

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHENZHEN XINZEXING E-COMMERCE CO., LTD.,
Petitioner,

v.

SHENZHEN CARKU TECHNOLOGY CO., LTD.,
Patent Owner.

Case IPR2024-00222
Patent No. 9,643,506

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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EXHIBITS

EX1001	U.S. Patent No. 9,643,506 (“the ’506 patent”)
EX1002	Prosecution History of the ’506 patent
EX1003	Declaration of Dr. Gary Woods
EX1004	Continuation-in-part Parent App. No. 14/298,986
EX1005	Chinese Pub. No. CN102005796A to Chen
EX1006	Certified English Translation of Chinese Pub. No. CN102005796A (“Chen”)
EX1007	U.S. Patent No. 7,279,640 (“White”)
EX1008	U.S. Publication No. 2010/0301800 (“Inskeep”)
EX1009	U.S. Patent No. 4,969,834 (“Johnson”)
EX1010	U.S. Publication No. 2012/0068662 (“Durando”)
EX1011	U.S. Patent No. 7,348,101 (“Gozdz”)
EX1012	PCT Publication No. WO2016/003471 (“Nook”)
EX1013	U.S. Publication No. 2016/0072329 (“Miller”)
EX1014	U.S. Publication No. 2009/0218988 (“Richardson”)
EX1015	U.S. Patent No. 6,404,168 (“Shoji”)
EX1016	Shenzhen Carku Technology Co., Ltd. v. Shenzhen Xinxexing E-commerce Co., Ltd., Case No. 1-22-cv-03403 (NDIL), Document 1 (Complaint), June 29, 2022
EX1017	Shenzhen Carku Technology Co., Ltd. v. Shenzhen Xinxexing E-commerce Co., Ltd., Case No. 1-22-cv-03403 (NDIL), Document 19 (Service by Publication), October 4, 2023
EX1018	PCT Publication No. WO2013/082982 (“predecessor PCT”)
EX1019	Chinese Pub. No. CN102496985A (“predecessor Chinese application”)

EX1020	U.S. Publication No. 2007/0285049 (“Krieger”)
EX1021	U.S. Publication No. 2009/0230783 (“Weed”)
EX1022	U.S. Publication No. 2010/0102772 (“Smith”)
EX1023	PCT Publication No. WO2012/075769A1 (“Chen PCT”)
EX1024-1099	[RESERVED]
EX1100	Second Declaration of Dr. Woods
EX1101	Transcript of January 16, 2025 Deposition of Dr. Ricketts
EX1102	U.S. Patent No. 5,668,461 (“Hancock”)
EX1103	U.S. Patent No. 6,478,628 (“Ming”)
EX1104	U.S. Patent No. 9,407,024 (“Wu”)
EX1105	Wagan Tech, <i>Self Charge Auto Jump</i> (2004), available at https://www.invertersupply.com/media/data/wagan-2045.pdf
EX1106	U.S. Publication No. US2012/0081067 (“Burrell”)

I. CLAIM CONSTRUCTION

No constructions that substitute language for the original claim terms are necessary to resolve invalidity given the remarkable overlap between the preferred embodiment of the '506 patent and the prior art combinations of Grounds 1A-3E. Pet., 10. Nevertheless, Petitioner addresses PO's proposed constructions here, which contradict the '506 patent itself and improperly inject ambiguity into otherwise ordinary phrases. EX1100, ¶¶7-20; *Axonics, Inc. v. Medtronic, Inc.*, 75 F.4th 1374, 1380-84 (Fed. Cir. 2023); *Apple Inc. v. Andrea Elecs. Corp.*, 949 F.3d 697, 706-07 (Fed. Cir. 2020).

A. “first operating mode” (claims 1, 21)

PO erroneously seeks to import a limitation that requires the “first operating mode” to be an operating mode where the second current capable of starting a vehicle engine through the pair of output terminals is “*inhibited*.” POR, 25-27; EX1100, ¶¶7-12. Such an importation is an invitation for legal error.

First, this construction is inconsistent with the context of the other claim language. PO argues that the first operating mode occurs when a fuse to the output terminals is “blown” and thus “inhibited.” POR, 5, 25-27; EX1100, ¶8. Of course, in that state, the charger would no longer have any second “current path to the battery pack different from” the first current path (Element [1.3]) nor the “second current path” structure (Element [21.3]). EX1100, ¶8; EX1101, 34:3-20 (“there’s not a

path”). A blown fuse is the opposite of a “current path.” PO ignores this basic truth. Moreover, PO’s construction is surely inconsistent with the dependent claims, including at least claims 14 and 28, which specify “a controller”—not a blown “fuse”—is the structure that controls the “operating mode.” EX1001, Cl. 14, 28; EX1100, ¶8.

Second, PO’s construction is inconsistent with the specification. The specification describes different options to operate in the “first operating mode,” none of which demand that the second current path must be “inhibited” (e.g., the fuse must be “blown”). EX1001, 4:18-29; EX1100, ¶9. Again, the specification describes “a controller” (not a “fuse”) to control the battery’s “operating mode”—further highlighting PO’s flawed theory. EX1001, 4:20-23; EX1100, ¶9. Indeed, PO essentially concedes the lack of a priority claim by citing only to the “new matter” that was added with the filing of the ’506 patent specification in 2016—none of which mandate that fuse must be “blown” for existence of the first operating mode. POR, 25-26 (relying only on columns 4-5); EX1101, 15:2-16:22, 153:5-154:21.

And even if the ’506 patent did describe any example in which the fuse must be “blown” for the existence of the “first operating mode” (which it does not), nothing from PO’s cited text somehow mandates importation of a mere “embodiment” into the claims. EX1001, 3:8-9 (“an embodiment”), 3:12-14 (“one

embodiment”), 3:34-37, 4:18-26, 5:58-62, 6:14-15. Indeed, it would be a reversible error to assume otherwise. *Hill-Rom Servs. v. Stryker Corp.*, 755 F.3d 1367, 1371-73 (Fed. Cir. 2014) (“Absent such language, we do not import limitations”). The POR never alleges any instance of lexicography or disclaimer. Rather, the straightforward language of “first operating mode” requires no more than the battery pack being “configured to output a first current” through one or more output ports—regardless of the second current being enabled or not. EX1100, ¶¶10-11; *Blackbird Tech LLC v. ELB Elecs., Inc.*, 895 F.3d 1374, 1377 (Fed. Cir. 2018) (“By its plain language ...”); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (“avoid the danger ...”). PO disregards all of this precedent.

Third, PO relies upon a “claim differentiation” theory that flips the law on its head by arguing the existence of a **dependent** claim (claim 3) mandates a narrower construction of its **independent** claim. POR, 25-27. That is not how claim differentiation works. *Hill-Rom*, 755 F.3d at 1376 (“Under the principles of claim differentiation, the independent claims are presumed to be broader”). Here, claim 1 must be understood so that the “first operating mode” can output the first current regardless of whether the “second operating mode” is enabled—because the claim 1 is presumed to not include the “third operating mode” of claim 3. *Id.* Indeed, PO’s construction results in a bizarre result in which some version of a charger can “practice all of [claim] 3” but “would not meet claim 1.” EX1101, 43:23-44:14,

30:9-32:9; EX1100, ¶¶11-12. Under scrutiny, this flawed construction collapses.

B. “second operating mode” (claims 1, 21)

PO’s errors in its construction of “second operating mode” are similar to its errors for the “first operating mode.” *Supra*, §I.A. Here again, PO erroneously seeks to import a limitation that requires the “second operating mode” to be an operating mode where the first current output must be “*inhibited*.” POR, 27; EX1100, ¶¶13-16.

First, PO again relies upon the same flawed theory of “claim differentiation” that flips the law on its head. POR, 27; EX1100, ¶14. To be clear, the presence of a *dependent* claim (claim 3) cannot be used to mandate a narrower construction for its *independent* claim. *Supra* §I.A. The law mandates the opposite. *Hill-Rom*, 755 F.3d at 1376. As explained above, claim 1’s “second operating mode” must be more broadly interpreted in a manner that encompasses both options—one in which a “third operating mode” exists and one in which it is not included. *Supra* §I.A.

Second, there is no support in the specification for PO’s narrow construction. The specification never describes “inhibiting” the first current at all—certainly not when the battery pack is “configured to output a second current” in the second operating mode. EX1100, ¶15. PO relies upon the FIG. 3 embodiment in which the user can control the “MCU circuit 7” to “flexibly choose *a particular output voltage [singular]* for the charger (19 V, 12 V, *or* 5 V) to supply current source for a

particular instrument.” EX1001, 7:30-41; EX1101, 55:2-57:3. But choosing one output voltage (e.g., which version of the “first current” will be enabled) is different from “inhibiting” the first current altogether. EX1100, ¶15. At most, in reference to FIG. 1 (“new matter” in 2016), the specification vaguely describes “a controller” without any disclosure of that controller somehow “disabling” the first current to the output ports. EX1001, 4:18-29. Also, column 4 (“new matter” in 2016) explains that “[i]n some embodiments” the charger may automatically switch operating modes when it detects a load (col. 4:23-29), but this continuous capability to detect whether a load is present at an output port shows that the first operating mode is fully enabled (“configured to output a first current”)—not “inhibited.” EX1100, ¶15.

Finally, even if the ’506 patent did describe any example in which the first current was fully disabled (which it does not), nothing from PO’s cited text somehow mandates importation of a mere “embodiment” into the claims. *Hill-Rom*, 755 F.3d at 1371-73. The claim text for “second operating mode” simply describes the battery pack being “configured to output a second current” through the pair of output terminals. EX1100, ¶16. Nothing more. *Blackbird*, 895 F.3d at 1377; *Phillips*, 415 F.3d at 1323. PO’s proposal defies this precedent.

C. “a current path to the battery pack different from that of the at least one output port to the battery pack” (claim 1)

PO erroneously views the simple phrase “different from” in an oddly complex

manner—seeking to import a limitation that requires a second current path “*that does not overlap*” the first current path—not even any “partial” overlap among otherwise different paths. POR, 27-30; EX1100, ¶¶17-20. Such a construction suffers from at least three fatal errors.

First, PO cites to col. 4:56-58 for specification support of this construction, but this simply proves PO is conflating the claim phrase (“different from”) with the narrower phrase used in the specification (“different *and separate* from”). POR, 29; EX1100, ¶18 (“these two phrases do *not* have an identical scope and meaning”); EX1101, 64:25-69:18. PO’s theory requires that the two words “and separate” in col. 5:46-48 must be superfluous or meaningless because the mere phrase “different from” establishes the same thing—that the paths “do not overlap” at all. EX1100, ¶18. Next, as explained in §I.A (*supra*), PO’s citation to the FIG. 3 “embodiment” and col. 5:46-48 (describing the FIG. 1 “embodiment”) is not enough to justify importation of a mere embodiment into the claims. *Hill-Rom*, 755 F.3d at 1371-73.¹

¹ There is no dispute that this teaching from column 5:46-48 provided support for a motion to amend here—narrowing the claims to require current paths that are “different and separate” to theoretically describe distinct paths that do not overlap. This option was waived. The Board should not rewrite claims now. *SuperGuide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 874-875 (Fed. Cir. 2004) (The

Even if the Board was inclined to import the embodiment in col. 5:46-57, this text does not mandate absolutely zero “overlap” of the current paths, but instead supports any arrangement of the current paths (even with some initial overlap) so long as the “first protection circuit 107” does “not affect the current outputting through the pair of output terminals 109.” EX1001, 5:46-57; EX1100, ¶18.

Second, PO assumes that the “schematic block diagram[s]” in FIG. 1 and FIG. 3 conclusively depict the physical “current paths” rather than simply showing the functionality of the interconnected blocks. POR, 27-30. But FIGS. 1 and 3 are each a “schematic block diagram” that are not consistent with the “circuit diagrams” at FIGS. 4-11 (showing actual current paths to various outputs). EX1001, 3:8-14; EX1100, ¶19; EX1101, 70:13-72:2, 144:3-21 (admitting that a POSITA would not interpret FIG. 3 in a “literal” manner). The PO never relies upon the actual current paths depicted in the “circuit diagrams” at FIGS. 4-11 of the ’506 patent. EX1001, 3:15-30; POR 27-30. Of course, that is because those circuit diagrams never depict any current path including any fuse nor any output terminals for jumpstarting a vehicle—instead only showing the low current outputs (e.g., 19V, 12V, and 5V output circuits). EX1001, FIGs. 4-11; EX1100, ¶19; EX1101, 72:10-73:22.

written description, however, is not a substitute for, nor can it be used to rewrite, the chosen claim language. ‘Specifications teach. Claims claim.’”).

Third, the “different from” limitation does not appear in independent claim 21 at all. EX1100, ¶20. Here PO demands the Board should effectively amend claim 21 to include “different from” element and then, worse yet, further import the “different and separate from” language from column 5:46-48. POR, 27 (“Claims 1, 21”). Again, PO waived its opportunity for a motion to amend claim 21. The Board should not rewrite claims now. *SuperGuide*, 358 F.3d at 874-875.

Simply put, the “different from” element does not mandate that the current paths must never partially overlap—just that they must be different from one another in some unspecified manner. The Board need not accept PO’s invitation for error.

II. CHEN ANTICIPATES THE CHALLENGED CLAIMS 1 [GROUND 1(A)]

A. Chen Discloses Elements [1.3]/[21.2]-[21.3]

The POR’s argument that Chen fails to disclose Elements [1.3]/[21.2]-[21.3] rests on PO’s erroneously narrow constructions. POR 31-33; *supra*, §I.C. But the actual language of Elements [1.3]/[21.2]-[21.3] never mandates that the first current path “does not overlap” with the second current path. *Supra*, §I.C. Thus, after PO’s flawed construction is properly set aside, Chen discloses Elements [1.3]/[21.2]-[21.3] for the reasons previously established in the Petition. Pet. 16-20; EX1100, ¶¶21-22.

But even if PO’s improper construction was applied, PO overlooked that Chen nevertheless discloses Elements [1.3]/[21.2]-[21.3]. *Axonics*, 75 F.4th at 1380-84.

PO's entire argument is premised upon a myopic view of Chen's Figure 1 in isolation. POR, 31-33 ("a single current path shared by ..."). But the Petition cited so much more. Pet. 16-20 (citing to Chen's Figures 4-7 and [0025]-[0026] in addition to Figure 1); EX1101, 79:7-18. To the extent one sought to determine if the actual current paths were entirely non-overlapping (as contended by PO), a POSITA would have recognized that physical layouts of Chen's current paths are plainly depicted in FIGs. 4-7. EX1100, ¶23; EX1101, 80:3-81:22 (recognizing the first path from "BAT+" to Chen's USB outputs (FIG. 7) and the second path from "B1+ ... to OUT+1" (FIG. 4)).

For example, FIG. 7 shows the first current path from the battery ("BAT+") to Chen's USB outputs:

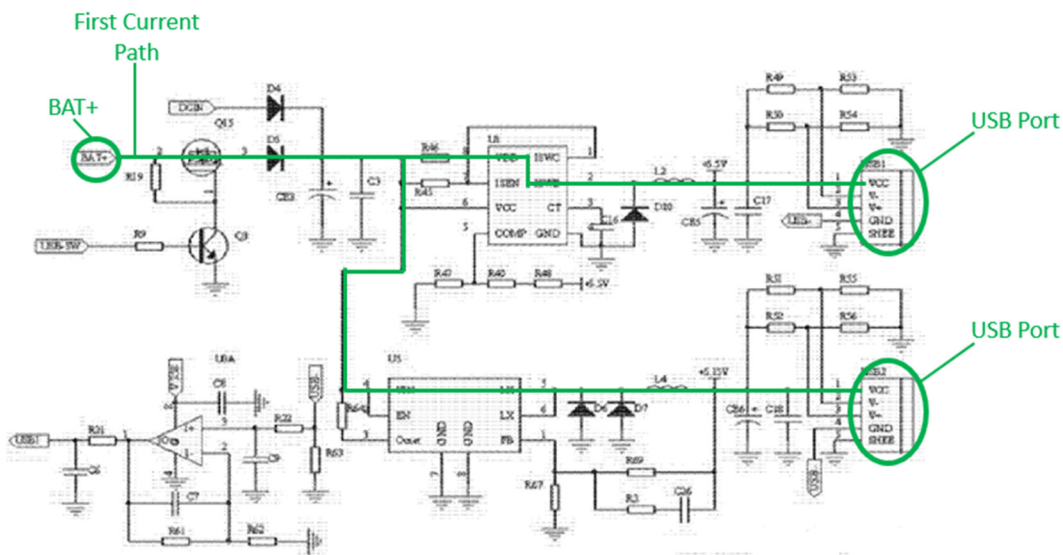


FIG. 7

EX1006, FIG. 7 (annotated), [0026]-[0027]; EX1100, ¶24; EX1101, 80:3-23. And Chen's FIG. 3 confirms that this "BAT+" node in FIG. 7 is from Chen's battery:

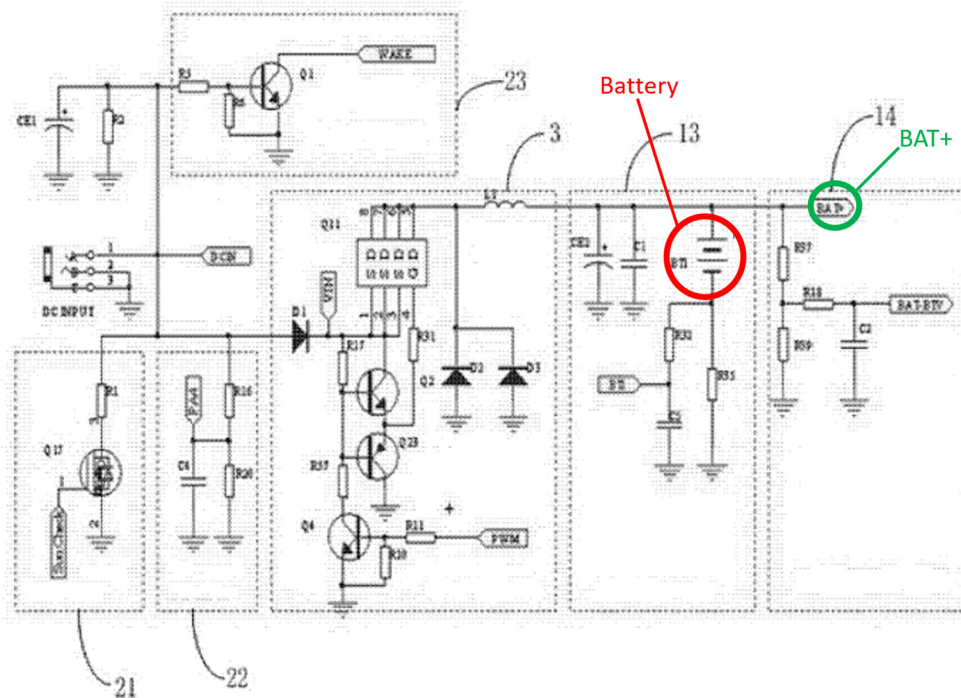


FIG. 3

EX1006, FIG. 3 (annotated), [0026]-[0027]; EX1100, ¶24.

Likewise, Chen's FIGs. 5-6 show the current path from the battery "BAT+" node to the DC multi-gear output (the 8.4 V and 9.5 V outputs in FIG. 5; the 12 V, 16 V, 19 V and 24 V outputs in FIG. 6):

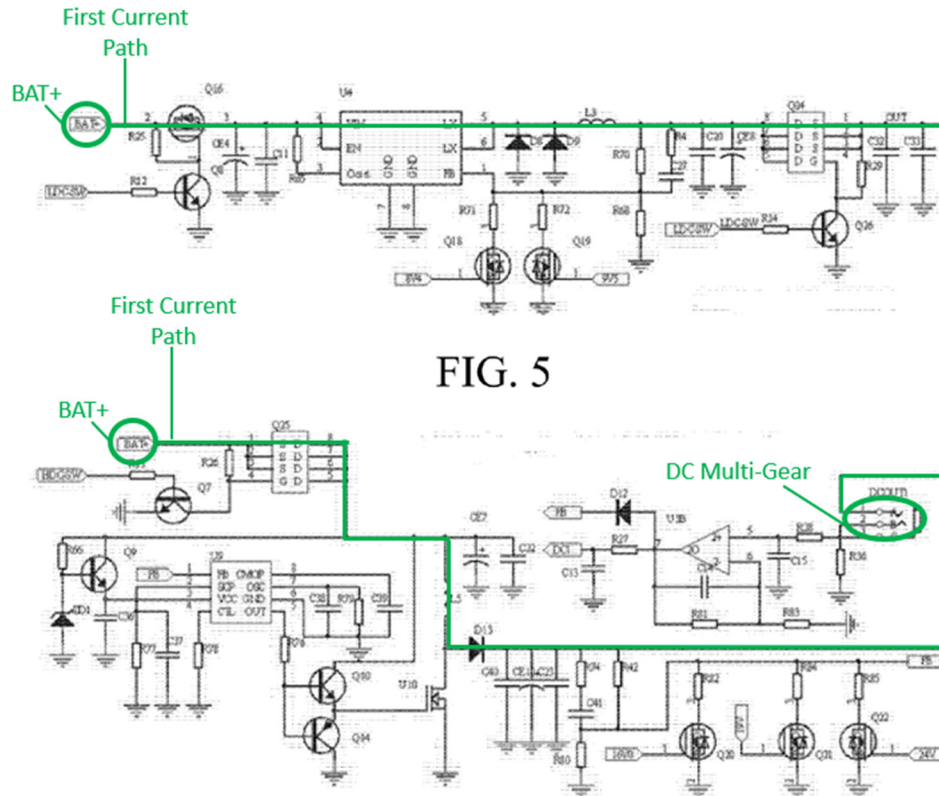


FIG. 5

FIG. 6

EX1006, FIGs. 5-6 (illustrating the path from “BAT+” to the DC boost and buck output control circuits), [0026] (“complete the multi-gear voltage output”), EX1100, ¶25.

Finally, Chen’s FIG. 4 shows a non-overlapping current path for the jumpstart current when the relay K1 is closed—namely, the current path from a battery node (“B1+”) to the high-current output terminal (“OUT+1”):

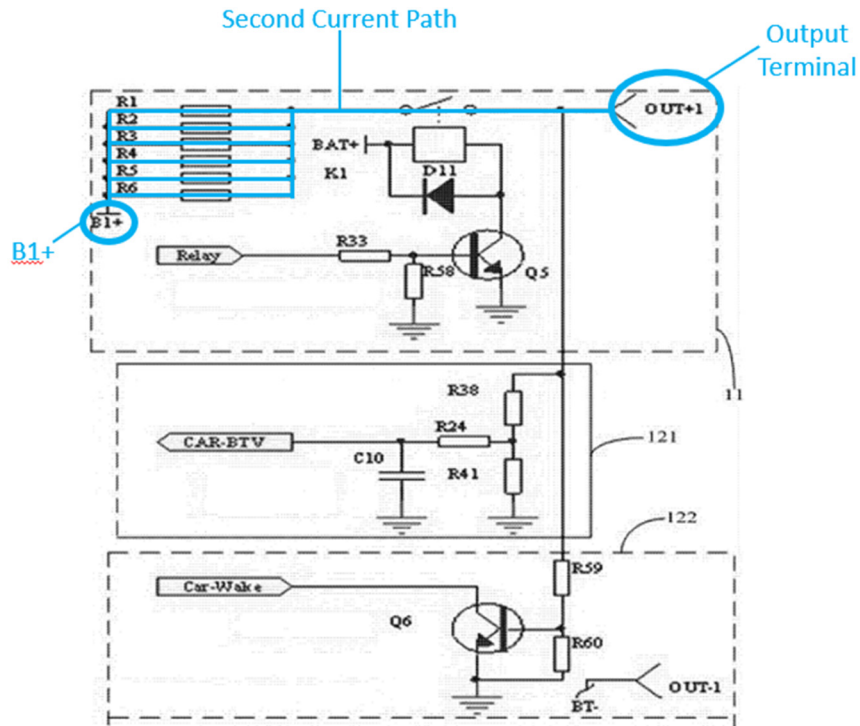


FIG. 4

EX1006, FIG. 4 (annotated), [0025]-[0026]; EX1100, ¶26; EX1101, 80:25-81:22.

Thus, even if PO’s narrow construction was applied, the evidence plainly demonstrates that the current path between Chen’s battery and the high-current output module (from “B1+” to “OUT+1” in Figure 4) does not overlap with the low-current path from Chen’s battery to the DC multi-gear output/USB outputs (from “BAT+” to the low-current outputs in Figures 5-7). EX1100, ¶27. PO overlooked all of this teaching in Chen.

B. Chen Discloses Elements [1.4]/[21.4]

PO’s argument that Chen fails to disclose Elements [1.4]/[21.4] is premised on two fatally flawed assumptions—a first relating to Chen’s “multi-gear output” and a second related to Chen’s “USB” outputs. POR, 33-36; EX1100, ¶¶28-32.

Specifically, the Petition cited to both options—Chen’s “multi-gear output” and “USB” outputs—as achieving all Elements [1.2]-[1.4]. Pet., 14-20 (citing to EX1003, ¶¶51-60). PO feigns ignorance regarding this substantial evidence cited in the Petition.

First, PO contends that it can ignore all evidence for Chen’s “multi-gear output” cited in the analysis of Element [1.4] (Pet., 20) based on a false assumption that the Petition did not rely upon this “multi-gear output” for earlier Elements [1.2]-[1.3]. This is absurd. The Petition was straightforward. Pet., 14-16 (citing to EX1003, ¶¶51-52 and Chen’s FIGS. 5-7 for Element [1.2] and highlighting the “DC multi-gear output” at one of Chen’s output ports for the first current incorrectly asserts that the Petition did not rely on Chen’s “multi-gear output”), Pet. 16-20 (citing to EX1003, ¶¶53-57 and Chen’s [0022]-[0026] for Element [1.3]). And, for Element [1.3], the Petition expressly cited to evidence showing why Chen’s jump-start current was “higher than” the first current to Chen’s “DC multi-gear output”:

the second current (to Chen’s “high-current output unit 11”) is higher than the first current (to Chen’s “USB” connectors/**DC multi-gear output**). EX1003, ¶57. First, the unit 11 for the second current labeled as a “high-current” output ([0022]-[0025]) unlike *the others*, and Chen teaches that the second current is “200A.” EX1006, [0025].

Pet., 19-20 (color added). There, the Petition cited to ¶57 of Dr. Woods’ testimony, which set forth his underlying facts and reasoning. The POR never disputed it.

EX1101, 88:12-91:8. Instead, the POR boldly ignores it—never wrestling with the fact that Chen’s 200A jump-start output is labeled as the “high-current” option, not Chen’s “DC multi-gear output.” EX1003, ¶57; EX1006, [0025]-[0026]; EX1001, ¶30. To the extent Patent Owner contends that Chen’s “DC multi-gear output” (which has an output voltage of “19V” via the traditional “DC boost output circuit” for powering various ordinary gear/electronics; EX1006, [0026], FIGs. 5-7) would actually output a current of 200A, PO is taking the absurd position that it would output an astounding 3,800 Watts. EX1100, ¶31. This is a bridge too far. EX1101:76:8-78:16 (“much less power”).

Simply put, the Petition plainly cited evidence demonstrating that Chen’s “multi-gear output” was relied upon for Elements [1.2]-[1.3]/[21.2]-[21.3]. For Element [1.4]/[21.4], PO never disputes that at least the electronics of “U3B and D12” form “an output power limit control” configured to protect Chen’s internal battery 4 from an overcurrent condition through the multi-gear output 10. Pet., 20, POR. 33-36; EX1003, ¶¶58-60; Chen [0026], FIGS. 5-7; EX1100, ¶¶30-31. This is enough.

Second, PO concedes that the Petition relied upon Chen’s “USB” outputs for Elements [1.2]-[1.3], but PO mistakenly contends the Petition then somehow stopped relying upon Chen’s “USB” outputs for Element [1.4]. PO is feigning ignorance regarding the substantial evidence cited in the Petition for Element [1.4].

There, the Petition expressly relied upon the protection provided at for the “USB outputs 8, 9”:

The evidence here confirms that this circuit is configured to protect Chen’s internal battery 4 from an overcurrent condition through the USB outputs 8, 9 (or the multi-gear output 10) that might otherwise cause “damage” to Chen’s battery and other electronics. EX1003, ¶¶58-60 (citing to Chen [0026] and FIGS. 5-7).

Pet., 20 (color added). In doing so, the Petition cited to Dr. Woods’ ¶¶58-60 and Chen’s FIG. 7, both of which showed the op-amp “U3A” as providing overcurrent protection for Chen’s USB outputs. EX1003, ¶59 (also citing Chen’s FIG. 7). Again, PO had notice of this evidence, yet the POR never disputed any of it. EX1101, 92:4-94:1 (“read all the paragraphs”); EX1100, ¶32. PO’s assumptions for Elements [1.4]/[21.4] crumble under scrutiny.

C. Chen Discloses Elements [1.5]/[21.5]

PO’s argument that Chen fails to disclose Elements [1.5]/[21.5] relies on an implicit construction that requires the “second protection circuit” to also perform the function of “detecting”/“measuring” a current. POR, 36-39; EX1101, 146:8-23 (“That is my understanding of overcurrent”); EX1100, ¶¶33-37. This theory fails for three reasons.

First, nothing in the claim language requires a structure that actually detects/measures a current value, but instead Elements [1.5]/[21.5] merely require a

“protection circuit” that is “configured to prevent overcurrent condition.” EX1100, ¶¶34-37. That is all. Indeed, even the preferred embodiment of a conventional “fuse” does not actually measure a current value. EX1100, ¶35; EX1101, 154:16-21. Moreover, the Petition (p. 21) established that Chen’s relay K1 is certainly able “to automatically turn off” the output current and thereby “prevent long-term high-current output from damaging the lithium battery,” which is more than enough to be “configured to prevent overcurrent condition.” EX1006, [0025], [0035], FIG. 4.

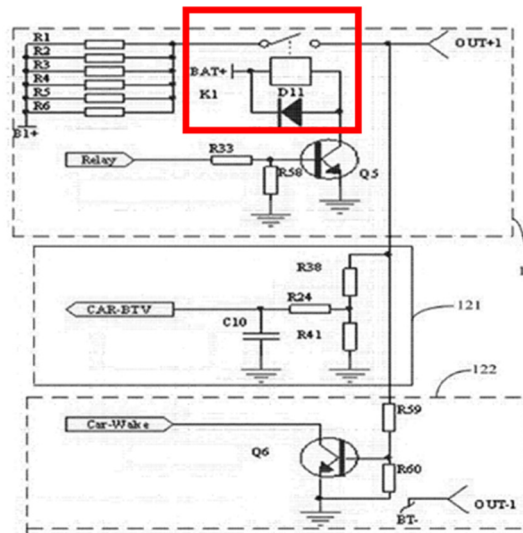


FIG. 4

FIG. 4 (annotated).

Second, PO ignored that Chen’s relay K1 was indeed responsive to the current condition at OUT+1 (depicted above) by measuring the voltage across a resistor. EX1100, ¶36; EX1004, [0025]; EX1003, ¶¶61-62. PO argues that Chen’s relay uses a voltage divider (R38 and R41) to detect a voltage and “not a current detection”

circuit (POR, 38), but this ignores the fact that Chen's detection circuit (placing a resistor in a current and measuring the voltage across the resistor) is a classic form of monitoring/detecting a current in a DC power system. EX1100, ¶36 ('current-viewing resistor'); EX1101, 99:3-19, 99:7-22. PO elevates form over substance.

Third, PO's theory that Chen's relay K1 does not provide overcurrent protection is directly contradicted by its later arguments for the Chen-White combination (Ground 1B), where PO implies that Chen already achieved overcurrent protection. POR, 41-42. EX1100, ¶37.

III. THE CHEN-WHITE COMBINATION RENDERS OBVIOUS THE CHALLENGED CLAIMS [GROUND 1B]

PO's arguments against the Chen-White combination are premised upon a flawed theory that "Chen and White refute making such a combination" because the resulting combination somehow fails to provide added protection beyond Chen's original solution POR, 39-43; EX1100, ¶¶38-41. There are two errors here.

First, this theory ignores that the Petition cited ample evidence that both layers of over current prevention provide improved safety and protection to the battery. Pet., 31-33 ("***added*** safety and damage prevention ***even beyond the internal 'relay K1' of Chen***"); EX1100, ¶39 (reiterating the predictable benefits articulated in EX1003, ¶¶94-96). Yet again, none of these resulting benefits was disputed in the POR. And this lack of any dispute from PO led Dr. Woods to agree with Dr.

Ricketts’s statement that White’s suggested improvement is “*not* redundant and unnecessary in Chen’s mobile power supply.” EX1100, ¶39 (quoting EX2001, ¶176).

Second, PO’s arguments for Ground 1B are entirely inconsistent with their arguments in Ground 1A (Element [1.5]). POR, 36-39. In Ground 1A, PO alleges that Chen’s relay K1 does not “protect against an overcurrent condition.” POR, 38-39. If true, surely Chen’s original solution would have further benefited from using a fuse in the jumper cable harness (as demonstrated in Ground 1B). Pet., 31-33; EX1100, ¶40; EX1101, 148:13-150:11 (agreeing that adding a fuse to a jumper cable “would provide overcurrent protection”). PO’s inconsistency is telling.

IV. THE CHEN-RICHARDSON COMBINATION RENDERS OBVIOUS CLAIM 10 [GROUND 1C]

PO’s arguments against the Chen-Richardson combination (Claim 10) rely on a legal error—demanding bodily incorporation of the second reference. POR, 48-49. Specifically, PO incorrectly demands a demonstration of how Richardson’s “relay 34, temperature sensor 41 and jump cables 60 in the cited upper portion of FIG. 2C” would “connect with” Chen’s circuit elements. POR, 49. This line of argument is contrary to law. *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012); *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

Instead, the Petition properly noted the “suggestion” that a POSITA would

have recognized from Richardson’s conventional practice and the predictable benefits that would have motivated a POSITA to implement such an improvement in Chen. Pet., 44-45 (“advantageously avoids over-exhaustion”); EX1003, ¶¶137-139; EX1100, ¶42-44. That is sufficient under the law, without the need for showing bodily incorporation of Richardson’s circuit components/connections, especially where the POSITA is not a mindless automaton. *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1379 1379-81 (Fed. Cir. 2023) (“a person of ordinary creativity, not an automaton”).

V. THE INSKEEP-JOHNSON COMBINATION RENDERS OBVIOUS THE CHALLENGED CLAIMS [GROUND 2A]

A. Inskeep’s “DC 12V port” and its protection circuit provide Elements [1.2]-[1.4]/[21.2]-[21.4]

PO’s arguments that Inskeep’s “DC 12V port” fails to satisfy elements [1.2]-[1.3]/[21.2]-[21.3] are incorrect. EX1100, ¶¶45-48. First, PO takes the absurd position that Inskeep’s 12V port would have output a current of more than 500A—an astoundingly unsafe 6000 Watt/500A continuous DC delivery. POR, 51 (might be “*greater* ... than the second current of 500A”). Of course not. EX1100, ¶¶46-47 (“immediately recognized as unsafe”). The evidence cited in the Petition demonstrated why a POSITA would have recognized Inskeep’s “conventional” port was like any other DC charger for mating with a cigarette-lighter plug to power “12 V accessories”—like ordinary phones charged by such cigarette-lighter cables in

2010 (when Inskip was filed). Pet., 53 (illustrating Inskip’s port 112 and citing to Inskip at [0025] and [0034] (“auxiliary” port 112 to recharge/power “12V accessories” using a “conventional cigarette style plug”), 56 (citing EX1003, ¶161); EX1100, ¶46. The conventional use of such cigarette-style plugs was no mystery to Dr. Ricketts. EX1101, 120:14-121:9, 156:15-157:6 (“similar” to the plug “in an automobile”). But he erroneously ignored a POSITA’s knowledge of the same, which Inskip acknowledged in describing the “conventional” plug. EX1100, ¶47 (“ubiquitous fact” and “corroborated by numerous publications”).

Second, Dr. Rickett’s logic (EX2001, ¶105)—regarding what “a POSITA would also know”—applies both ways. On cross-examination, Dr. Ricketts agreed that a mere textual description in a patent of a “12V” output for powering various accessories would lead a POSITA to know the output amperage “would be less” than 100A. EX1101, 76:8-78:16. The POSITA would not convert into a mindless automaton when reading Inskip (as assumed by PO). *Intel*, 61 F.4th at 1379-81. Rather, a POSITA would have readily known that such “12V accessories” powered from Inskip’s cigarette-style port received an amperage far lower than the unsafe 6000 Watt/500A continuous delivery. EX1100, ¶47.

Finally, for Element [1.4]/[21.4], the POR never disputes that Inskip’s “DC 12V port” is protected by a first protection circuit. Pet., 56-57 (fuse ‘F2’); EX1100, ¶48.

B. Inskip’s “USB port” and its protection circuit provide Elements [1.2]-[1.4]/[21.2]-[21.4]

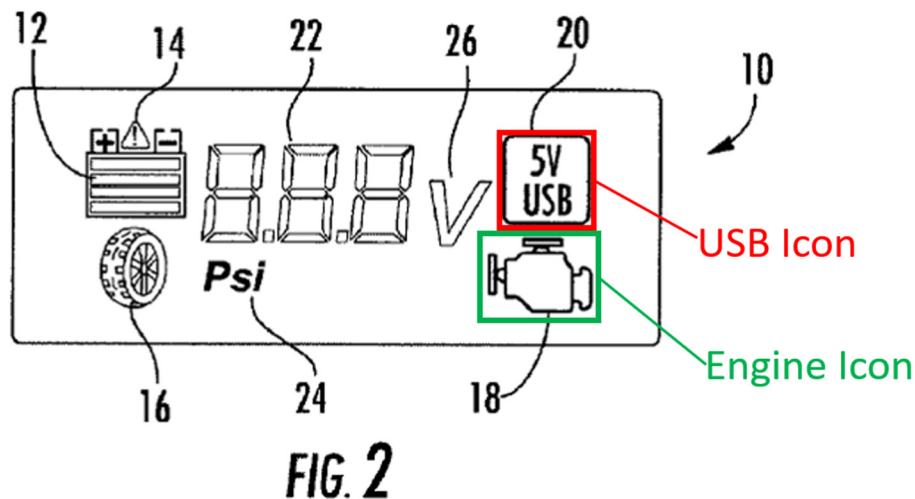
PO does not dispute that Inskip’s “USB port” provides all Elements [1.2]-[1.3]/[21.2]-[21.3], but instead the POR erroneously argues that the protection circuit for Inskip’s “USB port” fails to satisfy elements [1.4]/[21.4]. POR, 51-53; EX1100, ¶¶45, 49. As explained in the Petition, Inskip’s “low voltage protection circuit” protects the internal battery/circuit against a “short circuit or other conditions” causing “a voltage drop” at the USB port. Pet., 56-57 (citing EX1008, [0032], cl. 3, FIG. 3); EX1100, ¶49. This evidence regarding the momentary “voltage drop” during a short circuit at a USB port is never refuted in the POR. Rather, the POR fixates on the label “low voltage”—contending that it can only “maintain” a voltage. POR, 52. Not so. Both experts confirmed that, when such a USB port suffers a short circuit or unexpected overcurrent, it will suffer a momentary voltage “drop.” EX1101, 124:2-125:3; EX1003, ¶162, EX1100, ¶49. Inskip’s circuit will detect this event and do its function—that of a “protection” circuit to protect the battery. Pet., 56-57; EX1100, ¶49.

C. The Inskip-Johnson Combination teaches a “first operating mode”/“second operating mode”

The POR’s argument that the Inskip-Johnson combination fails to disclose the “first operating mode”/“second operating mode” rests on PO’s erroneously narrow constructions. POR 52-55; *supra* §I.A-B. PO does not dispute the Petition’s

cited evidence under the plain meaning (without PO's substitute language), so the substantial (undisputed) evidence supports Ground 2A when the erroneous construction is denied. Pet. 53-58; EX1100, ¶¶45, 50-51.

But even if PO's improper construction was applied, PO overlooked that Inskeep-Johnson nevertheless provides these elements. *Axonics*, 75 F.4th at 1380-84. For example, Inskeep disclose that a "USB icon 20 is depicted when the USB port is available for use and illustrating of the voltage output":



EX1008, FIG. 2 (annotated), [0027]. So Inskeep's USB port is active when USB icon 20 is illuminated or inhibited when the icon is not illuminated. EX1100, ¶52. Similarly, the graphic display (above) indicates "an engine icon 18" is illuminated when "the jump starter circuit is activated." EX1008, [0027]. Thus, a POSITA would have recognized that Inskeep teaches that both the current for the USB output

and the current for jumpstarting a vehicle's battery can be selectively activated or inhibited, thereby fulfilling PO's "Boolean possibilities" for the "first operating mode" and the "second operating mode." EX1101, 151:13-152:25; EX1100, ¶52. According to PO's declarant, this mere "configured to" capability is enough to fall within the claim scope. EX1101, 159:25-161:4.

VI. NOOK ANTICIPATES THE CHALLENGED CLAIMS [GROUND 3A]

A. Priority Date

1. The Chinese Application does not support Elements [1.2]/[21.2]

The Petition raised specific arguments about the shortcomings of the U.S. priority application (EX1004) and the lack of support for Element [1.2]/[21.2] compared to the new matter in the 2016 filing. Pet., 6 ("no mention of 'port' structure, and certainly never one 'current' [singular] that is output through 'ports' [plural]"). The POR did not present any counterarguments. POR, 8-9. Rather, it merely quoted text from a Chinese Application (EX2003) suffering the same deficiencies as the text in EX1004. EX1003, ¶¶36-39 ("reveals the same shortcomings"). This is not enough.² Even if the Chinese application (EX2003)

² Additionally, EX2003, EX2005, and EX2007 were all submitted without a proper declaration or oath statement required by statute. 28 U.S.C. 1746; 37 C.F.R. §

shows the mere existence of three “**voltage**” options, there is never any mention of a single “current” (**amperage**) that exits “through” multiple “ports” (plural). Pet., 6. There is no dispute that only the new matter expressly described ports (“port 1” and “port 2”) having the same current amperage. Pet., 6.

2. The Chinese application does not support Elements [1.4]/[21.4]

The Petition raised specific arguments about the shortcomings of the U.S. priority application (EX1004) and the lack of support for Element [1.4]/[21.4] compared to the new matter in the 2016 filing. Pet., 6-7 (“no disclosure of how...”). The POR did not present any counterarguments on these points. POR, 8-9. Rather, the POR simply quotes text from the Chinese Application (EX2003), which yet again suffers from the same shortfalls. EX1003, ¶¶36-39 (“same shortcomings”). The *Tech. Licensing* and *Augustine* precedent cited at page 7 of the Petition

42.2. Such documents are not declaration evidence and should not be given weight. *ZTE (USA) Inc., v. Evolved Wireless LLC*, IPR2016-00757, Pap. 42, 23-24 (PTAB Nov. 30, 2017). Also, the text of EX2003, EX2005, and EX2007 is sometimes different from that of EX1004. *E.g.*, EX2003, 4 (“overcurrent and overload”); EX1004, 5 (“overcurrent or overload”). PO never explained why it submitted a different translation when filing its U.S. application in 2014 (EX1004) and never expressed which translation is more trustworthy.

continues to compel one result here.

Nothing in the Chinese Application describes a working example of a protection circuit “11” caused to operate “*when* the battery pack is working in the first operating mode.” Indeed, it never mentions an “operating mode” at all. PO appears to concede the ineffectual vagueness of this quoted text of the Chinese Application (POR, 8-11) by later assuming it instead teaches the “third” operating mode of claim 3 (POR, 12). In another concession, PO admits the lack of support in the Chinese application because PO’s claim construction for “first operating mode,” relies exclusively on the new matter in columns 4-5 of the ’506 patent. POR, 26-27. Such admissions in the POR are telling.

**B. Nook discloses a “first operating mode”/“second operating mode”
[1.2]-[1.3]/[21.2]-[21.3]**

The POR’s argument that the Nook fails to anticipate the “first operating mode” and “second operating mode” rests on PO’s erroneously narrow constructions. POR 56-68; *supra* §I.A-B. PO does not dispute the Petition’s cited evidence under the plain meaning (without PO’s substitute language), so the substantial (undisputed) evidence supports Ground 3A when PO’s erroneous construction is denied. Pet., 70-72; EX1100, ¶¶53-54.

And even if PO’s improper construction was applied, the POR overlooked why Nook nevertheless provides these elements. *Axonics*, 75 F.4th at 1380-84.

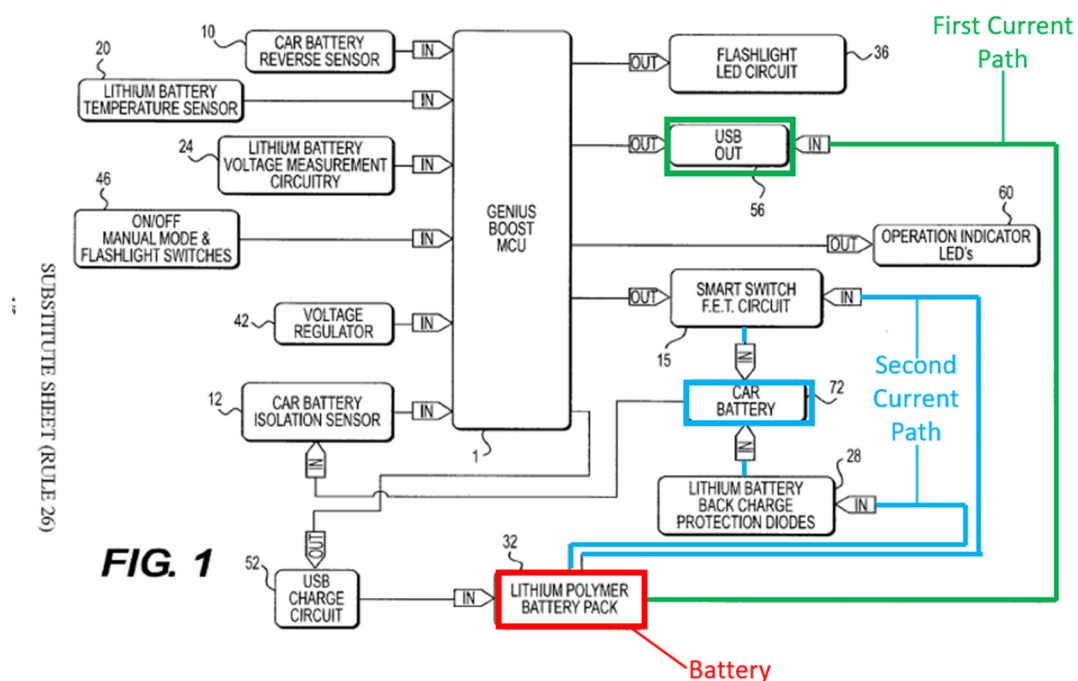
First, Nook explains that a “smart switch FET circuit 15 electrically switches the handheld battery booster lithium battery to the vehicle's electric system *only* when the vehicle battery is determined by the MCU 1 to be present ...and connected with the correct polarity. EX1012, 6-7, (emphasis added). Accordingly, Nook provides the “first operating mode” when smart switch FET circuit 15 is not switched to the vehicle’s electric system and the USB out is activated. EX1100, ¶55. Also, Nook teaches that the microcontroller 1 allows the USB “to be turned on and off by software control to prevent the internal lithium battery getting too low in capacity.” EX1012, 10. This would include when the device is charging a car battery (e.g., when the device is in the “*second operating mode*”). EX1100, ¶¶55-56.³

C. Nook discloses the claimed current paths [1.3]/[21.2]-[21.3]

PO incorrectly alleges that the petition fails to identify the current path from the output terminal to the battery pack, the current path from the USB port to the

³ Regarding this “turn off” function in Nook, PO improperly assumes this function would also require turning off the current from flowing to the car battery. POR, 57. This assumes too much. Nook’s software can turn off the USB output to prevent the battery from reaching a low capacity while the voltage monitored by the “lithium battery voltage measurement circuit 24” is determined to not be too low to prevent a discharge operation. EX1012, 7, 9; EX1100, ¶56

battery pack, and, therefore, that these two current paths are different. POR, 58. First, these arguments rely on PO's erroneously narrow constructions. POR 58-59; *supra* §I.C. Next, even if PO's narrow construction was considered, PO overlooks that Nook plainly depicts two different current paths from the output terminals to the battery and the USB out to the battery:



EX1100, ¶¶57-58 (showing Nook's FIG. 1 (annotated) and noting the "specificity of the connectors"); EX1012, 7-8, 10-11, FIGs. 2A-C; Pet. 71-72.

D. Nook discloses elements [1.5]/[21.5]

PO's argument for Elements [1.5]/[21.5] relies on an implicit construction that the claimed second protection circuit must somehow "detect" or "measure" a current. POR, 59-60. Dr. Ricketts stated the same assumption. EX1101, 148:8-23.

Again, nothing in the claim language requires a structure that actually detects/measures a current value, but instead Elements [1.5]/[21.5] recite a “protection circuit” that is “configured to prevent overcurrent condition.” EX1100, ¶¶59-60. That is all. And the Petition explained why Nook’s three example circuits are indeed “configured to” prevent an overcurrent condition. Pet. 72-74; EX1012, 10, FIGs. 1, 2B; EX1003, ¶206; EX1100, ¶60. This is enough.

VII. THE NOOK-WHITE COMBINATION RENDERS OBVIOUS THE CHALLENGED CLAIMS [GROUND 3B]

PO’s arguments against the Nook-White combination are premised upon a flawed theory that “Nook and White refute such combination.” POR, 62; EX1100, ¶¶61-63. There are two errors here.

First, PO never addressed the Petition’s ample evidence showing why implementing White’s suggestion (a fuse in its jumper cable) in Nook provided “added protection” beyond Nook’s original device. Pet., 80; EX1003, ¶233; EX1100, ¶62. None of these predictable benefits were disputed, which is why Dr. Woods further testified why he agreed with Dr. Ricketts’s statement that White’s fuse “is *not* redundant and unnecessary.” EX1100, ¶62 (citing EX2001, ¶225).

Second, PO’s arguments for Ground 3B belie PO’s arguments in Ground 3A (Element [1.5]). POR, 62-63, 60. In Ground 3A, PO alleges that Nook’s protection circuits do not “protect against an overcurrent condition.” POR, 60. If true, surely

Nook's original solution would benefit from using a fuse in the jumper cable harness (as demonstrated in Ground 3B). EX1100, ¶63; EX1101, 148:13-150:11. PO's inconsistency cannot withstand scrutiny.

VIII. CONCLUSION

As detailed in the Petition, all the Challenged Claims are unpatentable.

Respectfully submitted,

Dated: January 22, 2025

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CERTIFICATION UNDER 37 CFR § 42.24(d)

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petitioner's Reply to Patent Owner's Response totals 5,579, which is less than the 5,600 allowed under 37 CFR § 42.24.

Respectfully submitted,

Dated: January 22, 2025

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e)(4), the undersigned certifies that on January 22, 2025, a complete and entire copy of this Petitioner's Reply to Patent Owner's Response and its exhibits were provided via email to the Patent Owner by serving the correspondence email address of record as follows:

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