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One LLP 23 Corporate Plaza Suite 150 Newport Beach, CA 92660			DIGNAN, MICHAEL L	
			ART UNIT	PAPER NUMBER
			1723	
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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.

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DETAILED ACTION

Notice to Applicant

1. In the amendment dated 9/13/2022, the following has occurred: Claim 1 has been amended.
2. Claims 1-4 are pending and are examined herein.
3. 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 Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

(a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.
5. 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.
6. Claims 1-4 are rejected under 35 U.S.C. 112(a) as failing to comply with the written description requirement and under 112(b) for indefiniteness. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for applications subject to pre-AIA 35 U.S.C. 112, the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 has been amended to require “a top electrical connector [...] a bottom electrical connector [...] at least one bus tube; at least one pair of battery cells coupled to each other and connected to said bussing housing at the at least one bus tube.” This language is not found in the specification as filed. Applicant presumably relies upon the instant figures for support for these amendments, but the figures do not show “electrical connectors” at top and bottom that are differentiated from “bus tubes” or “bus links” **160/170/180**. It is

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therefore unclear what positive structural elements are required by the claims—are “connectors” required separate from a “bus tube” and what relation do they have to said tube? Claim 2 is also rejected for being indefinite with respect to which “connectors” it refers. It is unclear whether it refers to the “electrical,” and/or “mechanical,” and/or “bus tube” of claim 1. There is no clear support in the specification for copper mechanical connectors. The claims have been interpreted to require a bus tube that links battery cells to each other and to a bussing housing, wherein the “electrical connectors” as claimed can be parts of the bus tube(s).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

(a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

8. **Claims 1-4 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Harris (US**

2018/0358667 to Harris et al.).

Regarding Claim 1, Harris teaches:

- a stackable battery system with at least two bussing housings **210** (Fig. 10, paras 0046-0048)
- each housing having a top electrical connector **460M** and a bottom electrical connector **460F** designed to mate with the top connector of another housing (Fig. 10A, para 0047)
- a top mechanical connector **810M** and a bottom mechanical connector **810F** operable to hold said bussing housing motionless in at least one dimension relative to another bussing housing

when in close proximity (see Fig 10A showing mechanical interference fit for the two ports **820**, and para 0048)

- wherein the electrical connectors **460** include a “bus tube” within the broadest reasonable interpretation of that phrase, being a tube-shaped female connector that connects battery cells in one module to battery cells in another module
- wherein the “bus tube” connectors couple battery cells to each other and “to said bussing housing” by virtue of the fact that the cells are “connected” to the bus system and the bus system is “connected” to the housing
- at least one battery cell connected to each bussing housing (claim 1, para 0043, etc.)
- wherein said bussing housing together form a stacked batter module (Fig. 10A)

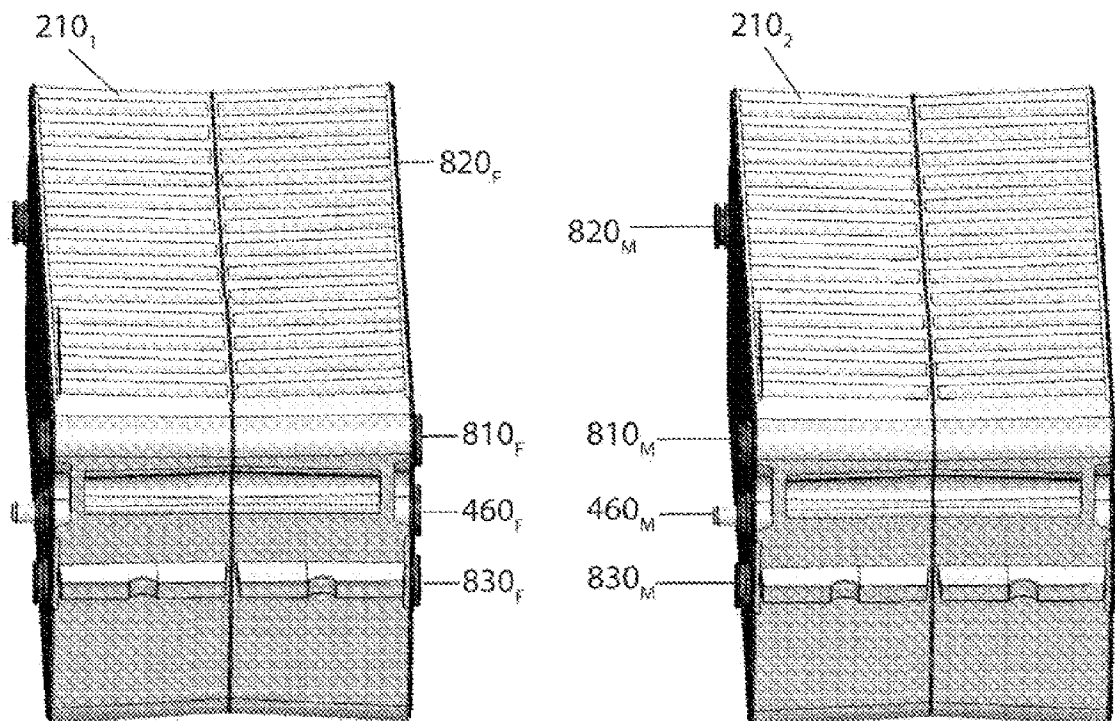


FIG. 10A

Regarding Claim 2, Harris teaches:

- copper buses (para 0038)

Regarding Claim 3, Harris teaches:

- wherein the bussing housing comprises an intumescent material (para 0045)

Regarding Claim 4, Harris teaches:

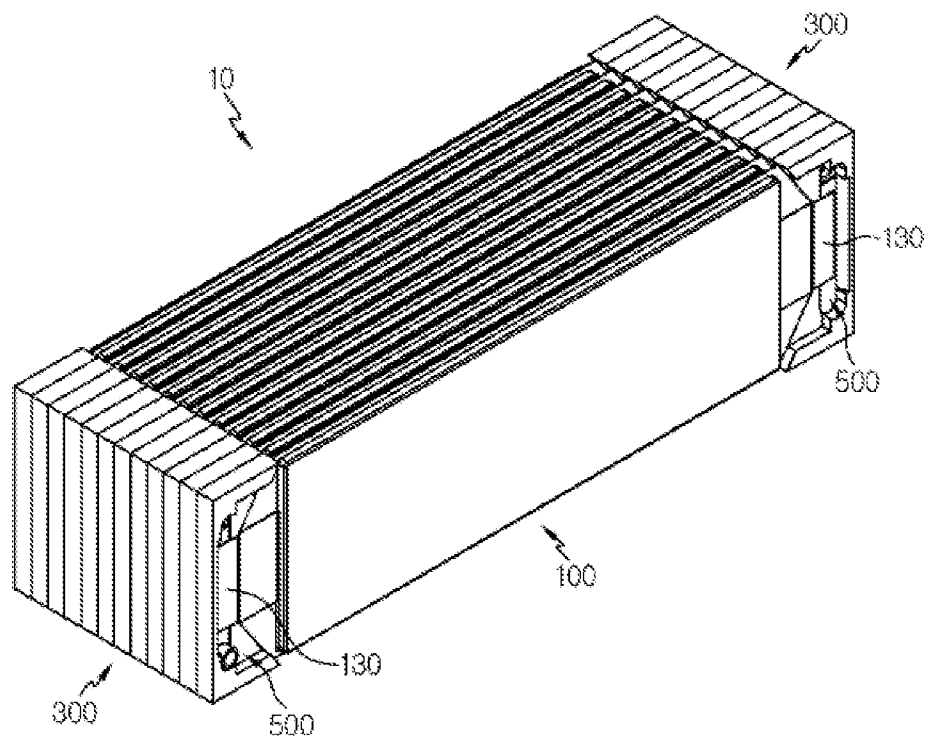
- sensors for monitoring and controlling (paras 0036 and 0044)

9. **Claim 1 is rejected under 35 U.S.C. 102(a)(2) as being anticipated by Shin (US 2021/0083241 to Shin et al.).**

Regarding Claim 1, Shin teaches:

- a stackable battery system comprising bussing housings **300** (Fig. 1, para 0043)

FIG. 1



- with top and bottom electrical connectors **500**, including a bus tube that couples cells to each other and to the bussing housings (Figs. 6 and 13, para 0051 etc.)

- wherein the bus tube **560/570** functions as top and bottom mechanical connector to connect adjacent housings (e.g. Fig. 14)

Claim Rejections - 35 USC § 103

10. 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.

11. The factual inquiries for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or

nonobviousness.

12. Claims 2-4 are rejected under 35 U.S.C. 103 as being unpatentable over Shin (US 2021/0083241 to Shin et al.).

Although Shin does not explicitly teach copper connects, copper was a well-known material used for connectors and would have been obvious to use. A structure or method step that is obvious to try— such as one that is chosen from a finite number of identified, predictable solutions, with a reasonable expectation of success, has been found to be obvious. See *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007).

Similarly, although Shin does not teach the material for the bussing cartridges, using an intumescent would have been obvious since polymer/resin housings using intumescent material were conventional in the art. Providing battery sensors for measuring e.g. voltage was also conventional in the art for battery packs to manage state of charge and charging/discharging operations. Use of a known technique to improve similar devices, methods, or products in the same way, and applying a known technique to a known device, method, or product ready for improvement to yield predictable results has been found to be obvious. See *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007).

Response to Arguments

13. The arguments submitted 9/13/2022 have been considered but do not place the application in condition for allowance. The claims have been rejected under § 112 for new matter and indefiniteness. Applicant's arguments that Harris does not teach a "bus tube" as claimed as unpersuasive, since Harris teaches a "tube" within the broadest reasonable interpretation of the phrase that connects cells and housing to each other.

Conclusion

14. **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

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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.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Dignan, whose telephone number is (571) 272-6425. The examiner can normally be reached from Monday to Friday between 10 AM and 6:30 PM. If any attempt to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Milton Cano, can be reached at (313)446-4937. Another resource that is available to applicants is the Patent Application Information Retrieval (PAIR). Information regarding the status of an application can be obtained from the (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAX. 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, please feel free to contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). Applicants are invited to contact the Office to schedule an in-person interview to discuss and resolve the issues set forth in this Office Action. Although an interview is not required, the Office believes that an interview can be of use to resolve any issues related to a patent application in an efficient and prompt manner.

/MICHAEL L DIGNAN/
Examiner, Art Unit 1723