08:05
S50	8	polyphenylene ether plastic	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2016/10/05 08:25

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			EPO; JPO			
S51	21694	polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S52	141	S51 and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S53	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:26
S54	3	polyphenylene ether and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:28
S55	18	PPE and fuse with holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S56	18	PPE and (fuse with holder)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S57	9	PPE and fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:29
S58	5	S43 and amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:40
S59	11	S43 and (rated or rating)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:42
S60	4	polyphenylene ether with fuse	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2016/10/05 08:55

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			EPO; JPO			
S61	0	polyphenylene ether with fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:56
S62	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:03
S63	9151	fuse with voltage with current	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S64	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S65	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S66	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S67	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S68	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:26
S69	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S70	1380	S64 or S65 or S66 or S67 or S68 or S69	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S71	184	S70 and S63	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2016/10/05 09:27

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Ex.1002-315

			EPO; JPO			
S72	95	fuse with voltage with amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S73	6	S72 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S74	7	female and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:39
S75	51	photovoltaic and fuse and (connector with lock$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:23
S76	27	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 10:24
S77	9	S76 and lock$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:24
S78	7	(("20120309232") or ("20130037294") or ("5316502") or ("20110104925") or ("20110232963") or ("3296399")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:04
S79	6337	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S80	10	S79 and fuse and elastomer	US-PGPUB; USPAT; USOCR; EPO;	ADJ	OFF	2016/10/05 13:21

			JPO			
S81	170	S79 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 13:21
S82	20	((Dean) near2 (Solon)).INV.	US-PGPUB; USPAT	ADJ	OFF	2016/10/05 13:37
S83	0	("2010302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S84	1	("20100302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 13:58
S85	49	(("8937249") or ("20110209741") or ("8690595") or ("20130344727") or ("5309625") or ("5755579") or ("4280748") or ("4850884") or ("4884050") or ("4906195") or ("4940419") or ("4943241") or ("4950168") or ("4963099") or ("5011417") or ("5057026") or ("5327644") or ("5403193") or ("5489885") or ("5662496") or ("5697813") or ("5722863") or ("5735713") or ("5739739") or ("5749739") or ("5785532") or ("5877944") or ("5883560") or ("5897385") or ("5928004") or ("6007350") or ("6011319") or ("6109973") or ("6144539") or ("6172302") or ("6186633") or ("6224397") or ("6224397") or ("6252477") or ("6262537") or ("6411190") or ("6430054") or ("6600236") or ("6712623") or ("6719572") or ("6791207") or ("6796808") or ("6851956") or ("7021962") or ("7132761")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:18
S86	1	(14/700742).APP.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:41
S87	0	(14/295132).APP.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:21
S88	3	(("20120309232") or ("20130037294") or ("5316502")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:22
S89	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 08:23
S90	7658	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO;	ADJ	OFF	2017/02/04 15:07

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			JPO			
S91	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/04 15:08
S92	8198	S91 or S90	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:09
S93	30	S92 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 15:09
S94	39	("1175103" | "1579596" | "2414865" | "2872501" | "3422213" | "3601737" | "3766307" | "3766509" | "4280748" | "4308515" | "4333701" | "4365226" | "4391485" | "4679877" | "4734059" | "4831353" | "4880943" | "4958426" | "5018991" | "5162773" | "5241134" | "5298877" | "5304740" | "5329065" | "5345210" | "5391836" | "5493069" | "5591366").PN. OR ("6046665").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/04 15:11
S95	4	("1175103").URPN.	USPAT	ADJ	OFF	2017/02/04 15:14
S96	20	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/06 07:50

EAST Search History (Interference)

<This search history is empty>

8/30/2017 4:14:00 PM
C:\Users\ssawyer\Documents\EAST\Workspaces\14295132.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14295132	SOLON, DEAN
	Examiner	Art Unit
	STEVEN T SAWYER	2847

CPC- SEARCHED		
Symbol	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc.	8/30/2017	ss
H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	8/30/2017	ss

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
439	620.28 (updated)	8/30/2017	ss
337	227, 228 (updated)	8/30/2017	ss

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc., H01L31/0504.cpc., H01B7/0045.cpc., H01L31/18.cpc. (with text) (updated)	8/30/2017	ss
IP.com search (claim 1)	8/30/2017	ss
Inventor name search	8/30/2017	ss

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/STEVEN T SAWYER/ Primary Examiner.Art Unit 2847

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Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	14/295,132	Filing Date	2014-06-03	Docket Number (if applicable)	SHOALS-25	Art Unit	2847
First Named Inventor	DEAN SOLON			Examiner Name	SAWYER, STEVEN T.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, to any international application that does not comply with the requirements of 35 U.S.C. 371, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV.

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 506268

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

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PTO/SB/30EFS (07-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Carla L. Gannon/	Date (YYYY-MM-DD)	2017-08-08
Name	Carla L. Gannon	Registration Number	56358

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	DEAN SOLON		
Serial No.:	14/295,132	**Examiner:**	SAWYER, STEVEN T.
Filed:	06/03/2014	**Art Unit:**	2847
Confirmation No.:	6619		

For: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRATED FUSE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO FINAL OFFICE ACTION

AND REQUEST FOR CONTINUED EXAMINATION

This paper responds to the Office Action mailed February 9, 2017.

A Request for Continued Examination, and the requisite fee of $600 for a small entity's 1st RCE, is submitted contemporaneously with this Response.

Applicant requests a 3 month extension of time, thereby broadening the time for response to August 9, 2017. The requisite fee of $700.00 is contemporaneously submitted.

In the event an additional extension of time or other fee is required, Applicant requests that this be considered the requisite petition.

The Commissioner is hereby authorized to charge any fees associated with this case to 506268.

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RESPONSE TO NON-FINAL OFFICE ACTION

Amendments to the Claims

The current status of the claims is listed in the "Listing of the Claims" below. This replaces all previous versions of claims.

Listing of the Claims

1) (**Currently Amended**) **[[A double molded]]** **An** in line assembly for a solar installation including:
   a. A photovoltaic fuse having a first end and a second end;
   b. An undermold surrounding **and sealing** said fuse;
   c. An overmold surrounding said undermold, said undermold and said overmold **each** constructed of **a single unit and each constructed of** dissimilar materials; and
   d. A first photovoltaic connector engaged with said first end.

2) (Original) The assembly of claim 1 further including a second photovoltaic connector engaged with said second end.

3) (Original) The assembly of claim 2 wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

4) (Original) The assembly of claim 1 wherein said first and second connectors are locking type connectors.

5) (Previously Amended) The assembly of claim 4 further comprising a tool for unlocking said connectors.

6) (Original) The assembly of claim 1 wherein said undermold is a modified polyphenylene ether plastic.

7) (Original) The assembly of claim 1 wherein said overmold is a thermoplastic elastomer.

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8) (Original) The assembly of claim 6 wherein said fuse is rated at 2-30 amps.

9) (Original) The assembly of claim 8 wherein said fuse is rated at 600-2000V.

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10) (Previously Withdrawn) A photovoltaic wire harness including:

a. A trunk wire having a plurality of branch wires extending there from in pairs, said branch wires and said trunk wire forming angles having vertices of approximately 90 degrees; and

b. A plurality of fuse assemblies engaged only with said branch wires in a ratio of one fuse assembly per branch wire.

11) (Previously Withdrawn) The photovoltaic wire harness of claim 10 wherein said fuse assemblies each include one or two connectors.

12) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said fuse assemblies each include a pair selected from the group consisting of one male type connector and one female type connector; one male type connector and one wire; and one female type connector and one wire.

13) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said angles are surrounded by an encasement.

14) (Previously Withdrawn) The photovoltaic wire assembly of claim 13 wherein said encasement defines tie-downs that span between adjacent protrusions.

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15) (Previously Withdrawn) A method of configuring a solar installation including the steps of:

a. Engaging the trunk of a wire harness with a combiner box wherein said combiner box lacks fuses and circuit breakers; and
b. Engaging each terminal branch of said wire harness with one solar panel wherein each terminal branch includes exactly one in line fuse assembly.

16) (Previously Withdrawn) The method of claim 15 wherein said step of engaging each terminal branch with one solar panel includes the step of uniting a male connector with a female connector.

17) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a male connector integrated with said in line fuse assembly.

18) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a female connector integrated with said in line fuse assembly.

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Remarks

Applicant gratefully acknowledges the Office Action dated 2/9/17. Upon considering the Office's cited art and remarks, originally filed claim 1 has been amended. Claims 10-18 were previously withdrawn. Accordingly, claims 1-9 are currently pending, and claims 1-9 are currently under consideration, with no claims allowable at this time.

This Response specifically addresses the following issues:

I. 35 USC §103 Rejection of Claims 1, 2 and 7 as Obvious in view of Darr and Blaha (Examiner's ¶3)

Claim 1 has been amended to recite, in relevant part:

*b. An undermold surrounding **and sealing** said fuse;*

*c. An overmold surrounding said undermold, said undermold and said overmold **each** constructed of **a single unit and each constructed of** dissimilar materials;*

Applicant respectfully contends that amendments to claim 1 overcome the Darr and Blaha references for at least the following reasons:

A. Blaha Doesn't Teach a Sealing Undermold

The "undermold" (fuse holder elements 24, 26) of Blaha doesn't seal the fuse. This is evidenced by the specification which describes overlapping components of both the undermold and the overmold (12, 14) to achieve a seal. Said another way, Blaha's undermold, alone, doesn't seal the fuse. This is set forth in paragraph 19 of Blaha:

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[0019] To assemble the fuse holding assembly **10**, and thereby protect the interior space of the fuse holding assembly **10** from moisture, the line side boot **12**, the load side boot **14**, and the fuse holder **26** are sized and arranged to be placed into overlapping engagement. More particularly, with reference to FIGS. **3** and **6**, to assemble the fuse holding assembly **10** an interior surface of the end or rim **12'** of the line side boot **12** is placed into overlapping engagement with an exterior surface of a lip portion **26'** of the load side fuse holder **26** while an interior surface of the lip portion **26'** of the load side fuse holder **26** is placed into overlapping engagement with an exterior surface of an end or rim **14'** of the load side boot **14**. During such assembly, the lip portion **26'** and end portion **26"** of the load side fuse holder **26** will also be placed into engagement with stepped surfaces **13** and **15** formed on the interior of the line side boot **12**. As will be appreciated, this arrangement of cooperating elements functions to seal of the interior space of the fuse holding assembly **10** against moisture. This sealing arrangement may be further enhanced by providing an extended portion **24'** to the line side fuse holder **24** which

Figure 1 of Blaha also appears to teach an "undermold" 24, 26 which wouldn't seal the fuse:

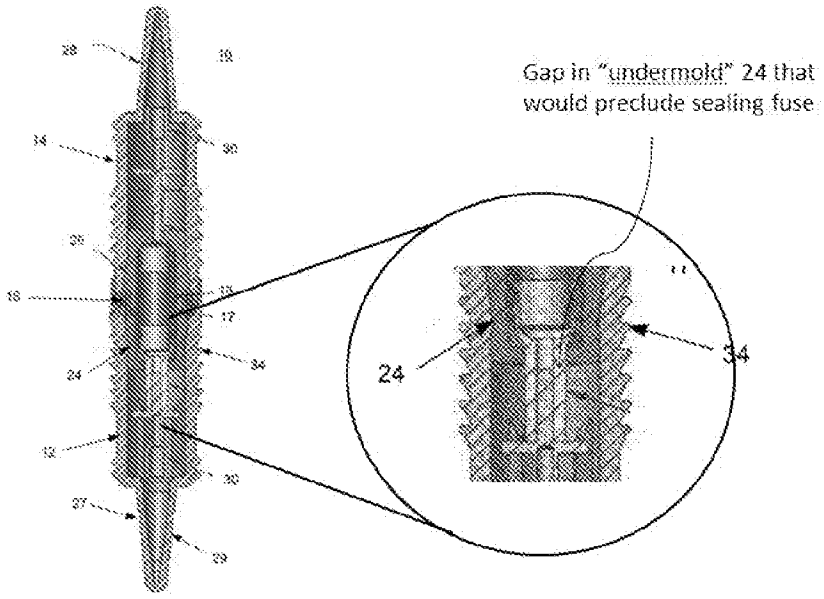


FIGURE 1

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Applicant notes that the originally filed specification discloses that undermolding 50 seals the fuse.[1] Accordingly, no new matter has been introduced.

B. Blaha Doesn't Teach a Single Unit Undermold

Blaha's "undermold" 24, 26 is constructed of two separate pieces which are assembled for use, whereas the present invention is constructed of a single undermolded unit which is formed during production.

Applicant notes that the originally filed specification would be understood by the Person Having Ordinary Skill In The Art (the "PHOSITA") to teach a single undermolded unit.[2] Moreover, the related provisional patent application 61/830,284, which is incorporated by reference into the present application, refers to the assembly as "...over molded in two processes...".[3] which would be understood by the PHOSITA to teach performance of the molding process which yields a single unit. Accordingly, no new matter has been introduced.

C. Blaha Doesn't Teach a Single Unit Overmold

Blaha's "overmold" 12, 14 is constructed of two separate pieces which are assembled for use, whereas the present invention is constructed of a single overmolded unit which is formed during production.

Applicant notes that the originally filed specification, and incorporated provisional application would be understood by the PHOSITA to teach a single undermolded unit for the reasons described in Section B above. Accordingly, no new matter has been introduced.

---

[1] See, *inter alia*, page 4, lines 24-25 reciting "FIG. 8 shows structures in a late state of production including undermolding 50, which seals the assembly."

[2] See *id.*

[3] See, *inter alia,* page 1, line 8 and page 2 line 23 each stating "overmolded in two processes...".

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II. 35 USC §103 Rejection of Claims 3 and 4 as Obvious in view of Darr, Blaha and Loet (Examiner's ¶4)

The rejection of claims 3 and 4 is deemed moot in view of the amendments to claim 1, as discussed in Section I above.

III. 35 USC §103 Rejection of Claim 5 as Obvious in view of Darr, Blaha, Loet and Quiter (Examiner's ¶5)

The rejection of claim 5 is deemed moot in view of the amendments to claim 1, as discussed in Section I above.

IV. 35 USC §103 Rejection of Claim 6 as Obvious in view of Darr, Blaha and Kono (Examiner's ¶6)

The rejection of claim 6 is deemed moot in view of the amendments to claim 1, as discussed in Section I above.

V. 35 USC §103 Rejection of Claims 8 and 9 as Obvious in view of Darr, Blaha, Kono and F. J. Kozackz (Examiner's ¶7)

The rejection of claims 8 and 9 is deemed moot in view of the amendments to claim 1, as discussed in Section I above.

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Conclusion

For the reasons set forth herein, Applicant believes all claims are allowable over the art of record. Examiner Sawyer is encouraged to contact Attorney Gannon by telephone or email to discuss the case.

Respectfully submitted,

/Carla L. Gannon, 56,358/

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Date: August 8, 2017
File No. SHOALS-25

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Electronic Patent Application Fee Transmittal

Application Number:	14295132
Filing Date:	03-Jun-2014
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Filer:	Carla L. Gannon/Donna Braam
Attorney Docket Number:	SHOALS-25

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	2253	1	700	700
Miscellaneous:				
RCE- 1st Request	2801	1	600	600
		Total in USD ($)		**1300**

Electronic Acknowledgement Receipt

EFS ID:	30015838
Application Number:	14295132
International Application Number:	
Confirmation Number:	6619
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Customer Number:	57825
Filer:	Carla L. Gannon/Donna Braam
Filer Authorized By:	Carla L. Gannon
Attorney Docket Number:	SHOALS-25
Receipt Date:	08-AUG-2017
Filing Date:	03-JUN-2014
Time Stamp:	13:41:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1300
RAM confirmation Number	080817INTEFSW13442900
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	RCEtransmittal_SHOALS-25.pdf	1349912 9022ca7ff79cd2de2c66c6e1d66b3a12171aa762	no	3
Warnings:					
Information:					
2	Response After Final Action	Response_020917OA_SHOALS-25.pdf	153108 531225f3b61daf5262f8b5c18a30a2a37b860ae2	no	10
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32407 0126fee8d2847a5f112061b8a1aa122b274fed6f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1535427		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
14/295,132	06/03/2014	

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **08/08/2017**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 18	Minus	** 20	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

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LIE
BRENDA HARRISON

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

57825 7590 02/09/2017

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EXAMINER	
SAWYER, STEVEN T	

ART UNIT	PAPER NUMBER
2847	

NOTIFICATION DATE	DELIVERY MODE
02/09/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

cgannon@carlagannonlaw.com
carlagannon@yahoo.com
docketing@carlagannonlaw.com

Voltage LLC
Ex.1002-338

Office Action Summary	Application No. 14/295,132	Applicant(s) SOLON, DEAN	
	Examiner STEVEN T. SAWYER	Art Unit 2847	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/12/2017*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-9* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-9* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

Voltage LLC
Ex.1002-339

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2 and 7 is/are rejected under 35 U.S.C. 103 as being unpatentable over Dar et al. (US PG. Pub. 2012/0309232) in view of Blaha et al. (US PG. Pub. 2013/0037294).

Regarding claim 1 – Dar teaches a double molded in line assembly (fig. 3) for a solar installation ([paragraph 0003] Dar states, "the inline fuse holder may be used in solar photovoltaic systems") including:

a. A photovoltaic fuse (18 [paragraph 0015] Dar states, “fuse 18 may be a photovoltaic (PV) fuse”) having a first end (left terminal 20 [paragraph 0014] Dar states, “terminals 20”) and a second end (right terminal 20);

c. An overmold (combination of elements 12 and 14 [paragraph 0024] Dar states, “first and second fuse holder components 12, 14 may be formed as a single, one-piece component, such as by molding…fuse holder components 12, 14 may be a suitable

thermoplastic rubber (also called "thermoplastic elastomer")) surrounding said fuse (see fig. 3);

d. A first photovoltaic connector (27 [paragraph 0014] Dar states, “connecting first and second wires 26, 27 to the fuse”) engaged with said first end (left terminal 20).

Dar does not teach an in line assembly including a fuse and an undermold surrounding said fuse; and an overmold surrounding said undermold, said undermold and said overmold constructed of dissimilar materials.

Blaha teaches an in line assembly (fig. 1 [title] Blaha states, “breakaway fuse holder”) including a fuse (18 [paragraph 0016] Blaha states, “fuse 18”) and an undermold (combination of elements 24/26 [paragraph 0016] Blaha states, “fuse holders 24/26 are preferably constructed from a polypropylene material, an olefin which is a wax like material”) surrounding said fuse (18); and an overmold (combination of elements 12 and 14 [paragraph 0015] Blaha states, "line side boot 12 and the load side boot 14 are preferably constructed from a thermoplastic vulcanized, often referred to as “TPV” and which is a thermoplastic elastomer") surrounding said undermold, said undermold and said overmold constructed of dissimilar materials (polypropylene is different than thermoplastic elastomer and appears consistent with applicants specification).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the overmold as taught by Dar with the in line assembly having an undermold between the fuse and the overmold as taught by Blaha because Blaha states this, “material has the advantage that water and moisture will bead up upon the material” [paragraph 0016].

The addition of the undermold will help in preventing moisture from making contact with the fuse [Blaha; paragraph 0019].

Regarding claim 2 – Dar in view of Blaha teach the assembly of claim 1, further including a second photovoltaic connector (Dar; fig, 3, 26) engaged with said second end (right terminal 20).

Regarding claim 7 – Dar in view of Blaha teach the assembly of claim 1 wherein said overmold (Dar; fig. 3, combination of elements 12 and 14) is a thermoplastic elastomer ([paragraph 0024] Dar states, “first and second fuse holder components 12, 14 may be formed as a single, one-piece component, such as by molding…fuse holder components 12, 14 may be a suitable thermoplastic rubber (also called "thermoplastic elastomer”)).

4. Claims 3 and 4 is/are rejected under 35 U.S.C. 103 as being unpatentable over Dar et al. in view of Blaha et al. as applied to claim 2 above, and further in view of Loet (US Patent 5316502).

Regarding claim 3 – Dar in view of Blaha teach the assembly of claim 2 but fails to teach wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, "fuse 26") with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20), wherein a first connector is a female type connector ([column 4 line 47] Loet states, "female connector 34"), and said second connector is a male type connector ([column 4 line 32] Loet states, "male connection element 22" [Abstract] Loet states, "a fuse, is mounted within the housing and arranged to electrically couple the male cable connector to the female cable connector").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Dar in view of Blaha with the connectors being of a male and female type as taught by Loet because Loet states, "The housing can be easily installed at any location of a power distribution network by using the male and female connectors to couple one power cable to another power cable" [Abstract].

Regarding claim 4 – Dar in view of Blaha teach the assembly of claim 1 but fails to teach wherein said first and second connectors are locking type connectors.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, "fuse 26") with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20) wherein said first and second connectors are locking type connectors ([column 5 line 18-20] Loet states, "the groove

formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Dar in view of Blaha with the connectors being locking type connectors as taught by Loet because Loet states, "the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another"" [column 5 lines 18-20]. This locking arrangement will provide a strong mechanical connection.

5. Claim 5 is/are rejected under 35 U.S.C. 103 as being unpatentable over Dar et al. in view of Blaha et al. and Loet as applied to claim 4 above, and further in view of Quiter et al. (US PG. Pub. 2011/0104925).

Regarding claim 5 – Dar in view of Blaha and Loet teach the assembly of claim 4, but fails to teach wherein a tool is used for unlocking said connectors.

Quiter teaches an assembly (fig. 1 [title] Quiter states, "connector system, use and method") having connectors (10 & 12 [paragraph 0077] Quiter states, "connector 10 and complementary connector 12") being of a locking type ([paragraph 0080] Quiter states, "connector 10 is locked with the complementary connector 12"), wherein a tool is used for unlocking said connectors ([paragraph 0083] Quiter states, "For unlocking, a

tool (not shown) can be inserted…By means of the tool, the complementary latching element can be displaced in the unlocking direction ENR").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Dar in view of Blaha and Loet with the connectors being unlockable by a tool as taught by Quiter because this securing arrangement will prevent unintentional disconnection of the connectors.

6. Claim 6 is/are rejected under 35 U.S.C. 103 as being unpatentable over Dar et al. in view of Blaha et al. as applied to claim 1 above, and further in view of Kono et al. (US PG. Pub. 2011/0232963).

Regarding claim 6 – Dar in view of Blaha teach the assembly of claim 1 wherein said undermold (Blaha; fig. 1, combination of elements 24/26) is formed of polypropylene ([paragraph 0016] Blaha states, "fuse holders 24/26 are preferably constructed from a polypropylene material, an olefin which is a wax like material").

Dar in view of Blaha do not teach the material being a modified polyphenylene ether plastic.

Kono teaches an in line assembly for a photovoltaic installation (fig. 2 [title] Kono states, "connection structure for photovoltaic power generation module") wherein a material is a modified polyphenylene ether plastic ([paragraph 0044] Kono states, "the

connection structure of the present embodiments is produced by injection molding…consisting of a modified polyphenylene ether").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the undermold as taught by Dar in view of Blaha with the in line assembly using the material of modified polyphenylene ether in the structure as taught by Kono because Kono states, "Especially, from the viewpoint of strength, electrical characteristics, and long-term heat resistance, preferred is a resin composition containing at least one selected from the group consisting of a modified polyphenylene ether" [paragraph 0044].

7. Claims 8-9 is/are rejected under 35 U.S.C. 103 as being unpatentable over Dar et al. in view of Blaha et al. and Kono et al. as applied to claim 6 above, and further in view of F. J. Kozackz (US Patent 3296399).

Regarding claim 8 – Dar in view of Blaha and Kono teach the assembly of claim 6, but fail to teach specifically wherein said fuse is rated at 2-30 amps.

Kozackz teaches a fuse (fig. 1, 5 [column 3 line 40] Kozackz states, "fusible element 5") wherein said fuse is rated at 2-30 amps ([column 3 line 40-42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the

fuse as taught by Dar in view of Blaha with fuse having a rating of 2-30 amps as taught by Kozackz because this fuse rating will protect the connected solar device from overdrawing current and prevent damage to the solar device, the fuse will perform as a protection device.

Regarding claim 9 – Dar in view of Blaha and Kono teach the assembly of claim 8 wherein said fuse (fig. 1, 5) is rated at 600-2000V ([column 3 line 40-42] Kozackz states, “The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps”).

Response to Arguments

8. Applicant's arguments filed 1/12/2017 have been fully considered but they are not persuasive:

Applicant argues that amending the preamble to state “A double mold” and "breathes life and meaning into the claim" [REMARKS page 8]. “The structural characteristics wouldn’t necessarily be inherently present in an in line assembly that is not “double molded…Blaha’s fuse holder elements 24/26, are pre-manufactured boots 12, 14 are snapped together, and therefore wouldn’t reasonably have gapless interfaces or be vapor impervious” [REMARKS page 9].

Examiner disagrees. In response to applicant's arguments, the recitation “double mold” has not been given patentable weight because the recitation occurs in the

preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Regarding the claimed feature of overmold. One definition states, “Overmolding is the process of adding an additional layer of material over an already existing piece or part” [http://designtekplastics.com/tips/with-is-overmolding/]. Additionally mold is defined as “shape or form [dictionary.com]. Therefore Blaha teaches elements 12 and 14 having a shape that is over the undermold 24/26.

Additionally Examiner points to MPEP 2113, the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight. Please note that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product, i.e. “double molded" having an "undermold" and an "overmold", does not depend on its method of production, i.e. the processes of “molding”. ***In re Thorpe, 227 USPQ 964, 966 (Federal Circuit 1985).***

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN T. SAWYER whose telephone number is (571)270-5469. The examiner can normally be reached on Mon-Thu 7:00-5:30 (est).

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thompson can be reached on 5712722342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEVEN T SAWYER/
Primary Examiner, Art Unit 2847

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	20	(("SOLON") near3 ("Dean")).INV.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/06 08:50
S1	3	photovoltaic fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 11:48
S2	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:22
S3	1	(13/151984).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:37
S4	14	("2046221" | "3356806" | "3518600" | "3778741" | "4734059" | "4909761" | "5018991" | "5648749" | "5888098").PN. OR ("8454390").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:37
S5	26	("20050128045" | "20120161919" | "2700085" | "3356806" | "3465280" | "3551869" | "3778741" | "3843050" | "4060303" | "4333701" | "4391485" | "4531806" | "4734059" | "4909761" | "5444428" | "7377813" | "7445509" | "7777508" | "7988493" | "8098126" | "8342885" | "8454390").PN. OR ("9325122").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:38
S6	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:41
S7	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:41
S8	23	("4202589" | "4390225" | "4448476" | "6483417" | "2187427" | "3828291" | "4909761" | "3243551" | "7639113" | "2758295" | "4504815" | "6717505" | "20090184796" | "2614190" | "20120309232" | "4762509" | "6587028" | "2207837").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:42
S9	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:03
S10	1	fuse and overmold and undermold	US-PGPUB; USPAT;	ADJ	OFF	2016/10/04 14:11

			USOCR; EPO; JPO			
S11	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:19
S12	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:19
S13	2063	fuse and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:27
S14	34	fuse and thermoplastic elastomer and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:27
S15	0	(13/245432).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 14:29
S16	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 14:33
S17	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 14:33
S18	9	("3900241" | "5168124" | "20080194154" | "20070107767" | "3900241" | "20060049358" | "7342171" | "7485982" | "20080099062" | "6307144").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:33
S19	2628	fuse and (different with material) and elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:39
S20	743	fuse and (different with material) and thermoplastic elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:40
S21	239	S12 and material	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:42
S22	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:59
S23	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:59
S24	261	H01H85/201.cpc.	US-PGPUB;	ADJ	OFF	2016/10/04 15:13

Voltage LLC
Ex.1002-352

			USPAT; USOCR; EPO; JPO			
S25	24	("4023071" | "4188561" | "4199736" | "4335415" | "4359764" | "4633359" | "5224012" | "5278720" | "5384679" | "5508873").PN. OR ("5726851").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 15:27
S26	2	("3243551").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 15:42
S27	2	("2839636").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 15:46
S28	2	("2049309").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 15:49
S29	184	fuse and polyphenylene ether and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:57
S30	0	fuse and photovlotaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:02
S31	2971	fuse and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:02
S32	539034	"361".clas. or "136".clas. or "174".clas. or "439".clas. or "337".clas.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:03
S33	707	S32 and S31	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:03
S34	602	S33 not S2	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:03
S35	0	fuse holder and polyphenylene ether plastic	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2016/10/04 16:30

			EPO; JPO			
S36	9	fuse holder and polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:31
S37	2	("2316036").URPN.	USPAT	ADJ	OFF	2016/10/04 16:57
S38	53	("1028328" | "1036510" | "1099589" | "1508839" | "1511838" | "1889585" | "1927905" | "1971809" | "20020113684" | "20070236323" | "2316036" | "2524550" | "2838639" | "2873327" | "2877321" | "2946974" | "3205467" | "3447240" | "3562162" | "3838374" | "3870863" | "3912903" | "4084145" | "4237440" | "4563809" | "4680567" | "4929921" | "5003280" | "5361058" | "5418516" | "5903208" | "6664886" | "6774760" | "7645645" | "RE23219").PN. OR ("8629750").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 16:57
S39	1	(13/208149).APP.	US-PGPUB; USOCR	ADJ	OFF	2016/10/04 17:08
S40	1	(13/208149).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 17:11
S41	27	("20130037294" | "3356806" | "3417359" | "3518600" | "3629808" | "3753192" | "4734059" | "4759730" | "4826454" | "4909761" | "5018991" | "5088683" | "5335160" | "5427542" | "5648749" | "5888098" | "5993246" | "D326845" | "RE40228").PN. OR ("8517768").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 17:12
S42	1	("20130037294").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 08:39
S43	26	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 08:49
S44	7	S43 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:50
S45	13	("5726851" | "4909761" | "8454390" | "5018991" | "5648749" | "5888098" |	US-PGPUB;	ADJ	OFF	2016/10/05 08:52

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		"20100207716" | "20050141164" | "20120295456" | "5137478" | "4734059" | "5714923" | "3848215").PN.	USPAT; USOCR; EPO; JPO			
S46	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:52
S47	26	S43 and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:52
S48	4	S43 and S46	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:53
S49	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:05
S50	8	polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:25
S51	21694	polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S52	141	S51 and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S53	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S54	3	polyphenylene ether and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S55	18	PPE and fuse with holder	US-PGPUB; USPAT; USOCR;	ADJ	OFF	2016/10/05 09:29

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			EPO; JPO			
S56	18	PPE and (fuse with holder)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:29
S57	9	PPE and fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:29
S58	5	S43 and amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:40
S59	11	S43 and (rated or rating)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:42
S60	4	polyphenylene ether with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:55
S61	0	polyphenylene ether with fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:56
S62	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:03
S63	9151	fuse with voltage with current	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:26
S64	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 10:26
S65	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:26

S66	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:26
S67	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 10:26
S68	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 10:26
S69	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:26
S70	1380	S64 or S65 or S66 or S67 or S68 or S69	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:26
S71	184	S70 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:27
S72	95	fuse with voltage with amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:28
S73	6	S72 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:28
S74	7	female and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:39
S75	51	photovoltaic and fuse and (connector with lock$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 11:23
S76	27	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 11:24

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		or US-20090181234-$ or US-20110232963-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.				
S77	9	S76 and lock$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 11:24
S78	7	(("20120309232") or ("20130037294") or ("5316502") or ("20110104925") or ("20110232963") or ("3296399")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:04
S79	6337	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 14:21
S80	10	S79 and fuse and elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 14:21
S81	170	S79 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 14:21
S82	20	((Dean) near2 (Solon)).INV.	US-PGPUB; USPAT	ADJ	OFF	2016/10/05 14:37
S83	0	("2010302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:58
S84	1	("20100302319").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:58
S85	49	(("8937249") or ("20110209741") or ("8690595") or ("20130344727") or ("5309625") or ("5755579") or ("4280748") or ("4850884") or ("4884050") or ("4906195") or ("4940419") or ("4943241") or ("4950168") or ("4963099") or ("5011417") or ("5057026") or ("5327644") or ("5403193") or ("5489885") or ("5662496") or ("5697813") or ("5722863") or ("5735713") or ("5739739") or ("5749739") or ("5785532") or ("5877944") or ("5883560") or ("5897385") or	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 15:18

		("5928004") or ("6007350") or ("6011319") or ("6109973") or ("6144539") or ("6172302") or ("6186633") or ("6224397") or ("6224397") or ("6252477") or ("6262537") or ("6411190") or ("6430054") or ("6600236") or ("6712623") or ("6719572") or ("6791207") or ("6796808") or ("6851956") or ("7021962") or ("7132761")).PN.				
S86	1	(14/700742).APP.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 15:41
S87	0	(14/295132).APP.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 09:21
S88	3	(("20120309232") or ("20130037294") or ("5316502")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 09:22
S89	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/01/09 09:23
S90	7658	H01H85/042.cpc. or H01H85/044.cpc. or H01H85/201.cpc. or H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 16:07
S91	616	((439/620,28) or (337/227,228)).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/04 16:08
S92	8198	S91 or S90	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 16:09
S93	30	S92 and overmold$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2017/02/04 16:09
S94	39	("1175103" | "1579596" | "2414865" | "2872501" | "3422213" | "3601737" | "3766307" | "3766509" | "4280748" | "4308515" | "4333701" | "4365226" | "4391485" | "4679877" | "4734059" | "4831353" | "4880943" | "4958426" | "5018991" | "5162773" | "5241134" | "5298877" | "5304740" | "5329065" | "5345210" | "5391836" | "5493069" | "5591366").PN. OR ("6046665").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2017/02/04 16:11
S95	4	("1175103").URPN.	USPAT	ADJ	OFF	2017/02/04 16:14

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EAST Search History (Interference)

< This search history is empty>

2/ 6/ 2017 8:51:05 AM
C:\ Users\ ssawyer\ Documents\ EAST\ Workspaces\ 14295132.wsp

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14295132	SOLON, DEAN
	Examiner	Art Unit
	STEVEN T SAWYER	2847

CPC- SEARCHED		
Symbol	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc.	2/4/2017	ss
H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	2/4/2017	ss

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
439	620.28 (updated)	2/4/2017	ss
337	227, 228 (updated)	2/4/2017	ss

SEARCH NOTES		
Search Notes	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc., H01L31/0504.cpc., H01B7/0045.cpc., H01L31/18.cpc. (with text) (updated)	2/4/2017	ss
East search history attahced	2/4/2017	ss
Inventor name search	2/4/2017	ss

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/STEVEN T SAWYER/ Primary Examiner.Art Unit 2847

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

57825 7590 01/19/2017

CARLA GANNON LAW
Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465

EXAMINER	
SAWYER, STEVEN T	

ART UNIT	PAPER NUMBER
2847	

NOTIFICATION DATE	DELIVERY MODE
01/19/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

cgannon@carlagannonlaw.com
carlagannon@yahoo.com
docketing@carlagannonlaw.com

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Ex.1002-362

Applicant-Initiated Interview Summary	Application No.	Applicant(s)	
	14/295,132	SOLON, DEAN	
	Examiner	Art Unit	
	STEVEN T. SAWYER	2847	

All participants (applicant, applicant's representative, PTO personnel):

(1) *STEVEN T. SAWYER*. (3)_____.

(2) *Carla Gannon (REG# 56358)*. (4)_____.

Date of Interview: *09 January 2017*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☒103 ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1*.

Identification of prior art discussed: *Blaha et al. & Darr et al*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant discussed the differences between the Blaha reference and the application. Applicant did not agree that Blaha taught an overmold. Applicant pointed out that overmolding is well known in the art and the overmold/undermold would be a structural feature within the context of the claim. Examiner disagreed. The applicants specification does not define the overmold structurally. The examiner pointed to a broad definition stating, "Overmolding is the precess of adding an additional layer of material over an already existing piece or part" [http://designtekplastics.com/tips/what-is-overmolding/]. Additionally mold is defined as "shape or form" [dictionary.com]. Therefore Blaha teaches elements 12 and 14 having a shape that is over the undermold 24/26. Applicants proposed amendment would overcome the current art references applied in the non-final rejection.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☒ Attachment

/STEVEN T SAWYER/
Primary Examiner, Art Unit 2847

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Ex.1002-363

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	DEAN SOLON		
Serial No.:	14/295,132	**Examiner:**	SAWYER, STEVEN T.
Filed:	06/03/2014	**Art Unit:**	2847
Confirmation No.:	6619		

For: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRATED FUSE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

PRE-INTERVIEW COMMUNICATION

Applicant's representative wishes to discuss the following items in the telephonic interview scheduled for Monday, January 9 at 10:00 EST. This interview is in connection with the Non-Final Office Action dated 10/14/16.

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PAGE 1/5 * RCVD AT 1/5/2017 2:06:51 PM [Eastern Standard Time] * SVR:W-PTOFAX-002/39 * DNIS:2706469 * CSID: * DURATION (mm-ss):02-11

PROPOSED CLAIM AMENDMENTS

1) **(PROPOSED)** An in line assembly for a solar installation including:
   a. A photovoltaic fuse having a first end and a second end;
   b. An undermold surrounding said fuse;
   c. An overmold surrounding said undermold, said undermold and said overmold constructed of dissimilar materials; and
   d. A first photovoltaic connector **having a proximal portion and a distal portion, said proximal portion** engaged with said first end**, and said distal portion configured for locking**.

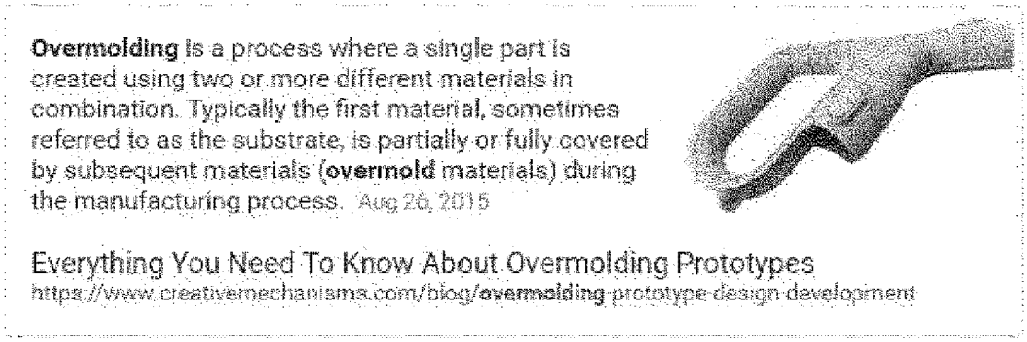
Voltage LLC
Ex.1002-366

PAGE 2/5 * RCVD AT 1/5/2017 2:06:51 PM [Eastern Standard Time] * SVR:W-PTOFAX-002/39 * DNIS:2706469 * CSID: * DURATION (mm-ss):02-11

REMARKS

- Applicant respectfully disagrees that the Blaha reference teaches either an undermold or an overmold for at least the following reasons:

    - Nowhere in the Blaha reference are fuse holder elements 24, 26, or line/load side boots 12, 14 described as being a undermolded or overmolded components.
    - Blaha teaches pre-manufactured fuse holder elements 24/26[1], and pre-manufactured boots 12,14[2] that are subsequently assembled for use *in situ* .[3]
    - Overmolding is a very specific process yielding a very specific product. See for example[4]:



    - Because Blaha teaches neither an undermold nor an overmold, the reference likewise doesn't teach using dissimilar materials.

---

[1] See *inter alia* [0016].

[2] See *inter alia* [0015].

[3] See *inter alia* [0019].

[4] See https://www.google.com/search?q=what+is+an+overmold&oq=what+is+an+overmold&aqs=chrome..69i57j0l5.3133j0j7&sourceid=chrome&ie=UTF-8#q=what+is+overmolding, accessed 1/5/17.

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Ex.1002-367

PAGE 3/5 * RCVD AT 1/5/2017 2:06:51 PM [Eastern Standard Time] * SVR:W-PTOFAX-002/39 * DNIS:2706469 * CSID: * DURATION (mm-ss):02-11

- The proposed claim amendment is deemed unnecessary for the reasons set forth above, but is presented for purposes of expediting discussion and allowance. It is respectfully submitted that proposed amended claim 1 would overcome the Dar reference for at least the following reasons:

    - Distal portions of Dar's connectors 22/24 connect to first and second wires 26/27, for example by crimping.[5] Distal portions of the connectors 30, 40 of the present invention are configured for locking.
    - "Locking" is described in the originally filed specification.[6]

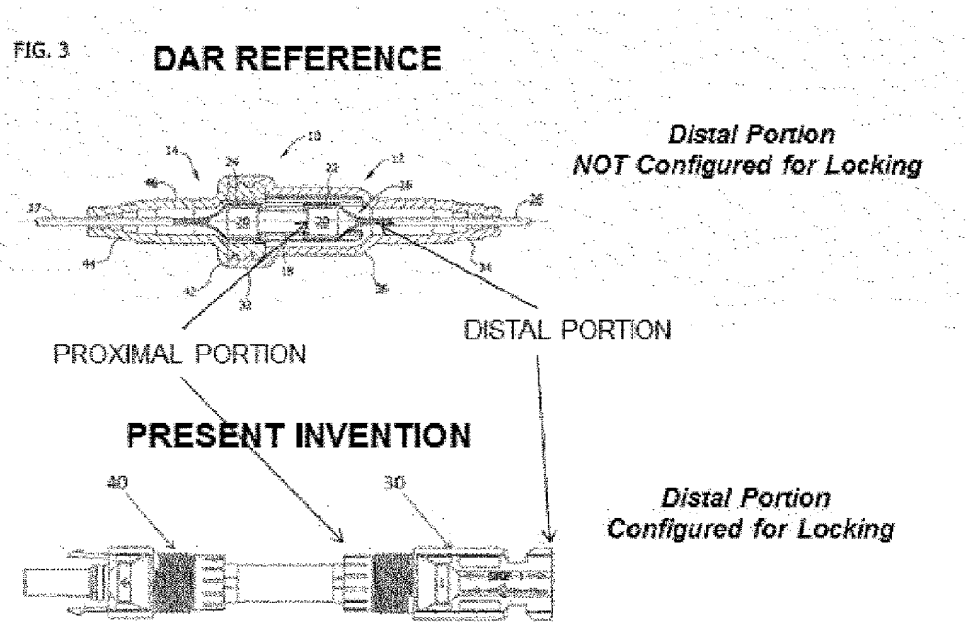


FIG. 7

[5] See *inter alia* [0015].

[6] See *inter alia* page 5, lines 8-9.

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Ex.1002-368

PAGE 4/5 * RCVD AT 1/5/2017 2:06:51 PM [Eastern Standard Time] * SVR:W-PTOFAX-002/39 * DNIS:2706469 * CSID: * DURATION (mm-ss):02-11

CONCLUSION

Applicant appreciates the opportunity to discuss this case with Examiner Sawyer.

Respectfully submitted,

/Carla L. Gannon, 56,358/

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Date: January 5, 2017
File No. SHOALS-25

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PAGE 5/5 * RCVD AT 1/5/2017 2:06:51 PM [Eastern Standard Time] * SVR:W-PTOFAX-002/39 * DNIS:2706469 * CSID: * DURATION (mm-ss):02-11

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	DEAN SOLON		
Serial No.:	14/295,132	**Examiner:**	SAWYER, STEVEN T.
Filed:	06/03/2014	**Art Unit:**	2847
Confirmation No.:	6619		

For: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRATED FUSE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

INTERVIEW SUMMARY AND

RESPONSE TO NON-FINAL OFFICE ACTION

This paper responds to the Office Action mailed October 14, 2016.

In the event an extension of time or other fee is required, Applicant requests that this be considered the requisite petition.

The Commissioner is hereby authorized to charge any fees associated with this case to 506268.

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INTERVIEW SUMMARY

Applicant gratefully acknowledges the Interview conducted by telephone on Monday, January 9, 2017 between Examiner Steven Sawyer and Attorney Carla L. Gannon. Claim allowance was not agreed upon, but the parties discussed the following:

- Examiner Sawyer indicated that he received and reviewed the Pre-Interview Communication from Attorney Gannon dated January 5, 2017.
- Attorney Gannon requested withdrawal of the Blaha reference in view of it not teaching "undermolding" or "overmolding".
- Examiner Sawyer stated his position that the broadest definition of overmolding is, in essence, a covering, and doesn't require the "overmolding" process *per se*.
- Examiner Sawyer further stated that claim 1 is a device claim and the manufacturing process is irrelevant.
- Attorney Gannon stated that she understood, but didn't necessarily agree, with his position, and suggested that she could amend claim 1 to relate to a structural difference between Blaha and the present invention, for example that Blaha has multiple pieces that snap together whereas the present invention is "unitary".

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RESPONSE TO NON-FINAL OFFICE ACTION

Amendments to the Claims

The current status of the claims is listed in the "Listing of the Claims" below. This replaces all previous versions of claims.

Listing of the Claims

1) **(Currently Amended) [[An]] A double molded** in line assembly for a solar installation including:
   a. A photovoltaic fuse having a first end and a second end;
   b. An undermold surrounding said fuse;
   c. An overmold surrounding said undermold, said undermold and said overmold constructed of dissimilar materials; and
   d. A first photovoltaic connector engaged with said first end.

2) (Original) The assembly of claim 1 further including a second photovoltaic connector engaged with said second end.

3) (Original) The assembly of claim 2 wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

4) (Original) The assembly of claim 1 wherein said first and second connectors are locking type connectors.

5) **(Currently Amended)** The assembly of claim **[[5]] 4** further comprising a tool for unlocking said connectors.

6) (Original) The assembly of claim 1 wherein said undermold is a modified polyphenylene ether plastic.

7) (Original) The assembly of claim 1 wherein said overmold is a thermoplastic elastomer.

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8) (Original) The assembly of claim 6 wherein said fuse is rated at 2-30 amps.

9) (Original) The assembly of claim 8 wherein said fuse is rated at 600-2000V.

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10) (Previously Withdrawn) A photovoltaic wire harness including:

a. A trunk wire having a plurality of branch wires extending there from in pairs, said branch wires and said trunk wire forming angles having vertices of approximately 90 degrees; and

b. A plurality of fuse assemblies engaged only with said branch wires in a ratio of one fuse assembly per branch wire.

11) (Previously Withdrawn) The photovoltaic wire harness of claim 10 wherein said fuse assemblies each include one or two connectors.

12) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said fuse assemblies each include a pair selected from the group consisting of one male type connector and one female type connector; one male type connector and one wire; and one female type connector and one wire.

13) (Previously Withdrawn) The photovoltaic wire assembly of claim 10 wherein said angles are surrounded by an encasement.

14) (Previously Withdrawn) The photovoltaic wire assembly of claim 13 wherein said encasement defines tie-downs that span between adjacent protrusions.

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15) (Previously Withdrawn) A method of configuring a solar installation including the steps of:

a. Engaging the trunk of a wire harness with a combiner box wherein said combiner box lacks fuses and circuit breakers; and
b. Engaging each terminal branch of said wire harness with one solar panel wherein each terminal branch includes exactly one in line fuse assembly.

16) (Previously Withdrawn) The method of claim 15 wherein said step of engaging each terminal branch with one solar panel includes the step of uniting a male connector with a female connector.

17) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a male connector integrated with said in line fuse assembly.

18) (Previously Withdrawn) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a female connector integrated with said in line fuse assembly.

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Remarks

Applicant gratefully acknowledges the Office Action dated 10/14/16. Upon considering the Office's cited art and remarks, originally filed claims 1 and 5 have been amended. Claims 10-18 were previously withdrawn. Accordingly, claims 1-10 are currently pending, and claims 1-9 are currently under consideration, with no claims allowable at this time.

This Response specifically addresses the following issues:

I. Objection to Informalities in Claim 5 (Examiner's ¶4)

The numbering error contained in Claim 5 which erroneously made the claim appear dependent upon itself has been amended pursuant to the Examiner's suggestion.

II. 35 USC §103 Rejection of Claims 1, 2 and 7 as Obvious in view of Darr and Blaha (Examiner's ¶6)

With respect to independent claim 1, Applicant respectfully disagrees that the Blaha reference teaches either an undermold or an overmold for at least the following reasons:

- Nowhere in the Blaha reference are fuse holder elements 24, 26, or line/load side boots 12, 14 described as being a undermolded or overmolded components.
- Blaha teaches pre-manufactured fuse holder elements 24/26[1], and pre-manufactured boots 12,14[2] that are subsequently assembled for use *in situ* .[3]
- Overmolding is a very specific process yielding a very specific product. See for example[4]:

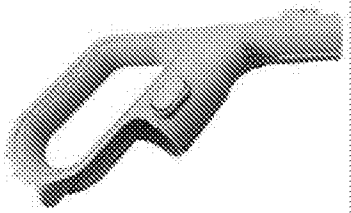
[1] See *inter alia* [0016].

[2] See *inter alia* [0015].

[3] See *inter alia* [0019].

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Overmolding is a process where a single part is created using two or more different materials in combination. Typically the first material, sometimes referred to as the substrate, is partially or fully covered by subsequent materials (**overmold** materials) during the manufacturing process. Aug 28, 2015



Everything You Need To Know About Overmolding Prototypes
https://www.creativemechanisms.com/blog/**overmolding**-prototype-design-development

- The Person Having Ordinary Skill In The Art (the "PHOSITA") would understand "an undermold" and "an overmold" to refer to components that have been formed by *in situ* molding such as injection molding, and to have the associated structural characteristics of "overmolded" parts.

In view of the foregoing, Applicant doesn't concede that Blaha teaches overmolding or undermolding.

However, for purposes of expediting prosecution, the preamble of claim 1, has been amended to recite, in relevant part:

" **[[An]] <u>A double molded</u>** in line assembly…"

Applicant points out that the preamble amendment "breathes life and meaning into the claim"[5] by limiting the claim scope to in line assemblies which are "double molded". The PHOSITA would understand "double molded" to refer

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[4] See https://www.google.com/search?q=what+is+an+overmold&oq=what+is+an+overmold&aqs=chrome..69i57j0l5.3133j0j7&sourceid=chrome&ie=UTF-8#q=what+is+overmolding, accessed 1/5/17.

[5] See *In re Wertheim*, 541 F.2d 257 (CCPA 1976).

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to the formation of the overmolding and undermolding by *in situ* molding during the manufacturing process, for example injection molding.

Specific structural characteristics imparted on the in line assembly due to the overmold and undermold being "double molded" include a substantially gapless interface between substrate and material; absence of an adhesive between substrate and material; improved resistance to electric and mechanical shock; and improved resistance to dust, water and vapor contamination.[6] These structural characteristics wouldn't necessarily be inherently present in an in line assembly that is not "double molded". For example, Blaha's fuse holder elements 24/26, and pre-manufactured boots 12,14 are snapped together, and therefore wouldn't reasonably have gapless interfaces or be vapor impervious.

Applicant points out that "double molded" was set forth in the originally filed specification[7]. Additionally, the related provisional patent application 61/830,284, which is incorporated by reference into the present application, refers to the assembly as "...over molded in two processes...".[8] Accordingly, no new matter has been introduced.

In view of the amendment to the preamble of claim 1, the rejection of claims 2 and 7 which depend from claim 1 are deemed moot.

III. 35 USC §103 Rejection of Claims 3 and 4 as Obvious in view of Darr, Blaha and Loet (Examiner's ¶7)

The rejection of claims 3 and 4 is deemed moot in view of the amendment to the preamble of claim 1, as discussed in Section II above.

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[6] See http://info.crescentind.com/blog/bid/59983/Advantages-of-Over-Molding-for-Plastic-Components, accessed 1/11/17.

[7] See page 2, lines 8-9 stating "The assembly is double molded to provide electrical insulation...".

[8] See inter alia page 1, line 8 and page 2 line 23.

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IV. 35 USC §103 Rejection of Claim 5 as Obvious in view of Darr, Blaha, Loet and Quiter (Examiner's ¶8)

The rejection of claim 5 is deemed moot in view of the amendment to the preamble of claim 1, as discussed in Section II above.

V. 35 USC §103 Rejection of Claim 6 as Obvious in view of Darr, Blaha and Kono (Examiner's ¶9)

The rejection of claim 6 is deemed moot in view of the amendment to the preamble of claim 1, as discussed in Section II above.

VI. 35 USC §103 Rejection of Claims 8 and 9 as Obvious in view of Darr, Blaha, Kono and F. J. Kozackz (Examiner's ¶10)

The rejection of claims 8 and 9 is deemed moot in view of the amendment to the preamble of claim 1, as discussed in Section II above.

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Conclusion

For the reasons set forth herein, Applicant believes all claims are allowable over the art of record. Examiner Sawyer is encouraged to contact Attorney Gannon by telephone or email to discuss the case.

Respectfully submitted,

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Date: January 12, 2017
File No. SHOALS-25

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Ex.1002-380

Electronic Acknowledgement Receipt

EFS ID:	28042101
Application Number:	14295132
International Application Number:	
Confirmation Number:	6619
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Customer Number:	57825
Filer:	Carla L. Gannon/Donna Braam
Filer Authorized By:	Carla L. Gannon
Attorney Docket Number:	SHOALS-25
Receipt Date:	12-JAN-2017
Filing Date:	03-JUN-2014
Time Stamp:	10:14:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	Response_101416OA_SHOALS-25.pdf	105870 e5b7869aadbdd670851597c8b7ec240e65e52681	no	11

Warnings:

Information:	
Total Files Size (in bytes):	105870

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/295,132	Filing Date 06/03/2014	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **01/12/2017**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 18	Minus	** 20	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
ANTJUAN RIVERA

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

57825 7590 10/14/2016

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EXAMINER	
SAWYER, STEVEN T	

ART UNIT	PAPER NUMBER
2847	

NOTIFICATION DATE	DELIVERY MODE
10/14/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

cgannon@carlagannonlaw.com
carlagannon@yahoo.com
docketing@carlagannonlaw.com

Voltage LLC
Ex.1002-384

Office Action Summary	Application No. 14/295,132	Applicant(s) SOLON, DEAN	
	Examiner STEVEN T. SAWYER	Art Unit 2847	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/22/2016*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-18* is/are pending in the application.

5a) Of the above claim(s) *10-18* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-9* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

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1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

Election/Restrictions

2. Applicant's election without traverse of Group I and Species 1 (claims 1-9) in the reply filed on 9/22/2016 is acknowledged.

3. Claims 10-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected subject matter.

Claim Objections

4. Claim 5 is objected to because of the following informalities: Claim 5 states, "The assembly of claim 5". This claim is currently dependent on itself. It will be interpreted to state, "The assembly of claim 4". Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2 and 7 is/are rejected under 35 U.S.C. 103 as being unpatentable over Dar et al. (US PG. Pub. 2012/0309232) in view of Blaha et al. (US PG. Pub. 2013/0037294).

Regarding claim 1 – Dar teaches an in line assembly (fig. 3) for a solar installation ([paragraph 0003] Dar states, "the inline fuse holder may be used in solar photovoltaic systems") including:

a. A photovoltaic fuse (18 [paragraph 0015] Dar states, “fuse 18 may be a photovoltaic (PV) fuse”) having a first end (left terminal 20 [paragraph 0014] Dar states, “terminals 20”) and a second end (right terminal 20);

c. An overmold (combination of elements 12 and 14 [paragraph 0024] Dar states, “first and second fuse holder components 12, 14 may be formed as a single, one-piece component, such as by molding…fuse holder components 12, 14 may be a suitable thermoplastic rubber (also called "thermoplastic elastomer”)) surrounding said fuse (see fig. 3);

d. A first photovoltaic connector (27 [paragraph 0014] Dar states, “connecting first and second wires 26, 27 to the fuse”) engaged with said first end (left terminal 20).

Dar does not teach an in line assembly including a fuse and an undermold surrounding said fuse; and an overmold surrounding said undermold, said undermold and said overmold constructed of dissimilar materials.

Blaha teaches an in line assembly (fig. 1 [title] Blaha states, “breakaway fuse holder”) including a fuse (18 [paragraph 0016] Blaha states, “fuse 18”) and an

undermold (combination of elements 24/26 [paragraph 0016] Blaha states, “fuse holders 24/26 are preferably constructed from a polypropylene material, an olefin which is a wax like material”) surrounding said fuse (18); and an overmold (combination of elements 12 and 14 [paragraph 0015] Blaha states, "line side boot 12 and the load side boot 14 are preferably constructed from a thermoplastic vulcanized, often referred to as “TPV” and which is a thermoplastic elastomer") surrounding said undermold, said undermold and said overmold constructed of dissimilar materials (polypropylene is different than thermoplastic elastomer and appears consistent with applicants specification).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the overmold as taught by Dar with the in line assembly having an undermold between the fuse and the overmold as taught by Blaha because Blaha states this, “material has the advantage that water and moisture will bead up upon the material” [paragraph 0016]. The addition of the undermold will help in preventing moisture from making contact with the fuse [Blaha; paragraph 0019].

Regarding claim 2 – Dar in view of Blaha teach the assembly of claim 1, further including a second photovoltaic connector (Dar; fig, 3, 26) engaged with said second end (right terminal 20).

Regarding claim 7 – Dar in view of Blaha teach the assembly of claim 1 wherein said overmold (Dar; fig. 3, combination of elements 12 and 14) is a thermoplastic elastomer

([paragraph 0024] Dar states, “first and second fuse holder components 12, 14 may be formed as a single, one-piece component, such as by molding…fuse holder components 12, 14 may be a suitable thermoplastic rubber (also called "thermoplastic elastomer”)).

7. Claims 3 and 4 is/are rejected under 35 U.S.C. 103 as being unpatentable over Dar et al. in view of Blaha et al. as applied to claim 2 above, and further in view of Loet (US Patent 5316502).

Regarding claim 3 – Dar in view of Blaha teach the assembly of claim 2 but fails to teach wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, “fuse 26”) with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20), wherein a first connector is a female type connector ([column 4 line 47] Loet states, “female connector 34”), and said second connector is a male type connector ([column 4 line 32] Loet states, “male connection element 22” [Abstract] Loet states, “a fuse, is mounted within the housing and arranged to electrically couple the male cable connector to the female cable connector”).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as

taught by Dar in view of Blaha with the connectors being of a male and female type as taught by Loet because Loet states, “The housing can be easily installed at any location of a power distribution network by using the male and female connectors to couple one power cable to another power cable” [Abstract].

Regarding claim 4 – Dar in view of Blaha teach the assembly of claim 1 but fails to teach wherein said first and second connectors are locking type connectors.

Loet teaches an in line assembly (fig. 1) having a fuse (26 [column 4 line 36] Loet states, “fuse 26”) with a first (left end of fuse 26) and second end (right end of fuse 26) connected to a first (34) and second connector (20) wherein said first and second connectors are locking type connectors ([column 5 line 18-20] Loet states, “the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another”).

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Dar in view of Blaha with the connectors being locking type connectors as taught by Loet because Loet states, “the groove formation 28 and projection 42 provide a straightforward yet highly effective mechanical lock for connectors when they are coupled to one another”” [column 5 lines 18-20]. This locking arrangement will provide a strong mechanical connection.

8. Claim 5 is/are rejected under 35 U.S.C. 103 as being unpatentable over Dar et al. in view of Blaha et al. and Loet as applied to claim 4 above, and further in view of Quiter et al. (US PG. Pub. 2011/0104925).

Regarding claim 5 – Dar in view of Blaha and Loet teach the assembly of claim 4, but fails to teach wherein a tool is used for unlocking said connectors.

Quiter teaches an assembly (fig. 1 [title] Quiter states, "connector system, use and method") having connectors (10 & 12 [paragraph 0077] Quiter states, "connector 10 and complementary connector 12") being of a locking type ([paragraph 0080] Quiter states, "connector 10 is locked with the complementary connector 12"), wherein a tool is used for unlocking said connectors ([paragraph 0083] Quiter states, "For unlocking, a tool (not shown) can be inserted…By means of the tool, the complementary latching element can be displaced in the unlocking direction ENR").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the photovoltaic connectors as taught by Dar in view of Blaha and Loet with the connectors being unlockable by a tool as taught by Quiter because this securing arrangement will prevent unintentional disconnection of the connectors.

9. Claim 6 is/are rejected under 35 U.S.C. 103 as being unpatentable over Dar et al. in view of Blaha et al. as applied to claim 1 above, and further in view of Kono et al. (US PG. Pub. 2011/0232963).

Regarding claim 6 – Dar in view of Blaha teach the assembly of claim 1 wherein said undermold (Blaha; fig. 1, combination of elements 24/26) is formed of polypropylene ([paragraph 0016] Blaha states, "fuse holders 24/26 are preferably constructed from a polypropylene material, an olefin which is a wax like material").

Dar in view of Blaha do not teach the material being a modified polyphenylene ether plastic.

Kono teaches an in line assembly for a photovoltaic installation (fig. 2 [title] Kono states, "connection structure for photovoltaic power generation module") wherein a material is a modified polyphenylene ether plastic ([paragraph 0044] Kono states, "the connection structure of the present embodiments is produced by injection molding…consisting of a modified polyphenylene ether").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the undermold as taught by Dar in view of Blaha with the in line assembly using the material of modified polyphenylene ether in the structure as taught by Kono because Kono states, "Especially, from the viewpoint of strength, electrical characteristics, and long-term heat resistance, preferred is a resin composition containing at least one selected from the group consisting of a modified polyphenylene ether" [paragraph 0044].

10. Claims 8-9 is/are rejected under 35 U.S.C. 103 as being unpatentable over Dar et al. in view of Blaha et al. and Kono et al. as applied to claim 6 above, and further in view of F. J. Kozackz (US Patent 3296399).

Regarding claim 8 – Dar in view of Blaha and Kono teach the assembly of claim 6, but fail to teach specifically wherein said fuse is rated at 2-30 amps.

Kozackz teaches a fuse (fig. 1, 5 [column 3 line 40] Kozackz states, "fusible element 5") wherein said fuse is rated at 2-30 amps ([column 3 line 40-42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

It would have been obvious to a person having ordinary skill in the art before the effective filling date of the claimed invention to modify the in line assembly having the fuse as taught by Dar in view of Blaha with fuse having a rating of 2-30 amps as taught by Kozackz because this fuse rating will protect the connected solar device from overdrawing current and prevent damage to the solar device, the fuse will perform as a protection device.

Regarding claim 9 – Dar in view of Blaha and Kono teach the assembly of claim 8 wherein said fuse (fig. 1, 5) is rated at 600-2000V ([column 3 line 40-42] Kozackz states, "The fusible element 5 shown in FIG. 1 is 9 inches long and intended for circuits having a circuit voltage of 2000 volts and to carry continually currents of 30 amps").

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Guinn (US PG. Pub. 2013/0077249) discloses an overmolded in-line photovoltaic current regulating and heat sink device.
Jonczyk et al. (US PG. Pub. 2010/0139733) discloses a fused wiring harness for a photovoltaic system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN T. SAWYER whose telephone number is (571)270-5469. The examiner can normally be reached on Mon-Thu 7:00-5:30 (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thompson can be reached on 5712722342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEVEN T SAWYER/
Primary Examiner, Art Unit 2847

Notice of References Cited	Application/Control No. 14/295,132	Applicant(s)/Patent Under Reexamination SOLON, DEAN	
	Examiner STEVEN T. SAWYER	Art Unit 2847	Page 1 of 1

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*	B	US-5,316,502 A	05-1994	Loet; Farkas	H01H85/201	439/620.26
*	C	US-2010/0139733 A1	06-2010	Jonczyk; Ralf	H01H85/201	136/244
*	D	US-2011/0104925 A1	05-2011	Quiter; Michael	H01R13/5219	439/271
*	E	US-2011/0232963 A1	09-2011	Kono; Hiroyuki	C08L71/12	174/70R
*	F	US-2012/0309232 A1	12-2012	Darr; Matthew Rain	H01H85/202	439/620.28
*	G	US-2013/0037294 A1	02-2013	Blaha; William E.	H01H85/0026	174/50
*	H	US-2013/0077249 A1	03-2013	GUINN; Edmund John	H02S40/345	361/705
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	7	(("20120309232") or ("20130037294") or ("5316502") or ("20110104925") or ("20110232963") or ("3296399")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 14:04
L4	6337	H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 14:21
L5	10	4 and fuse and elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 14:21
L6	170	4 and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 14:21
L7	20	((Dean) near2 (Solon)).INV.	US-PGPUB; USPAT	ADJ	OFF	2016/10/05 14:37
S1	3	photovoltaic fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 11:48
S2	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 13:22
S3	1	(13/151984).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:37
S4	14	("2046221" | "3356806" | "3518600" | "3778741" | "4734059" | "4909761" | "5018991" | "5648749" | "5888098").PN. OR ("8454390").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:37
S5	26	("20050128045" | "20120161919" | "2700085" | "3356806" | "3465280" | "3551869" | "3778741" | "3843050" | "4060303" | "4333701" | "4391485" | "4531806" | "4734059" | "4909761" | "5444428" | "7377813" | "7445509" | "7777508" | "7988493" | "8098126" |	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:38

		"8342885" | "8454390").PN. OR ("9325122").URPN.				
S6	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:41
S7	0	(12/975420).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 13:41
S8	23	("4202589" | "4390225" | "4448476" | "6483417" | "2187427" | "3828291" | "4909761" | "3243551" | "7639113" | "2758295" | "4504815" | "6717505" | "20090184796" | "2614190" | "20120309232" | "4762509" | "6587028" | "2207837").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 13:42
S9	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:03
S10	1	fuse and overmold and undermold	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:11
S11	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:19
S12	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:19
S13	2063	fuse and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:27
S14	34	fuse and thermoplastic elastomer and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 14:27
S15	0	(13/245432).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 14:29
S16	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 14:33
S17	0	(12/542760).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 14:33
S18	9	("3900241" | "5168124" | "20080194154" | "20070107767" | "3900241" | "20060049358" | "7342171" | "7485982" | "20080099062" | "6307144").PN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:33
S19	2628	fuse and (different with material) and elastomer	US-PGPUB;	ADJ	OFF	2016/10/04 14:39

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			USPAT; USOCR			
S20	743	fuse and (different with material) and thermoplastic elastomer	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:40
S21	239	S12 and material	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 14:42
S22	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:59
S23	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 14:59
S24	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:13
S25	24	("4023071" | "4188561" | "4199736" | "4335415" | "4359764" | "4633359" | "5224012" | "5278720" | "5384679" | "5508873").PN. OR ("5726851").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 15:27
S26	2	("3243551").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 15:42
S27	2	("2839636").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 15:46
S28	2	("2049309").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/04 15:49
S29	184	fuse and polyphenylene ether and thermoplastic elastomer	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 15:57
S30	0	fuse and photovlotaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:02
S31	2971	fuse and photovoltaic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:02
S32	539034	"361".clas. or "136".clas. or "174".clas. or	US-	ADJ	OFF	2016/10/04

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		"439".clas. or "337".clas.	PGPUB; USPAT; USOCR; EPO; JPO			16:03
S33	707	S32 and S31	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:03
S34	602	S33 not S2	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:03
S35	0	fuse holder and polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:30
S36	9	fuse holder and polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/04 16:31
S37	2	("2316036").URPN.	USPAT	ADJ	OFF	2016/10/04 16:57
S38	53	("1028328" | "1036510" | "1099589" | "1508839" | "1511838" | "1889585" | "1927905" | "1971809" | "20020113684" | "20070236323" | "2316036" | "2524550" | "2838639" | "2873327" | "2877321" | "2946974" | "3205467" | "3447240" | "3562162" | "3838374" | "3870863" | "3912903" | "4084145" | "4237440" | "4563809" | "4680567" | "4929921" | "5003280" | "5361058" | "5418516" | "5903208" | "6664886" | "6774760" | "7645645" | "RE23219").PN. OR ("8629750").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 16:57
S39	1	(13/208149).APP.	US-PGPUB; USOCR	ADJ	OFF	2016/10/04 17:08
S40	1	(13/208149).APP.	USPAT; USOCR	ADJ	OFF	2016/10/04 17:11
S41	27	("20130037294" | "3356806" | "3417359" | "3518600" | "3629808" | "3753192" | "4734059" | "4759730" | "4826454" | "4909761" | "5018991" | "5088683" | "5335160" | "5427542" | "5648749" | "5888098" | "5993246" | "D326845" | "RE40228").PN. OR ("8517768").URPN.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/04 17:12
S42	1	("20130037294").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 08:39

S43	26	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 08:49
S44	7	S43 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:50
S45	13	("5726851" | "4909761" | "8454390" | "5018991" | "5648749" | "5888098" | "20100207716" | "20050141164" | "20120295456" | "5137478" | "4734059" | "5714923" | "3848215").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:52
S46	223	photovoltaic with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:52
S47	26	S43 and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:52
S48	4	S43 and S46	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 08:53
S49	2	(("20120309232") or ("20130037294")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 09:05
S50	8	polyphenylene ether plastic	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:25
S51	21694	polyphenylene ether	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S52	141	S51 and photovoltaic	US-PGPUB;	ADJ	OFF	2016/10/05 09:26

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			USPAT; USOCR; EPO; JPO			
S53	14	S51 and photovoltaic and fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:26
S54	3	polyphenylene ether and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:28
S55	18	PPE and fuse with holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:29
S56	18	PPE and (fuse with holder)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:29
S57	9	PPE and fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:29
S58	5	S43 and amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:40
S59	11	S43 and (rated or rating)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:42
S60	4	polyphenylene ether with fuse	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:55
S61	0	polyphenylene ether with fuse holder	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 09:56
S62	14	S51 and photovoltaic and fuse	US-PGPUB;	ADJ	OFF	2016/10/05 10:03

			USPAT; USOCR; EPO; JPO			
S63	9151	fuse with voltage with current	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:26
S64	72	(439/620.28).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 10:26
S65	333	H01H85/042.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:26
S66	426	H01H85/044.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:26
S67	253	(337/227).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 10:26
S68	153	(337/228).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/10/05 10:26
S69	261	H01H85/201.cpc.	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:26
S70	1380	S64 or S65 or S66 or S67 or S68 or S69	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:26
S71	184	S70 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:27
S72	95	fuse with voltage with amps	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:28
S73	6	S72 and S70	US-PGPUB;	ADJ	OFF	2016/10/05 10:28

			USPAT; USOCR; EPO; JPO			
S74	7	female and S43	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 10:39
S75	51	photovoltaic and fuse and (connector with lock$4)	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 11:23
S76	27	(US-20150137934-$ or US-20120309232-$ or US-20120161919-$ or US-20130077249-$ or US-20110104925-$ or US-20100139733-$ or US-20120160297-$ or US-20100122845-$ or US-20090181234-$ or US-20110232963-$).did. or (US-5168124-$ or US-5886327-$ or US-5726851-$ or US-5700165-$ or US-5316502-$ or US-5018991-$ or US-1175103-$ or US-5903209-$ or US-3686603-$ or US-2316036-$ or US-6664886-$ or US-5903208-$ or US-9106003-$).did. or (US-2700085-$ or US-3231966-$ or US-3132223-$ or US-2049309-$).did.	US-PGPUB; USPAT; USOCR	ADJ	OFF	2016/10/05 11:24
S77	9	S76 and lock$4	US-PGPUB; USPAT; USOCR; EPO; JPO	ADJ	OFF	2016/10/05 11:24

EAST Search History (Interference)

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14295132	SOLON, DEAN
	Examiner	Art Unit
	STEVEN T SAWYER	2847

CPC- SEARCHED		
Symbol	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc.	10/4/2016	ss
H01L31/0504.cpc. or H01B7/0045.cpc. or H01L31/18.cpc.	10/5/2016	ss

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
439	620.28	10/4/2016	ss
337	227, 228	10/4/2016	ss

SEARCH NOTES		
Search Notes	Date	Examiner
H01H85/042.cpc., H01H85/044.cpc.,H01H85/201.cpc., H01L31/0504.cpc., H01B7/0045.cpc., H01L31/18.cpc.	10/4/2016	ss
East search history attahced	10/5/2016	ss
Inventor name search	10/5/2016	ss
PLUS search conducted	10/5/2016	ss

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/STEVEN T SAWYER/ Primary Examiner.Art Unit 2847

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PLUS Search Results for S/N 14295132, Searched Wed Oct 05 14:54:29 EDT 2016

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

8937249 73
20110209741 73
8690595 70
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6262537 70
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6600236 70
6712623 70
6719572 70
6791207 70
6796808 70
6851956 70
7021962 70
7132761 70

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	DEAN SOLON		
Serial No.:	14/295,132	**Examiner:**	SAWYER, STEVEN T.
Filed:	06/03/2014	**Art Unit:**	2847
Confirmation No.:	6619		

For: PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRATED FUSE

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

RESPONSE TO RESTRICTION REQUIREMENT

AND REQUEST FOR EXTENSION OF TIME

This paper responds to the Office Action mailed May 18, 2016.

Applicant requests a Three-Month Extension of Time, thereby expanding the window for response to the outstanding Office Action until October 18, 2016.

The requisite Extension of Time fee of $700.00 is submitted contemporaneously.

In the event an extension of time or other fee is required, Applicant requests that this be considered the requisite petition.

The Commissioner is hereby authorized to charge any fees associated with this case to 506268.

Voltage LLC
Ex.1002-407

Response To Restriction Requirement

In response to the Office Action mailed May 18, 2016, Applicant hereby elects:

Invention 1 - Claims 1-14, drawn to an in line assembly for a solar installation and a photovoltaic wire harness, classified in class H01B7/0045.

Applicant further elects:

Species 1 directed to an in line fuse and its structure (Claims 1-9, Figures 5-12).

This election is made without traverse.

Respectfully submitted,

/Carla L. Gannon, 56,358/

Carla L. Gannon
Registration No. 56,358
Carla Gannon Law
8903 E. Oak Island Dr., Suite 9
Oak Island, NC 28465
336-543-3797
cgannon@carlagannonlaw.com

Date: September 22, 2016
File No. SHOALS-25

Voltage LLC
Ex.1002-408

Electronic Patent Application Fee Transmittal

Application Number:	14295132
Filing Date:	03-Jun-2014
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Filer:	Carla L. Gannon/Donna Braam
Attorney Docket Number:	SHOALS-25

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	2253	1	700	700
Miscellaneous:				
			Total in USD ($)	**700**

Electronic Acknowledgement Receipt

EFS ID:	27000701
Application Number:	14295132
International Application Number:	
Confirmation Number:	6619
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Customer Number:	57825
Filer:	Carla L. Gannon/Donna Braam
Filer Authorized By:	Carla L. Gannon
Attorney Docket Number:	SHOALS-25
Receipt Date:	22-SEP-2016
Filing Date:	03-JUN-2014
Time Stamp:	10:57:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$700
RAM confirmation Number	092216INTEFSW11001000
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response to Election / Restriction Filed	Response_050816RestReq_SHOALS-25.pdf	15949 9803975304372f92a30eed1a0ebb3ee5ff0b76db	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30567 471a97c23ebd202546182310abc2538f650d41e7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	46516		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/295,132	06/03/2014	Dean Solon	SHOALS-25	6619

57825 7590 05/18/2016

CARLA GANNON LAW
Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465

EXAMINER	
SAWYER, STEVEN T	

ART UNIT	PAPER NUMBER
2847	

NOTIFICATION DATE	DELIVERY MODE
05/18/2016	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

cgannon@carlagannonlaw.com
carlagannon@yahoo.com
docketing@carlagannonlaw.com

Voltage LLC
Ex.1002-413

Office Action Summary	Application No. 14/295,132	Applicant(s) SOLON, DEAN	
	Examiner STEVEN T. SAWYER	Art Unit 2847	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *6/3/2014*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-18* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☐ Claim(s) _____ is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☒ Claim(s) *1-18* are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

Voltage LLC
Ex.1002-414

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

DETAILED ACTION

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-14, drawn to an in line assembly for a solar installation and a photovoltaic wire harness classified in class H01B7/0045.

II. Claims 15-18, drawn to a method of configuring a solar installation, classified in class H01L31/18.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the device claimed in Group I can be created by a different method than the method described in Group II such as not having a combiner box that is required for Group II.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

(a) the inventions have acquired a separate status in the art in view of their different classification;

(b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected invention**.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after

the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product

claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder**. Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Election of Species

In addition to the restriction between Groups I (claims 1-14) and Groups II (claims 15-18) above this application also contains claims directed to the following patentably distinct species:

a. Species 1 directed to an inline fuse and its structure (figs. 5-12);

b. Species 2 directed to a wiring harness having a specific layout (figs. 13-16);

The species are independent or distinct because each of the species has different structural arrangement as shown by respective figures. Species 1 appears to be directed to claim 1-9. Species 2 appears to be directed to claims 10-14. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species, or a single grouping of patentably indistinct species, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently no claims appear to be generic

There is a search and/or examination burden for the patentably distinct species set forth above. The species require a different field of search (e.g. searching different classes/subclasses or electronic resources, or employing different search strategies or search queries) and/or the prior art applicable to one species would not likely be applicable to another species.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species or grouping of patentably indistinct species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after

the election, applicant must indicate which of these claims are readable on the elected species or grouping of patentably indistinct species.

Should applicant traverse on the ground that the species, or groupings of patentably indistinct species from which election is required, are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing them to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN SAWYER whose telephone number is (571)270-5469. The examiner can normally be reached on Mon-Thu 7:00-5:30 (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thompson can be reached on 5712722342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEVEN T SAWYER/

Primary Examiner, Art Unit 2847

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/295,132	06/03/2014	2833	730	SHOALS-25	18	3

CONFIRMATION NO. 6619

57825
CARLA GANNON LAW
Carla L. Gannon, Esq.
8903 E. Oak Island Dr.
Suite 9
Oak Island, NC 28465

FILING RECEIPT



Date Mailed: 06/16/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Dean Solon, Gallatin, TN;

Applicant(s)

Dean Solon, Gallatin, TN;

Power of Attorney: The patent practitioners associated with Customer Number 57825

Domestic Priority data as claimed by applicant

This appln claims benefit of 61/830,284 06/03/2013

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

If Required, Foreign Filing License Granted: 06/12/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/295,132**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

** **SMALL ENTITY** **

Voltage LLC
Ex.1002-422

Title

PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE

Preliminary Class

439

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

Voltage LLC
Ex.1002-423

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/295,132

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	18 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

Doc Code: PA..
Document Description: Power of Attorney

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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	TBD
Filing Date	TBD
First Named Inventor	DEAN SOLON
Title	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
Art Unit	TBD
Examiner Name	TBD
Attorney Docket Number	SHOALS-25

SIGNATURE of Applicant or Patent Practitioner

Signature	/Carla L. Gannon/	Date (Optional)	06/03/2014
Name	Carla L. Gannon	Registration Number	56358
Title (if Applicant is a juristic entity)	Attorney of record, NC bar member		
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA..
Document Description: Power of Attorney

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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 57825

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

☑ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☐ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	/DS/	Date (Optional)	6/2/15
Name	Dean Solon		
Title	President		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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POWER OF ATTORNEY BY APPLICANT

No more than ten (10) patent practitioners total may be appointed as set forth below by name and registration number. This page need not be submitted if appointing the Patent Practitioner(s) associated with a Customer Number (see form PTO/AIA/82B):

Name	Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Filer:	Carla L. Gannon/Donna Riccardi
Attorney Docket Number:	SHOALS-25

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

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Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**730**

Electronic Acknowledgement Receipt

EFS ID:	19202411
Application Number:	14295132
International Application Number:	
Confirmation Number:	6619
Title of Invention:	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE
First Named Inventor/Applicant Name:	Dean Solon
Customer Number:	57825
Filer:	Carla L. Gannon/Donna Riccardi
Filer Authorized By:	Carla L. Gannon
Attorney Docket Number:	SHOALS-25
Receipt Date:	03-JUN-2014
Filing Date:	
Time Stamp:	18:50:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$730
RAM confirmation Number	5498
Deposit Account	506268
Authorized User	GANNON, CARLA L

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	ADS.pdf	1561084 b96c17aeac741eea2a1a3217bc00b92939050177	no	7
Warnings:					
Information:					
2		ApplicationFINAL_SHOALS-25.pdf	64151 46909944750b8f0fe6d5e83c1c43e2bf3bffe001	yes	10

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	6
Claims	7	9
Abstract	10	10

Warnings:					
Information:					
3	Drawings-only black and white line drawings	FIGS_FINAL-SHOALS-25.pdf	402045 17f66cd6d883e3f83490f3f6ced61b413c9b7d2b	no	10
Warnings:					
Information:					
4	Oath or Declaration filed	Declaration_SHOALS-25.pdf	2241144 c931460a2da50f70e5046cc90d6c3fbcad2a76e1	no	2
Warnings:					
Information:					
5	Power of Attorney	POA_SHOALS-25.pdf	2893232 a7e6895bbeec17ae391ea91a8846a9f521183c0c	no	4
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	32890 2c94341813b000e34a93d4679d5d8ed5cfb568a1	no	2
Warnings:					
Information:					

Total Files Size (in bytes):	7194546

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOALS-25
	Application Number	
Title of Invention	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Dean		Solon	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Gallatin	State/Province	TN	Country of Residence i	US

Mailing Address of Inventor:

Address 1	223 Woodlake Drive		
Address 2			
City	Gallatin	State/Province	TN
Postal Code	37066	Country i	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	57825		
Email Address	cgannon@carlagannonlaw.com	Add Email	Remove Email
Email Address	carlagannon@yahoo.com	Add Email	Remove Email

Application Information:

Title of the Invention	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE		
Attorney Docket Number	SHOALS-25	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	10	Suggested Figure for Publication (if any)	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOALS-25
	Application Number	
Title of Invention	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE	

Filing By Reference :

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☒ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	57825		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the application number blank.

Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Claims benefit of provisional	61830284	2013-06-03

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOALS-25
	Application Number	
Title of Invention	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE	

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) [i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country [i]	Filing Date (YYYY-MM-DD)	Access Code [i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOALS-25
	Application Number	
Title of Invention	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE	

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◯ Assignee	◯ Legal Representative under 35 U.S.C. 117	◯ Joint Inventor
◯ Person to whom the inventor is obligated to assign.	◯ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOALS-25
	Application Number	
Title of Invention	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE	

Mailing Address Information:			
Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not subsitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication . An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	SHOALS-25
	Application Number	
Title of Invention	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE	

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First Name	Carla	Last Name	Gannon	Registration Number	56358

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

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PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority from the United States provisional patent application entitled LINE FUSE ASSEMBLY, which was filed on June 3, 2013, and assigned the serial number.61/830,284. This application is hereby incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION

Field

The present invention relates to a connector, and more specifically to a photovoltaic in line connector assembly having an integral fuse.

Related Art

As shown in FIG. 1, a conventional solar installation includes a plurality of solar panels that are interconnected by a wire harness to form an array. In this standard configuration a plurality of arrays are electrically coupled to a central combiner box, with a plurality of combiner boxes electrically coupled to a central recombiner box. Typically a combiner box includes a plurality of fuses – one for each array.

As demonstrated in FIG. 2, tripping one circuit shuts down the operation of all the panels in the array, even if the circuit was tripped due to the malfunction of only one panel. This needlessly reduces the overall efficiency of the solar installation.

A wire harness commonly used in solar installations is shown in FIG. 13. This harness is disclosed in United States Patent 8,604,342, entitled LOW LEAKAGE ELECTRICAL JOINTS AND WIRE HARNESSES, AND METHOD OF MAKING THE SAME, which issued on 12/10/13 from the US Patent Application

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having serial number 12/502,395, which was filed 7/14/09. The application and patent are hereby incorporated by reference in their entirety.

SUMMARY OF THE INVENTIONS

The present inventions include a photovoltaic in line connector assembly having an integral fuse. In this assembly the fuse is preferably integrated into the connector with a wire to the connector pin or in the harness, with the fuse connected wire to wire. The assembly is double molded to provide electrical insulation, protection and strain relief.

The assembly allows for circuit protection to be installed into the wiring harness for a photovoltaic installation. One advantage of this is that it allows for circuit protection to be moved from the combiner box to the wire harness, thereby reducing the number of combiner boxes required in a solar field. Reducing the number of combiner boxes saves money and permits a more simplified component configuration in the solar field.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 schematically represents the configuration of a conventional solar field;

FIG. 2 schematically represents the effect of a blown circuit in a conventional solar field;

FIG. 3 schematically represents the configuration of a solar field employing embodiments of the present invention;

FIG. 4 schematically represents the effect of a blown circuit on a solar field employing embodiments of the present invention;

FIG. 5 depicts an embodiment of the present invention having connectors at both ends;

FIG. 6 shows some components associated with the embodiment of FIG. 5;

FIG. 7 also shows some components associated with the embodiment of FIG. 5;

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FIG. 8 also shows some components associated with the embodiment of FIG. 5;

FIG. 9 depicts an embodiment of the present invention having a connector at one end and a wire at the other end;

FIG. 10 shows some components associated with the embodiment of FIG. 9;

FIG. 11 also shows some components associated with the embodiment of FIG. 9;

FIG. 12 also shows some components associated with the embodiment of FIG. 9;

FIG. 13 depicts a known wire harness;

FIG. 14 represents modification of a wire harness by an embodiment of the present invention that has a male connector end and a female connector end;

FIG. 15 represents modification of a wire harness by an embodiment of the present invention that has a wire end and a connector end; and

FIG. 16 represents modification of a wire harness by an embodiment of the present invention that has wire at both ends.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following detailed description is of the best currently contemplated modes of carrying out exemplary embodiments of the invention. The description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating the general principles of the invention, since the scope of the invention is best defined by the appended claims.

The following structure numbers shall apply to the following structures among the various FIGS.:

10 – Assembly;

15 – Fuse;

20 – Jumper wire;

25 – PV cable;

30 – Male connector;

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35 – Connector pin;

40 – Female connector;

45 – Connector socket;

50 – Undermold; and

60 – Overmold.

FIG. 3 provides an overview of the invention insofar as it depicts a solar field having solar panels connected to combiner boxes via harnesses with fuses. More specifically, one fuse is associated with each solar panel. As shown in FIG. 4, the result of this configuration is that a malfunction in an individual panel will trip only the associated fuse, thereby allowing other panels in the array to function normally.

An exemplary assembly 10 is depicted in FIG 5, which includes female connector 40 at the first end, and male connector 30 at the second end. FIGS. 6 – 8 show underlying structures of the assembly as sequentially added during production. Said another way, FIG. 6 shows structures in the initial state of production including fuse 15 connected at both ends to first and second jumper wires 20, with the first jumper wire connected to connector socket 45, and the second jumper wire connected to connector pin 35.

It is preferred that jumper wires are solid copper wire of approximately 12 to 10 gauge, and welded to fuse. It is also desired that jumper wires are crimped to female and male connector terminals 35, 45. FIG. 7 shows structures in an intermediate state of production including the addition of plastic bodies for female connector 40 and male connector 30, which are attached to connector socket 45 and connector pin 35, respectively. FIG. 8 shows structures in a late state of production including undermolding 50, which seals the assembly. The undermold material is preferably a modified polyphenylene ether plastic such as Xyron 540Z from Asahi Kasei of Fowlerville, Michigan. Overmold 60 of FIG. 5 is preferably a thermoplastic elastomer such as 2099E x 125506 from RTP Co of Winona, Minnesota, and forms a secondary seal for the fuse.

Another exemplary assembly 10 is depicted in FIG 9, which includes female connector 40 at the first end, and PV cable 25 at the second end. FIGS. 10 – 12

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show underlying structures of the assembly as sequentially added during production. FIG. 10 shows structures in the initial state of production including fuse 15 connected to first the PV cable 25 and second to the jumper wire 20, with the jumper wire connected to connector socket 45. It is preferred that the size of the PV cable is 12-8 AWG. FIG. 11 shows structures in an intermediate state of production including the addition of female connector 40. FIG. 12 shows structures in a late state of production including undermolding 50.

It is preferred that the connectors are the locking type, and most preferably the type that are unlocked using a specially designed tool. The preferred connector for use in an embodiment having PV connectors on both ends of fuse is STG.ILF2.D.xx, where "xx" is the amperage. The preferred connector for use in an embodiment having a female connector on one end and wires in the other end STG.ILF2.F.xx. The preferred connector for use in an embodiment having a male connector on one end and wires in the other end STG.ILF2.M.xx. The connectors are commercially available from Shoals Technologies Groups in Portland, Tennessee.

A variety of fuses 15 can be used in assembly 10, although photovoltaic fuses are preferred. It is preferred that the voltage rating is 600 to 2000 V, and that the current rating is 2-30A, although the amperage can go up to 45A. The preferred fuse size is 10 x 38 mm for 600-1000V applications, and 10 x 56 mm for applications above 1000V. An example of a suitable fuse for a 600-1000V application is commercially available as HP10M from Mersen of Newburyport, Massachusetts. An example of a commercially available suitable fuse for an application above 1000V is SPXI from Littelfuse of Chicago, Illinois.

Assemblies of the present invention may be molded into a harness, or may be separate units that are "plugged into" existing harnesses. This flexibility allows for the fuse assembly to be added to existing harness, or to replace the fuse in an existing harness without discarding the entire harness.

A photovoltaic wire harness may have multiple branches that feed into a trunk cable, as shown in FIG. 13. It is desirable that the branches and trunk intersect to have vertices of 90 degrees, and that those intersections are

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surrounded by an encasement. It is desirable that the encasement defines protrusions with wires extending outward. It is desirable that the encasement defines tie-downs that span between adjacent protrusions, as set forth in previously referenced US Patent 8,604,342. An assembly of the present invention can be installed into each branch to provide the required over current protection. This should accomplished in a manufacturing plant, versus in the field, due to the molding processes. If replacing a fuse in a harness the contractor can cut the old fuse out of the harness then install approved connectors on the existing wire and plug in the dual connector fuse assembly. The fuse can also be assembled in the middle of a harness. The fuse will be attached to two wires and overmolded without the connectors. This would allow for the trunk of the harness to be fused. Some various configurations are set forth in FIGS. 14-16.

It should be understood that many modifications and improvements have been deleted herein for the sake of conciseness and readability but are properly within the scope of the following claims. It should also be understood that the illustrations are for the purpose of describing a preferred embodiment of the inventions and are not intended to limit the inventions thereto. It should also be understood that approximations allow variances of +/- 10%, unless otherwise noted. It should also be understood that all ranges set forth inherently include the endpoints themselves, as well as all increments, therebetween.

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What is claimed is:

1) An in line assembly for a solar installation including:
   a. A photovoltaic fuse having a first end and a second end;
   b. An undermold surrounding said fuse;
   c. An overmold surrounding said undermold, said undermold and said overmold constructed of dissimilar materials; and
   d. A first photovoltaic connector engaged with said first end.

2) The assembly of claim 1 further including a second photovoltaic connector engaged with said second end.

3) The assembly of claim 2 wherein said first photovoltaic connector is a female type connector, and said second photovoltaic connector is a male type connector.

4) The assembly of claim 1 wherein said first and second connectors are locking type connectors.

5) The assembly of claim 5 further comprising a tool for unlocking said connectors.

6) The assembly of claim 1 wherein said undermold is a modified polyphenylene ether plastic.

7) The assembly of claim 1 wherein said overmold is a thermoplastic elastomer.

8) The assembly of claim 6 wherein said fuse is rated at 2-30 amps.

9) The assembly of claim 8 wherein said fuse is rated at 600-2000V.

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10) A photovoltaic wire harness including:
    a. A trunk wire having a plurality of branch wires extending there from in pairs, said branch wires and said trunk wire forming angles having vertices of approximately 90 degrees; and
    b. A plurality of fuse assemblies engaged only with said branch wires in a ratio of one fuse assembly per branch wire.

11) The photovoltaic wire harness of claim 10 wherein said fuse assemblies each include one or two connectors.

12) The photovoltaic wire assembly of claim 10 wherein said fuse assemblies each include a pair selected from the group consisting of one male type connector and one female type connector; one male type connector and one wire; and one female type connector and one wire.

13) The photovoltaic wire assembly of claim 10 wherein said angles are surrounded by an encasement.

14) The photovoltaic wire assembly of claim 13 wherein said encasement defines tie-downs that span between adjacent protrusions.

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15) A method of configuring a solar installation including the steps of:
    a. Engaging the trunk of a wire harness with a combiner box wherein said combiner box lacks fuses and circuit breakers; and
    b. Engaging each terminal branch of said wire harness with one solar panel wherein each terminal branch includes exactly one in line fuse assembly.

16) The method of claim 15 wherein said step of engaging each terminal branch with one solar panel includes the step of uniting a male connector with a female connector.

17) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a male connector integrated with said in line fuse assembly.

18) The method of claim 16 wherein said step of uniting a male connector with a female connector includes the step of uniting a female connector integrated with said in line fuse assembly.

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ABSTRACT OF THE DISCLOSURE

A photovoltaic in line connector assembly has an integral fuse, and is double molded to provide electrical insulation, protection and strain relief. The assembly can be integrated with, or added to, a wiring harness for a photovoltaic installation, thereby providing one fuse per solar panel. The assembly may include zero, one, or two connectors that are male, female, or one of each.

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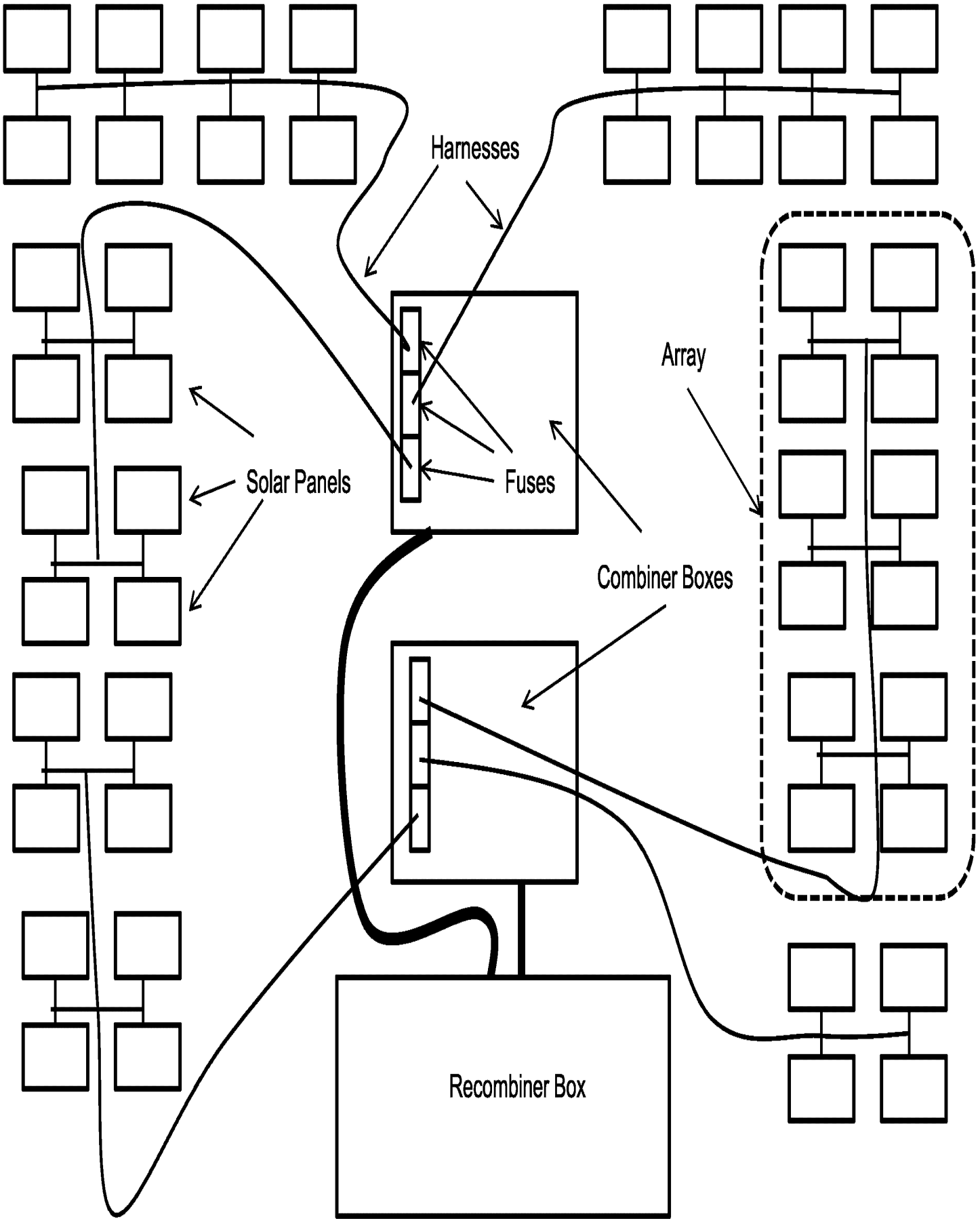


FIG. 1 – PRIOR ART

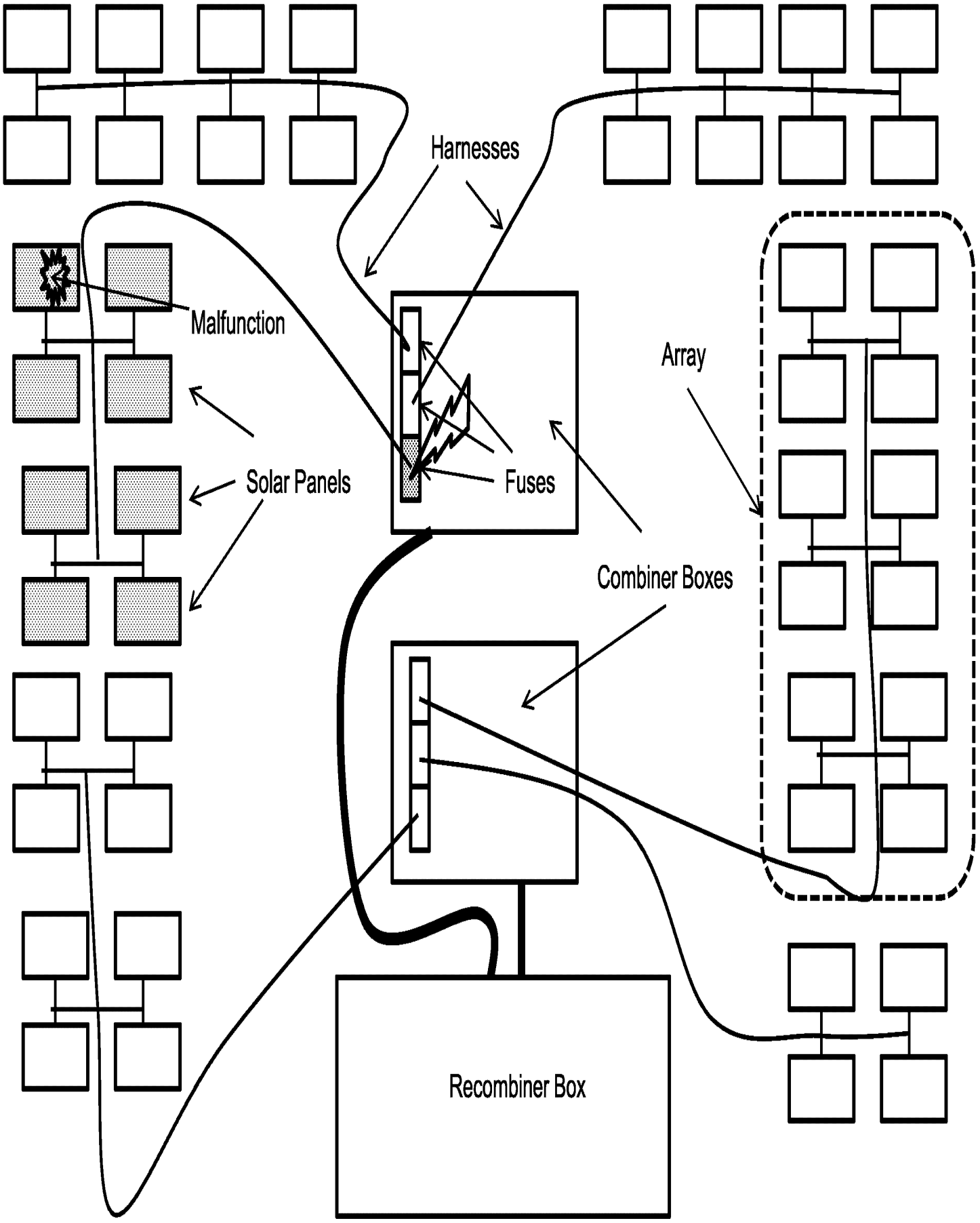


FIG. 2 – PRIOR ART

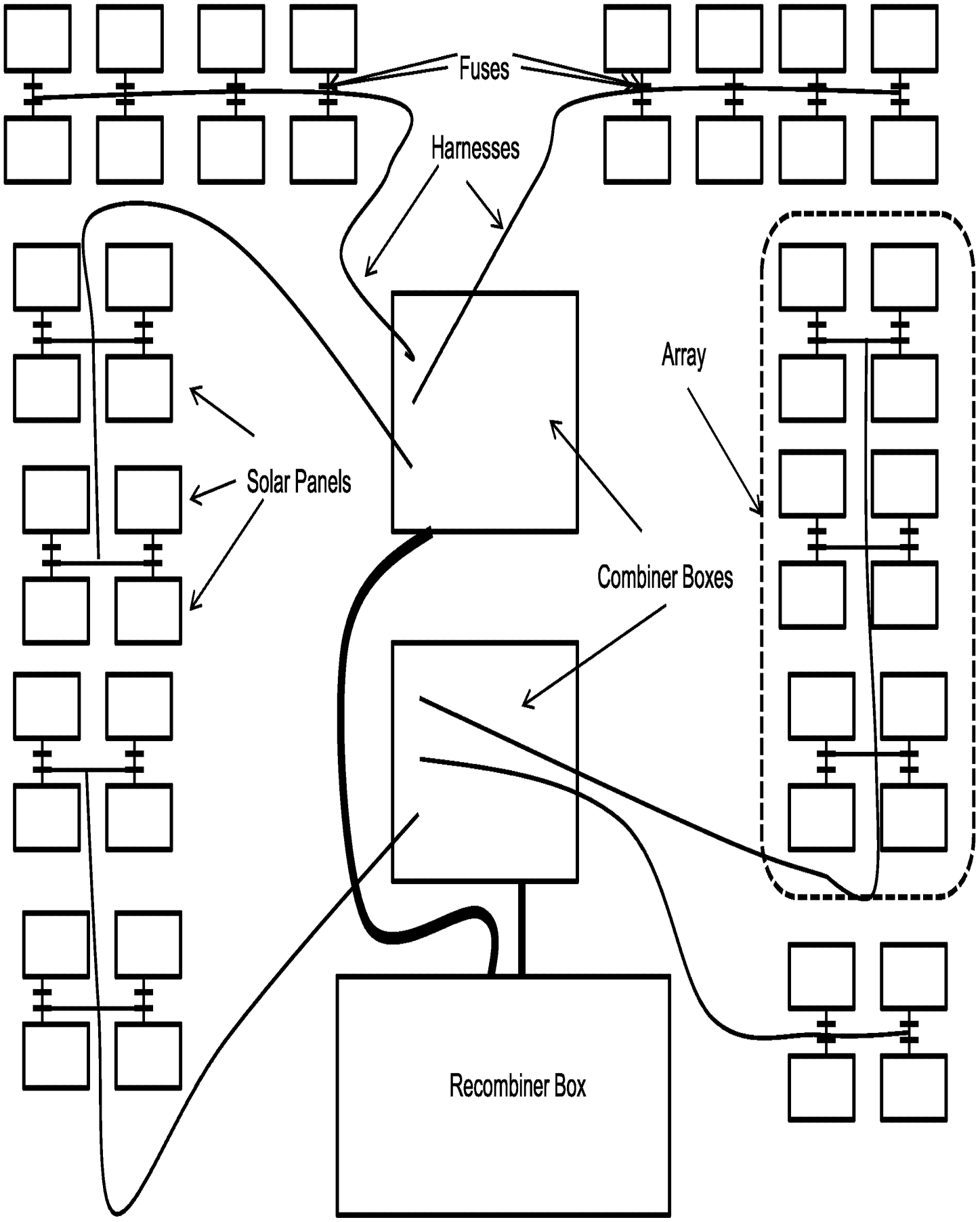


FIG. 3

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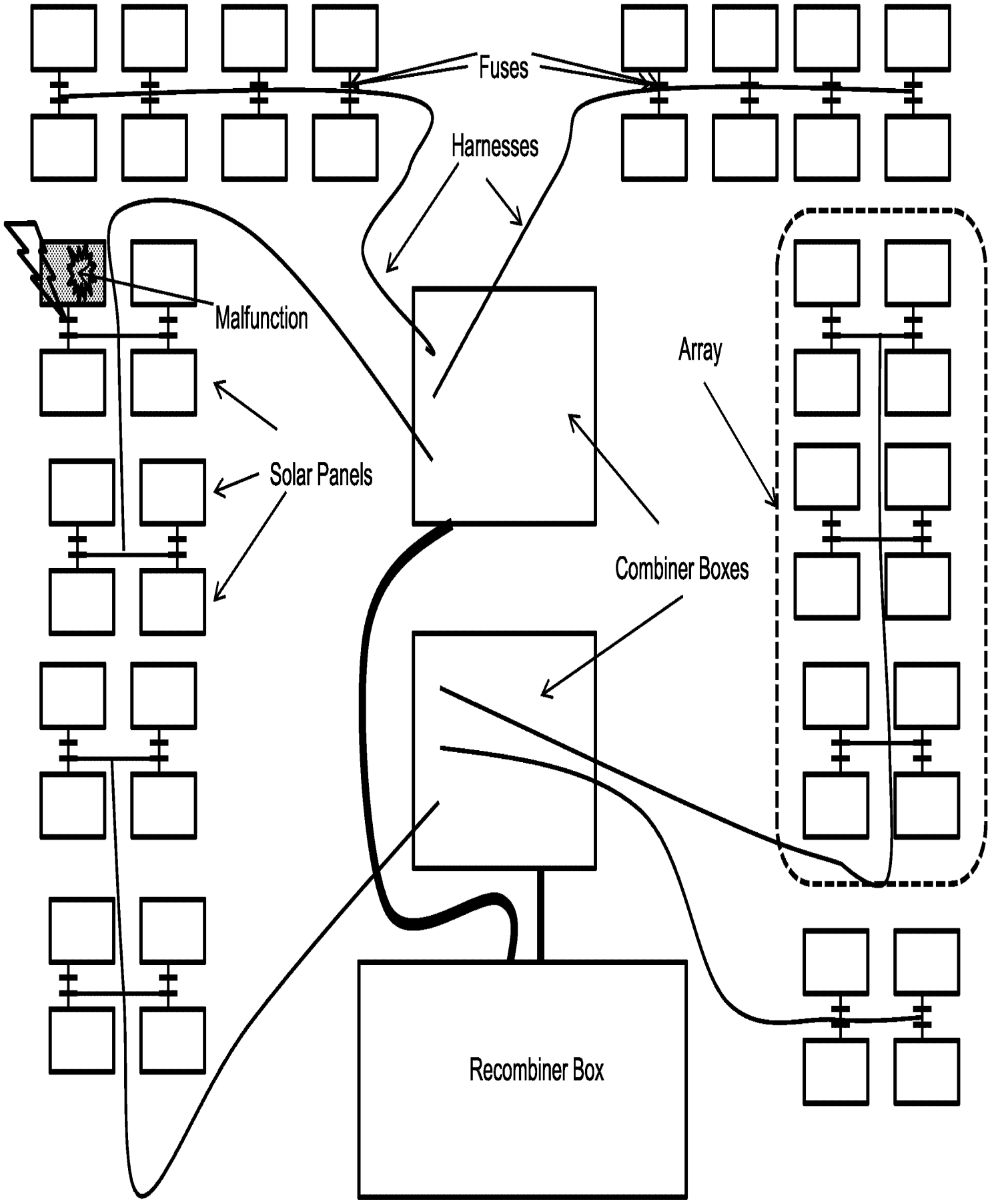


FIG. 4

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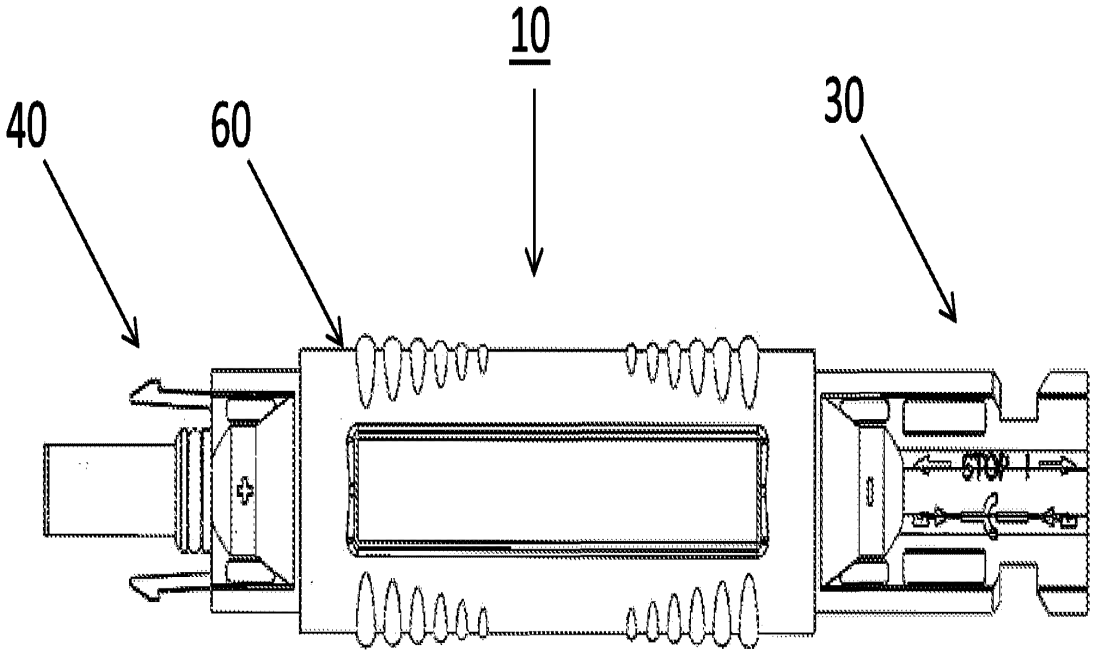


FIG. 5

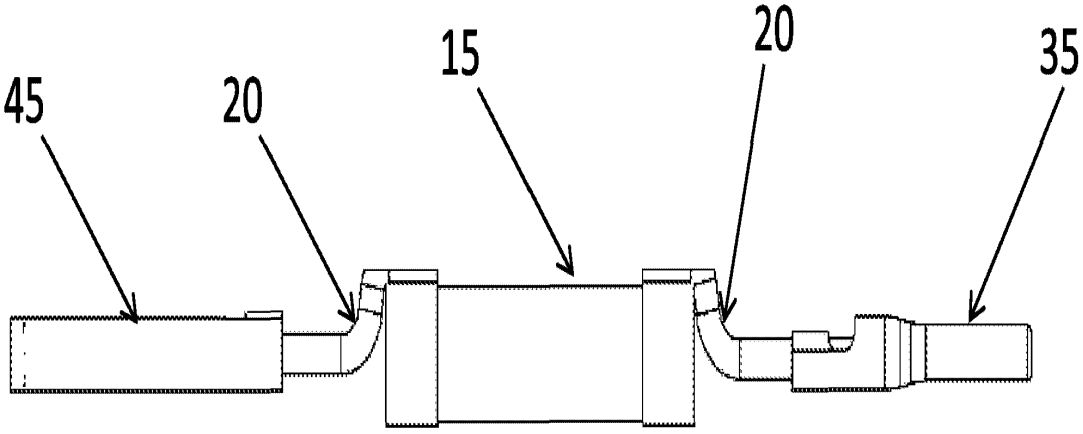


FIG. 6

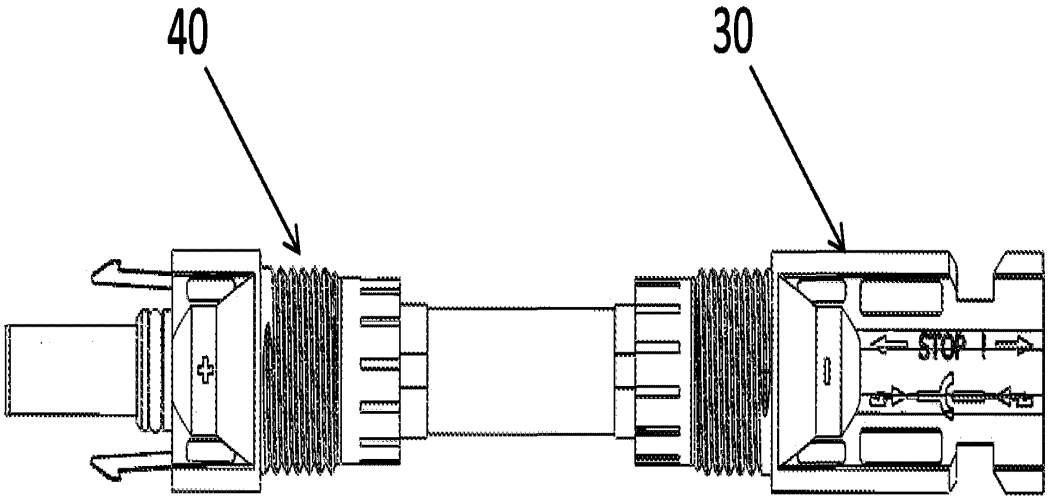


FIG. 7

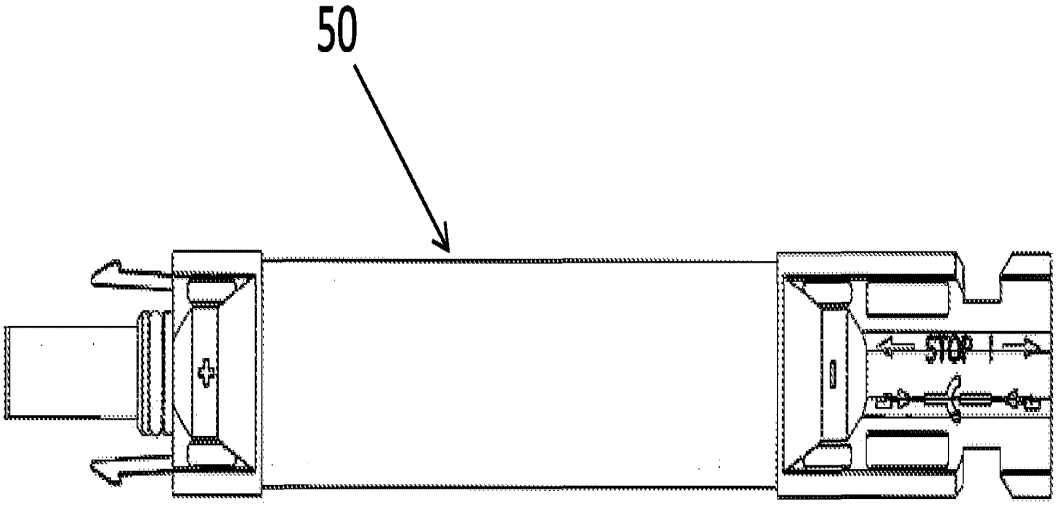


FIG. 8

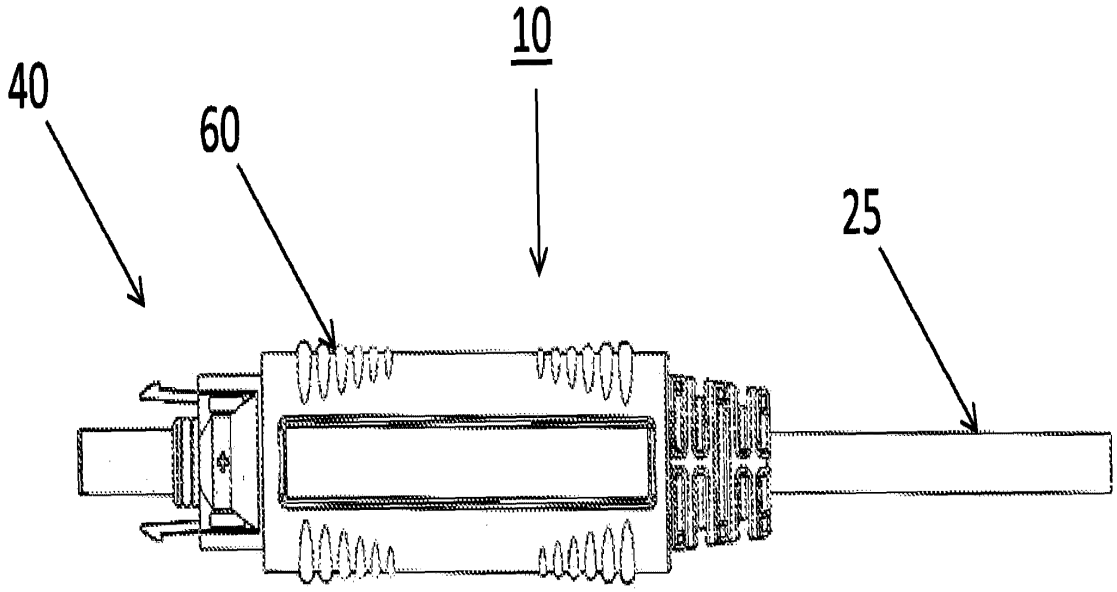


FIG. 9

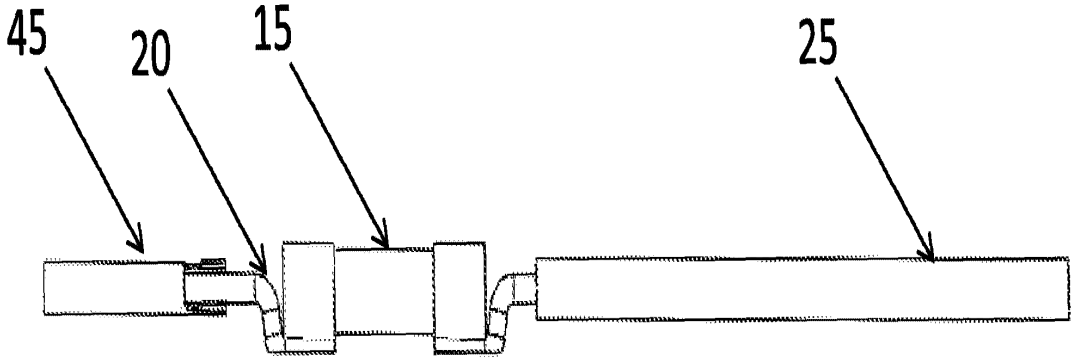


FIG. 10

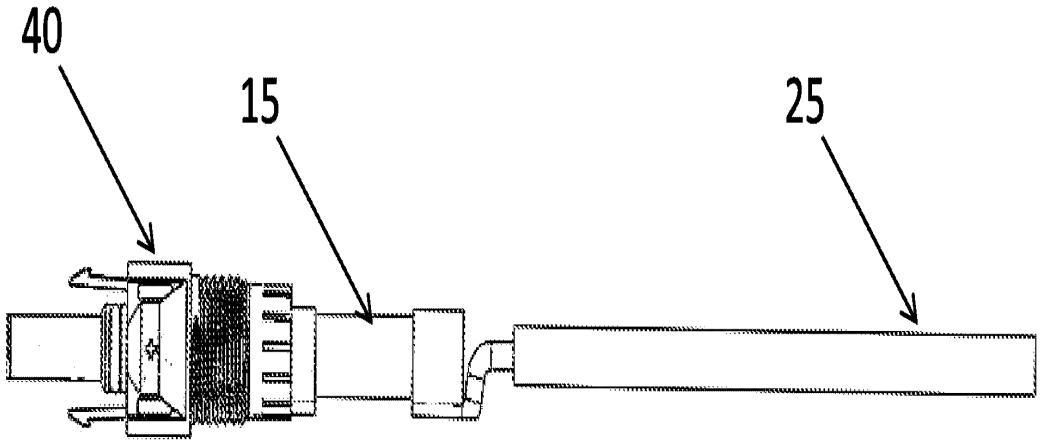


FIG. 11

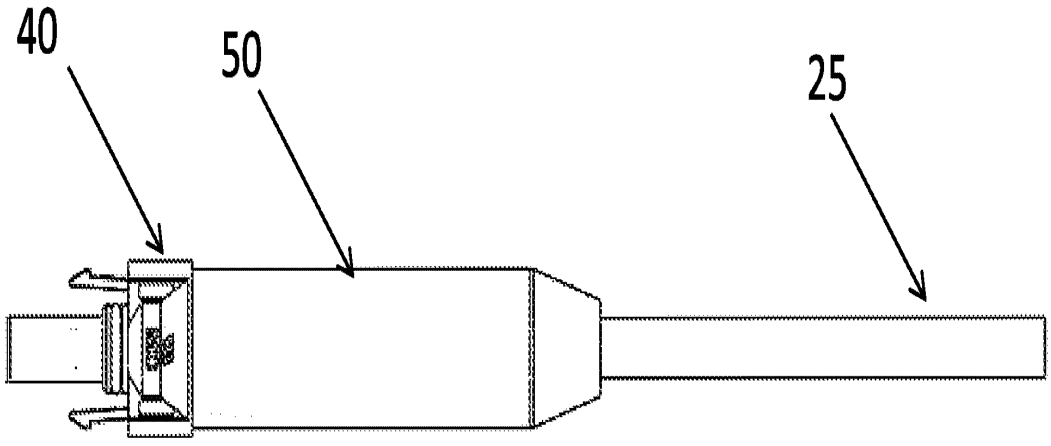


FIG. 12

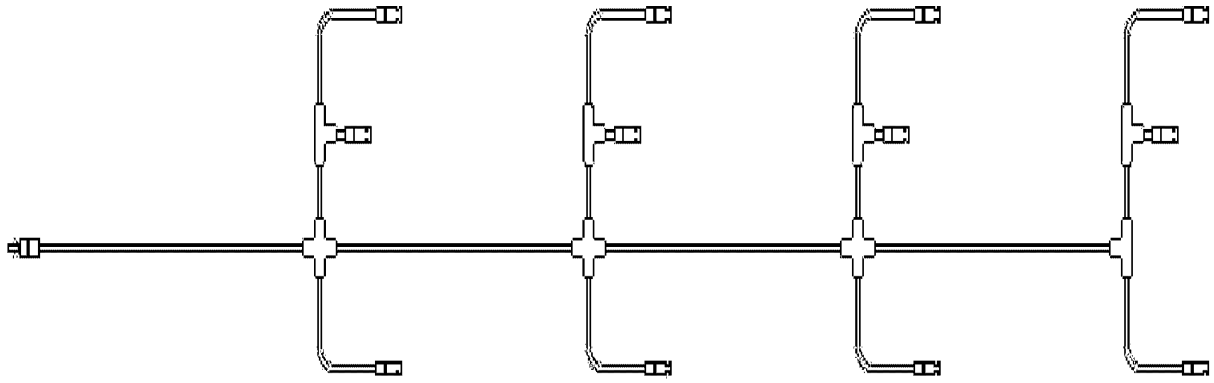


FIG. 13

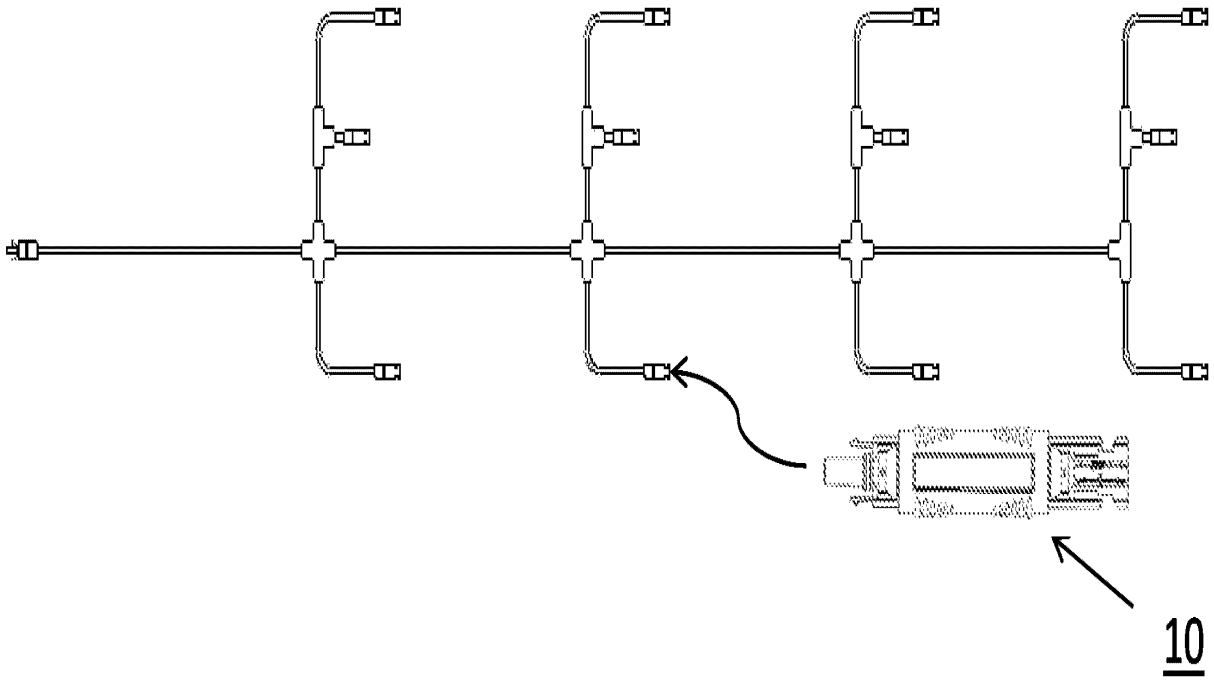


FIG. 14

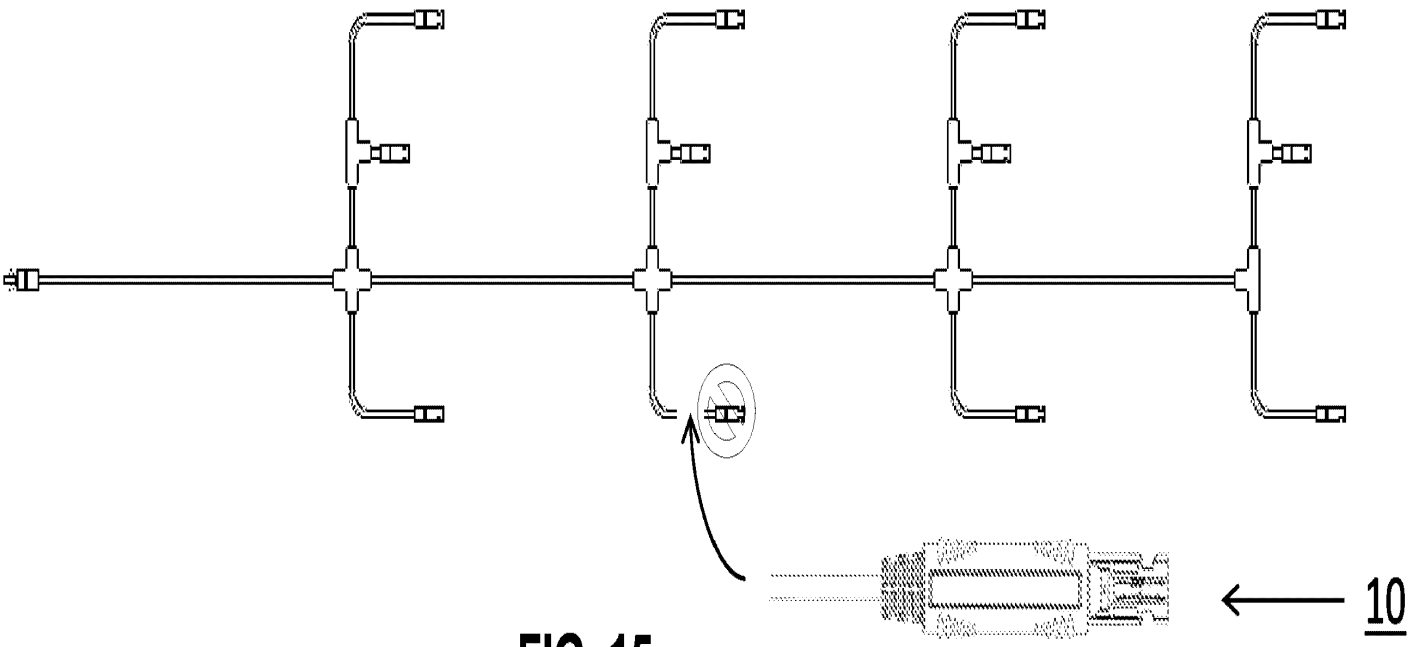


FIG. 15

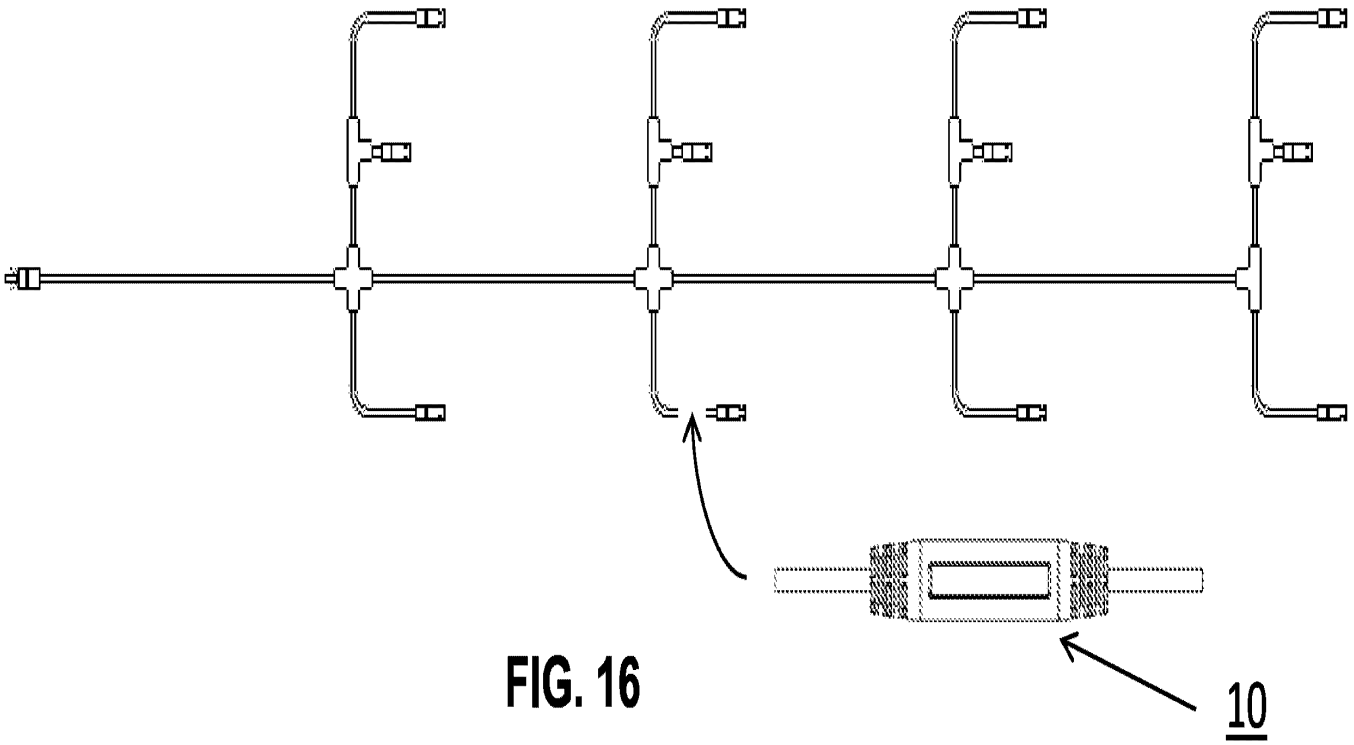


FIG. 16

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	PHOTOVOLTAIC IN LINE FUSE CONNECTOR ASSEMBLY HAVING AN INTEGRAL FUSE

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTOR

Inventor: Dean Solon Date (Optional): 6/2/14

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.