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| APPLICATION NO.                     | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.     | CONFIRMATION NO. |
|-------------------------------------|-------------|----------------------|-------------------------|------------------|
| 17/292,555                          | 05/10/2021  | Bret W. Ludwig       | 81139US007/083749-118   | 8426             |
| 200663                              | 7590        | 02/03/2025           | EXAMINER                |                  |
| Vorys-Solventum                     |             |                      | ANTISKAY, BRIAN MICHAEL |                  |
| Vorys, Sater, Seymour and Pease LLP |             |                      | ART UNIT                |                  |
| 909 Fannin St.                      |             |                      | PAPER NUMBER            |                  |
| 27th Floor                          |             |                      | 3794                    |                  |
| HOUSTON, TX 77010                   |             |                      | NOTIFICATION DATE       |                  |
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|                                     |             |                      | 02/03/2025              |                  |
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**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):

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VDocketHou@vorys.com  
vorys\_docketing@cardinal-ip.com

|                              |                                      |                                      |                                 |
|------------------------------|--------------------------------------|--------------------------------------|---------------------------------|
| <b>Office Action Summary</b> | <b>Application No.</b><br>17/292,555 | <b>Applicant(s)</b><br>Ludwig et al. |                                 |
|                              | <b>Examiner</b><br>Brian M Antiskay  | <b>Art Unit</b><br>3794              | <b>AIA (FITF) Status</b><br>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 08/14/2024.  
☐ 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) 1-2,4-6 and 23-39 is/are pending in the application.  
5a) Of the above claim(s) 29-39 is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-2,4-6 and 23-28 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](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto: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: \_\_\_\_\_

## **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. Claims 1-2, 4-6, and 23-39 are currently pending. Claims 7-22 were canceled, and claims 29-39 are withdrawn by original presentation (see below).

### ***Election/Restrictions***

Newly submitted claims 29-39 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: they would have been included as Group IV if presented originally, and would have been withdrawn for the same reason as they include the same technical features (conductive substrate, layer of conductive particles, a supporting layer, and an electrical connector) as claim 1 of Group I (confirmed in the Remarks on 08/14/2024).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 29-39 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

To preserve a right to petition, the reply to this action must distinctly and specifically point out supposed errors in the restriction requirement. Otherwise, the election shall be treated as a final election without traverse. Traversal must be timely. Failure to timely traverse the requirement will result in the loss of right to petition under

37 CFR 1.144. If claims are subsequently added, applicant must indicate which of the subsequently added 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 or pre-AIA 35 U.S.C. 103(a) of the other invention.

***Claim Rejections - 35 USC § 112***

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.

Claim 24 is 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 applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.

Claim 24 recites that the first conductive coating covers more of the electrically conductive particles than the second conductive coating, however the first coating is the coating mentioned in claim 1, which is the portion of the conductive particle already. The conductive particle is made of a ceramic coating with conductive material (the first coating as redefined in claim 24). The part that is unclear is how can the first conductive coating cover more of the conductive particle when it is already part of the conductive

particle. It is assumed that in line two, the “electrically conductive particles” should probably be “the ceramic particles”.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**Claim 1-2, 6, 23-24, and 27-28 are rejected under 35 U.S.C. 103 as being unpatentable over Hatakeyama et al. US Publication 2017/0323698 (hereinafter Hatakeyama) in view of Dietz et al. US Publication 2004/0204658 (hereinafter Dietz) and in further view of Derry WO 2017/112394 (hereinafter Derry).**

Regarding claim 1, Hatakeyama discloses an electrode comprising: an electrically conductive substrate with a first major surface and a second major surface (2); a discontinuous layer of electrically conductive particles (elements 4 as per Figures 1-2) wherein at least some of the electrically conductive particles are in contact with the second major surface of the conductive substrate (Figures 1-2) and wherein the electrically conductive particles comprise ceramic particles includes a conductive coating ([0086] which details both silica and quartz); a supporting layer with a first major surface and a second major surface (5), where the first major surface of the supporting layer is in contact with the second major surface of the electrically conductive substrate (Figures' 1-2, elements 2, 5), and the supporting layer envelopes the electrically conductive particles such that the at least one part of at least one of the electrically conductive particles protrudes from the second major surface of the supporting layer (Figures 1-2 at elements 4-5), but is silent on the particles being pointed for penetration as well as the electrical connector.

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