

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHENZHEN XINZEXING E-COMMERCE CO., LTD.,

Petitioner,

v.

SHENZHEN CAR KU TECHNOLOGY CO., LTD.,

Patent Owner.

PTAB Case No. IPR2024-00222

Patent No. 9,643,506 B2

PATENT OWNER'S SUR-REPLY

March 5, 2025

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EXHIBIT LIST

Exhibit	Description
2001	Declaration of Dr. David S. Ricketts in Support of Patent Owner's Response ("Ricketts Decl." or "Ricketts")
2002	Chinese Patent Application No. 201110409190.9, filed December 9, 2011
2003	Certified English Translation of Chinese Patent Application No. 201110409190.9, filed December 9, 2011
2004	Chinese Patent Publication No. CN 102496985 B, published May 28, 2014
2005	Certified English Translation of Chinese Patent Publication No. CN 102496985 B, published May 28, 2014
2006	International PCT Publication No. WO 2013/082982 A1, published June 13, 2013
2007	Certified English Translation of International PCT Publication No. WO 2013/082982 A1, published June 13, 2013
2008	U.S. Patent No. 9,496,728, issued November 15, 2016

LISTING OF CLAIMS

Claim Element	Language
[1.P]	1. A portable backup charger, comprising:
[1.1]	a battery pack having at least one battery cell;
[1.2]	at least one output port coupled to the battery pack, wherein the battery pack is configured to output a first current through one or more output ports of the at least one output port in a first operating mode;
[1.3]	a pair of output terminals coupled to the battery pack and having a current path to the battery pack different from that of the at least one output port to the battery pack, wherein the battery pack is configured to output a second current capable of starting a vehicle engine through the pair of output terminals in a second operating mode, wherein the second current is higher than the first current;
[1.4]	a first protection circuit coupled to the battery pack and configured to protect the battery pack when the battery pack is working in the first operating mode; and
[1.5]	a second protection circuit coupled to the battery pack and configured to prevent overcurrent condition of the second current when the battery pack is working in the second operating mode.
[2]	2. The portable backup charger of claim 1, wherein when the first protection circuit is configured to prevent overcurrent condition of the first current, and overcharge and

	overdischarge condition of the battery pack.
[3]	3. The portable backup charger of claim 1, wherein the battery pack is further configured to work in a third operating mode for outputting the first current and the second current simultaneously, and in the third operating mode both the first protection circuit and the second protection circuit are active.
[4]	4. The portable backup charger of claim 1, wherein the second protection circuit comprises a fuse.
[5]	5. The portable backup charger of claim 4, wherein the fuse has a rating current of 150 to 250 A.
[6]	6. The portable backup charger of claim 1, further comprising a pair of connecting wires for detachably coupling the pair of output terminals with the battery pack, each connecting wire having a clamp for clamping an electrode of an external vehicle battery.
[7]	7. The portable backup charger of claim 6, wherein the second protection circuit is built into at least one of the pair of connecting wires.
[8]	8. The portable backup charger of claim 6, wherein the pair of connecting wires comprises a reverse connection-proof plug.
[9]	9. The portable backup charger of claim 1, further comprising a switching module operable to switch on or off the second current from the battery pack.
[10]	10. The portable backup charger of claim 9, wherein the switching module is further configured to prohibit the outputting of the second current after a predetermined time

	period has passed.
[11]	11. The portable backup charger of claim 1, further comprising at least one voltage adjusting circuit, each voltage adjusting circuit being coupled between the battery pack and one of the at least one output port and configured to elevate or reduce an output voltage of the battery pack to a predetermined voltage at the respective output port.
[12]	12. The portable back up charger of claim 1, wherein the first current is of 0.5 to 10 A.
[13]	13. The portable backup charger of claim 1, wherein the second current is of 100 to 400 A.
[14]	14. The portable backup charger of claim 1, further comprising a controller configured to control the operating mode of the battery pack.
[15]	15. The portable backup charger of claim 1, wherein the discharge rate of the battery pack is in a range of 20 c to 70 c.
[16]	16. The portable backup charger of claim 1, wherein the at least one output port comprises a universal serial bus (USB) port.
[17]	17. The portable backup charger of claim 1, wherein the at least one output port comprises an output port of a rating voltage of 12V.
[18]	18. The portable backup charger of claim 1, wherein the at least one output port comprises an output port of a rating voltage of 19V.

[19]	19. The portable backup charger of claim 1, wherein the at least one battery cell is lithium based battery cell.
[20]	20. The portable backup charger of claim 1, wherein the pair of output terminals is detachably coupled to the battery pack.
[21.P]	21. A portable backup charger, comprising:
[21.1]	a battery pack having at least one battery cell;
[21.2]	a first current path through which a first current is output by the battery pack when it is working in a first operating mode;
[21.3]	a second current path through which a second current capable of starting a vehicle engine is output by the battery pack when it is working in a second operating mode, wherein the second current is higher than the first current;
[21.4]	a first protection circuit coupled to the battery pack and configured to protect the battery pack when it is working in the first operating mode; and
[21.5]	a second protection circuit coupled in the second current path and configured to prevent overcurrent condition of the second current when it is working in the second operating mode.
[22]	22. The portable backup charger of claim 21, wherein the first protection circuit is configured to prevent overcurrent condition of the first current, and overcharge and overdischarge condition of the battery pack.

[23]	23. The portable backup charger of claim 21, wherein the battery pack is further configured to work in a third operating mode for outputting the first current and the second current simultaneously, and in the third operating mode both the first protection circuit and the second protection circuit are active.
[24]	24. The portable backup charger of claim 21, wherein the second protection circuit comprises a fuse having a rating current of 150 to 250 A.
[25.1]	25. The portable backup charger of claim 21, further comprising: a pair of connecting wires for detachably coupling the battery pack with the vehicle engine to allow the second current flow through the second current path;
[25.2]	wherein the second protection circuit is built into at least one of the pair of connecting wires.
[26]	26. The portable backup charger of claim 21, further comprising a switching module operable to switch on or off the second current path.
[27]	27. The portable backup charger of claim 21, wherein the second current is of 100 to 400 A.
[28]	28. The portable backup charger of claim 21, further comprising a controller configured to control the operating mode of the battery pack.
[29]	29. The portable backup charger of claim 21, wherein the discharge rate of the battery pack is in a range of 20 c to 70 c.
[30]	30. The portable backup charger of claim 21, wherein the at least one output port comprises a universal serial bus (USB)

	port.
[31]	31. The portable backup charger of claim 21, wherein the at least one output port comprises an output port of a rating voltage of 12V.
[32]	32. The portable backup charger of claim 21, wherein the at least one output port comprises an output port of a rating voltage of 19V.
[33]	33. The portable backup charger of claim 21, wherein the at least one battery cell is lithium based battery cell.

I. INTRODUCTION

Patent Owner (“PO”), Shenzhen Carku Technology Co. Ltd., hereby submits its Sur-Reply to the Petitioner’s Reply (Paper 15) filed by Shenzhen Xinxexing E-commerce Co., Ltd. (“Petitioner”), challenging Claims 1-3, 6-23, and 25-33 of U.S. Patent No. 9,643,506 (the “’506 Patent”) (EX1001). *Inter partes* review of the ’506 Patent was instituted the Board on July 31, 2024 (Paper 9).

Petitioner bears the ultimate burden of proof for unpatentability in this proceeding by a showing by a preponderance of the evidence making a *prima facie* showing of unpatentability. The Petition was fatally defective in multiple aspects, including, failures to identify “in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim” under 35 U.S.C. § 312 (a)(3). Examples of such fatal defects in the Petition include omissions or gaps in analyzing each and every claim limitation and showing relevant teachings in the cited prior art, as previously explained in Patent Owner Response (“Response”) and further explained in this Sur-Reply. The Petition substituted quantity of prior art grounds for quality of the teachings and technical analysis of each ground. The Response highlighted these omissions. Faced with numerous failures in the Petition to map the prior art to the claim limitations, Petitioner attempted to use the Reply to introduce new evidence and/or new arguments not previously cited presented in the

Petition to cure the fatal defects in the Petition. The new evidence/new arguments go well beyond what may be permissible to identify under *Axonics, Inc. v. Medtronic, Inc.*, which allows citation of new evidence only when a new claim construction may so require. 75 F.4th 1374, 1380-84 (Fed. Cir. 2023). Such impermissible newly identified evidence should be disregarded by the Board. Office Patent Trial Practice Guide, November 2019, p.80-81; *Axonics* 75 F.4th at 1380 (“a petitioner ‘may not submit new evidence or argument in reply that it could have presented earlier, e.g. to make out a *prima facie* case of unpatentability.’” U.S. Patent Trial and Appeal Board, Consolidated Trial Practice Guide 73 (Nov. 2019).”)

II. CLAIM CONSTRUCTION

A. “first operating mode” / “second operating mode” (claim 1/21)

The three operating modes are recited in Limitations [1.2], [1.3] and Claim [3].

The Reply alleges that the construction is inconsistent with principles of claim differentiation by imposing a narrower requirement on Claim 1 than its plain language. P. 3-4. This is incorrect. Claim 3 recites a device that is narrower in scope than Claim 1, because that portable backup charger in Claim 3 has three operating modes, instead of two as recited in Claim 1. But in order for Claim 3 to actually be narrower in scope under principles of claim differentiation, the recited third operating mode must be different than the previously recited first and second

operating modes. *CAE Screenplates, Inc. v. Heinrich Fielder GMBH*, 224 F.3d 1308, 1317 (2000) (use of these different terms in the claims presumes different meanings for the terms).

Claim 3 makes only one additional requirement with respect to the recited third operating mode and outputting current, specifically, that the third operating mode is for “outputting the first current and the second current simultaneously.” If, as Petitioner alleged, the first operating mode and the second operating mode each could allow outputting the first current and the second current simultaneously, then there would be no difference between the first operating mode and third operating mode, or the second operating mode and the third operating mode, and claim 3 would not be narrower than claim 1. *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 810 (Fed. Cir. 2021) (highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous). Thus, in the context of Claims 1 and 3 in the ‘506 Patent, two conclusions can be made under principles of claim differentiation, in order for Claim 3 not to be superfluous: 1) in the first operating mode, the battery pack is configured to output a first current and configured to not output a second current, and 2) in the second operating mode, the battery pack is configured to output a second current and configured to not a first current, supports Patent Owner’s construction. Ricketts ¶¶73-91. This construction does not impermissibly narrow Claim 1, as Petitioner contended in its Reply, but construes the first operating mode

and second operating mode in a way that is consistent with the claim language of both Claims 1 and 3 and yet does not render Claim 3 superfluous.

Petitioner alleged that this construction is not supported by the priority application, but this was addressed in Patent Owner Response pp. 4-6, 7-10 and Ricketts ¶¶60-66, 81, 91 which analyzed Fig. 3 and the supporting text that appears in the '506 Patent and priority application.

The construction is consistent with the overall context and scope of the language of Claim 1. Even without the additional language of Claim 3, the plain language of Claim 1 describing the first operating mode and second operating mode recites what current paths are configured to output current in each operating mode. In the first operating mode, “the battery pack is configured to output a first current through one or more output ports of the at least one output port” and in the second operating mode “the battery pack is configured to output a second current capable of starting a vehicle engine through the pair of output terminals.” Taken together, by explaining what currents are configured to be output in each mode at least implies that the other currents are not configured to be output in each mode, further supporting the construction. This is particularly evident because the outputting of the first current and second current are accounted for in the first operating mode and second operating mode, respectively.

This construction is also consistent with the '506 patent specification. The specification states that “the portable battery charger 100 can work in a first operating mode or in a second operating mode” clearly explaining that these modes are alternatives to each other, contrary the Reply's theory the device can be in the first operating mode and the second operating mode at the same time. EX1001 4:18-20. This construction is also consistent with the plain language of Claim 21 (“when [the battery pack] is working in a first operating mode” vs. “when [the battery pack] is working in a second operating mode.”) and Claims 14/28 (“a controller configured to control the operating mode”).

Therefore, the language of those claims and the specification all support this conclusion that only one operating mode can be selected at a time.

In addition, Petitioner's theory on Page 3 of the Reply that both the first current and second current are output simultaneously is incorrect because that is specifically referred to as a third operating mode in the specification and Claim 3 and is not, and cannot be, the first or second operating modes. EX1001, 5:58-62.

The Reply p. 1 argued that the construction of first operating mode and second operating mode is not correct because it is inconsistent with other claim language reciting two current paths. Specifically, Petitioner indicated that when the fuse in the specification embodiment is blown, there is no current path from the battery pack

to the output terminals, and therefore the claim construction must be incorrect. *Id.*

This position by Petitioner lacks basis in the '506 Patent and jumpstart devices.

Dr. Ricketts explained in his deposition that when a new jumpstarter is taken out of the box, it is capable of achieving all three claimed operating modes by operation of the device of the user, and the device has the claimed current path between the battery pack and output port, and the device has the claimed current path between the battery pack and output ports. EX1101 155:13-156:10. That is consistent with the analysis in Ricketts ¶¶60-66, summarizing the modes achievable by the device.

Configuration / Operating Mode	5V Output (Fig. 3 Ref. 6)	12V 100-400A Output (Fig. 3 Ref. 9)
1	Enabled by user	Disabled because fuse is blown
2	Disabled by user	Enabled because fuse is not blown
3	Enabled by user	Enabled because fuse is not blown
4	Disabled by user	Disabled because fuse is blown

Specifically, a user can place the device in the third operating mode by enabling the five-volt output, and a user can place the device in the second operating mode by disabling the five-volt output. A user can still use the device in the first operating mode by enabling the five-volt output when the fuse is blown on the 100-400A output. Therefore, the construction is not inconsistent with current path language.

The Reply on page 2 alleges also alleged that the construction is incorrect because it is inconsistent with the specification. As explained above, a POSITA reviewing the priority application could discern the three claimed modes of operation. Moreover, the requirements of claims 14 and 28, which recite a controller configured to control the operating mode of the battery pack, do not change this result. Dr. Ricketts explained the specification states that “[b]y controlling the MCU circuit 7, the user can flexibly choose a particular output voltage for the charger (19 V. 12 V. or 5 V) to supply current source for a particular instrument (a cellphone, a computer, a digital camera, and etc.)” EX1001, 7:30-39; Ricketts ¶65. This statement also appears in the priority application. EX2003, p. 4. As shown above, whether the 5V output is enabled or disabled by the user at least partially determines the operating mode of the device, and this is done via user interaction with the MCU 7 (the claimed controller of Claims 14 and 28).

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

The Reply pp. 5-6 alleged that the construction is inconsistent with the specification because the claim recites “different” current paths while the specification recites “different and separate” claim paths. EX1001, 5:46-48.

Claim 1 recites two separate current paths: 1) “pair of output terminals coupled to the battery pack and having a current path to the battery pack” 2) a current path between the output port and the battery pack, recited as “a current path to the

battery pack different from that of the at least one output port to the battery pack”. EX1001, 8:28-30. In addition to being separately recited structures, the claim language explains that these current paths are different from one another. *Id.* In Claim 21, these current paths are also separately claimed, and thus recite separate structures, albeit using the more conventional adjectives of a “first” current path and “second” current path to indicate separate structures. EX1001, 9:40-47. This supports the construction of non-overlapping paths. *Becton, Dickinson and Co. v. Tyco Healthcare Gr., LP*, 616 F.3d 1249 (Fed. Cir. 2010) (“Where a claim lists elements separately, ‘the clear implication of the claim language is that those elements are ‘distinct component[s]’ of the [claimed] invention.’”)

Petitioner contended that there is a difference between recitation of “different” in claim 1 and the use of “different and separate” when describing the embodiment in Figure 3: “The pair of output terminals 109 provides a current path different and separate from the current path from the battery pack 101 to the output ports 103.” Petitioner’s position, therefore, is that the specification does not support the construction. As explained above the claim language itself indicates that the patentee claimed separate current path structures in Claim 1: 1) a current path between the output terminals and the battery pack and 2) a current path between the output port and the battery pack. The claim language of Claim 1 further emphasizes that the structures are different from each other, by use of the word “different” –

accomplishing the same result as the more conventional approach of reciting a “first current path” or “second current path” in Claim 21. Taken together, the claiming of separate structures, and use of the word different in the claim, is precisely the same description used in the specification when describing these paths as “separate and different” from one another.

Petitioner argued that Fig. 3 cannot support the construction because it is only a block diagram and not a circuit schematic. Reply pp. 7-8. Petitioner relied on block diagrams to identify current paths in prior art Chen and Nook to the claim language. Petition at 19, Reply at 27. Thus, Reply's argument contradicts Petitioner's position in its Petition. Dr. Ricketts, as a POSITA, could use these figures and the supporting specification to identify the current paths. ¶¶95-96; EX1001, 5:46-48, Fig. 3.

The Reply p. 7 proposes a test for determining if two current paths meet the requirements of claim 1 – that is “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.’” That test is not recited and not supported by the claim language of the claim or the specification, nor was this test used by the patentee to explain what constitutes two separate, different current paths.

III. PRIORITY CLAIM

The Reply makes only contests whether a handful of limitations are

supported by China Patent Application Number 201110409190.9 (EX2002 and EX2003) (the “Chinese Priority Application”) and are addressed below.

A. The Chinese Priority Application Supports Limitations [1.2]/[21.2]

The Reply repeats arguments that the Chinese Priority Application fails to disclose a port structure, and a first current that is output through each of the multiple ports. The Response and Dr. Ricketts already addressed the arguments made in the petition that the priority application failed to disclose a “port” structure, and a first current that is output through “one or more output ports.” Response p. 8, Ricketts ¶110, pp. 43-45. Specifically, the identified text showed that the first current goes from the battery to one of the DC-DC 19 V boost output circuit 4, the 12V output circuit 5, and the DC-DC 5 V buck output circuit 6, which in turn is connected through a port on the device to a device to be charged, such as a mobile phone, computer, and digital camera. *Id.* Petitioner is incorrect that a POSITA would not understand a port is disclosed merely because the word “port” is not used. The Petitioner’s interpretation (at page 6) that limitations [1.2]/[21.2] require that one current goes through multiple output ports misstates the plain language of the claim.

B. The Chinese Priority Application Supports Limitations [1.4]/[21.4]

Dr. Ricketts explained how the Chinese Priority Application disclosed, in figures and text, a protection circuit 11 that is coupled to the battery and provides overload and overdischarge protection. Ricketts ¶101, p. 45-46. Thus, the *Tech.*

Licensing and *Augustine Med.* cases cited in the Petition are distinguishable. The Reply complains that there is no disclosure that “this ‘charge-discharge protection circuit 11’ receives feedback or detects any current level from the DC ‘outputs’ 4-6” but this is not required by the claim, nor is it required to protect the battery when the device is operating in the first operating mode. A POSITA would understand that this circuit is functional in the first operating mode, which supports the claim. Ricketts ¶101.

C. The Chinese Priority Application Supports Limitations of “first operating mode” / “second operating mode” / “third operating mode”.

The 506 patent's disclosure of Fig. 3 and supporting text is found in the priority application, and this disclosure supports a teaching of the claimed first, second, and third operating modes. Section II.A. That the word “operating mode” is not used is not dispositive of the issue of whether an operating mode is disclosed.

D. Conclusion: Nook is not prior art

As a result, and as explained in the Response on pp. 7-24, the independent claims (and nearly all dependent claims) of the '506 Patent are supported by Chinese Priority Application, and Nook is not prior art and thus cannot be used in any ground to invalidate any claim of the '506 patent.

IV. CHEN GROUNDS

A. Ground 1A: §102 – Chen (CN102005796A)

1. Claims 1, 9, 11-14, 16-19, 21, 26-28, 30-33

- a. **Chen does not disclose a different current path from the output terminals to the battery pack that is different from the current path from the output port to the battery pack (Limitation [1.3] / [21.3] / [21.4])**

Under a correct construction of Claim 1, and a plain reading of the separately claimed current path elements in Claim 21, Chen does not disclose separate claim path structures 1) between the battery pack and output port and 2) between the battery pack and output terminals as required by Claims 1 and 21. The only evidence cited and analyzed in the Petition is Fig. 1, which shows a single current path between lithium battery 4 and output control circuit 5 in Chen Fig. 1. Petition at 19; Ricketts ¶¶151-155.

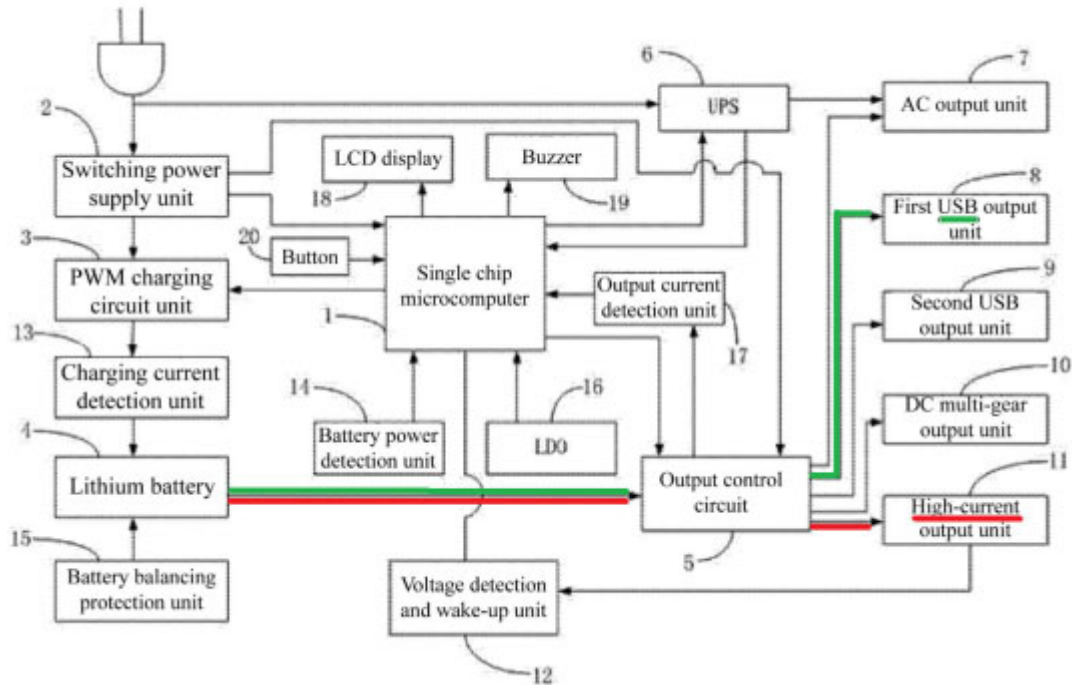


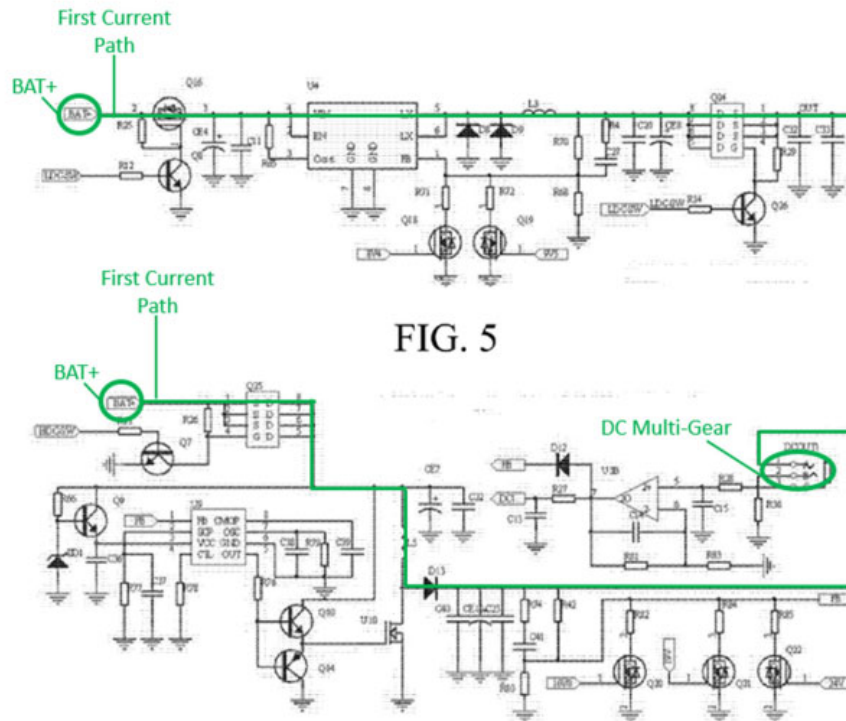
Fig. 1 shows a single current path from the battery shared by the high current output unit 11, DC multi-gear output 10, and USB outputs 8 and 9, until the paths diverge (as they must) at the output control circuit 5, so that the current path can terminate and different end points. But as Dr. Ricketts explained, that difference, alone, cannot be sufficient to constitute the claimed different path under any construction, because all current paths terminating at different end points must have this difference. Ricketts ¶98. Limitations [21.3] and [21.4] are not met because the same structure is relied upon, in part, to meet both elements. Ricketts ¶¶151-155.

Relying on the claim construction dispute for limitation [1.3] and the *Axonics* ruling, Petitioner's Reply cites new evidence, not previously analyzed in the Petition, identifying new Figures and their circuits and structures with respect to limitation

[1.3], and specifically, to identify the two claimed current paths and explain how they are different.¹ Petitioner's Reply contains analysis, including annotated circuit diagrams, of Figures 3, 4, 5, 6, and 7 of Chen, none of which was included in the Petition. The Petition does not reference Figs. 3, 5 and 6 with reference to this limitation. The Reply's analysis of Fig. 4 and the claimed second current path is deficient for two reasons.

First, the identification of the first of the two current paths in the Reply is between the battery and the DC-multi-gear output 10 (and not the USB port 8, 9), as shown below from Reply p. 11.

¹ Petitioner cannot rely on *Axonics* to identify new evidence in Chen to meet the current path limitations of Claim 21, because no construction of a current path element in this claim was proposed by Patent Owner.



As explained below in Section IV.A.1.b, limitations [1.2], [1.3], [1.4], place requirements on one output port identified by the Petitioner, and the Petitioner only analyzed the USB port with respect to limitation [1.3]'s requirement that the first current output put the output port is higher than the second current.

Second, Petitioner failed to explain where in Chen there is a disclosure that the labeled “B1+” node connects to a battery. This failure is evident when comparing the Reply’s analysis of the first current path, which identifies a battery and its connection to the “BAT+” node (and not the “B1+”) node. Thus, the Reply’s additional evidence of Chen cited on p. 11-12 fails to disclose limitation [1.3]'s requirement that the second current path terminate at the battery pack (“current path

to the battery pack different from that of the at least one output port to the battery pack”).

b. The Petition Does Not Identify the Claimed First Protection Circuit (Limitation [1.4] / [21.4])

Limitations [1.2], [1.3], and [1.4] require that all elements are disclosed with respect to one output port in a prior art reference:

[1.2]	at least one output port coupled to the battery pack, wherein the battery pack is configured to output a first current through one or more output ports of the at least one output port in a first operating mode;
[1.3]	a pair of output terminals coupled to the battery pack and having a current path to the battery pack different from that of the at least one output port to the battery pack, wherein the battery pack is configured to output a second current capable of starting a vehicle engine through the pair of output terminals in a second operating mode, wherein the second current is higher than the first current;
[1.4]	a first protection circuit coupled to the battery pack and configured to protect the battery pack when the battery pack is working in the first operating mode; and

Limitations [21.2], [21.3], and [21.4] recite similar limitations.

As Dr. Ricketts explained, while Chen has several ports which Petitioner could have relied upon to show an output port, it only provided an analysis of limitation [1.3]/[21.3] with respect to the USB output port.

Finally, as detailed above, 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]. This, of course, is hundreds of times greater than the first current that is output to Chen's USB units 8, 9 that achieved the "backup power supply for mobile devices" ([0034]) by outputting according to the ubiquitous "USB" standard (5V/0.5A). EX1006, [0026], [0034]; FIG. 7 (USB buck output); EX1003, ¶57 and ¶26.

The evidence cited in the original Petition (including EX1003, ¶57) said nothing about Chen's teachings concerning the maximum current output of the multi-gear output 10, so the Petition failed to establish that limitation [1.3] requirement that "wherein the second current is higher than the first current" was literally disclosed under § 102 in Chen using the multi-gear output 10 as the claimed output port 10.

Thus, because the USB port is the only possible port that could meet limitation [1.3], the next step is to determine whether the identified protection circuit for limitation [1.4] was "configured to protect the battery pack when the battery pack is working in the first operating mode" (i.e. outputting current through the USB port). This is what the Petition identified on Page 20:

the first protection circuit is connected to the battery (“BAT+”) and includes at least the electronics of “U3B and D12” to form “an output power limit control.” EX1006, [0026], FIGS. 5-7. 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).

As Dr. Ricketts explained in ¶158, the circuit identified and analyzed in the Petition does not protect from an overcurrent condition in the USB outputs 8,9. Rather, the circuit identified in the petition protects a different output port not analyzed for limitation [1.3], multi-gear output 10.

The Reply p. 14 indicates that it can identify a protection circuit for the multi-gear output 10 for limitation [1.4] and the USB output port for limitation [1.3]. That is wrong. Limitations [1.2], [1.3], and [1.4] require Petitioner to identify an output port in Chen, and with respect to that same port, determine whether all limitations were met. Petitioner did not perform a complete analysis for a first USB output unit 8, a second USB output unit 9 or DC multi-gear output unit 10. It is improper to rely on USB outputs 8, 9 for limitation [1.3], then rely on the circuit for multi-gear output 10 when analyzing limitation [1.4].

The Reply pp. 13-14 includes new technical evidence not presented or analyzed in the Petition, such as a numerical calculation of the current output of the multi-gear output 10, which was not present in the original Petition or supporting

declaration in the analysis of limitations [1.3] or [21.3]. This is improper Reply evidence and should be disregarded by the Board.

c. Chen does not disclose a second protection circuit that prevents an overcurrent condition (Limitation [1.5] / [21.5])

The PO Response, explained why the Petition's identified circuits are voltage detection circuits, and not current detection circuits. Pp. 36-39; Ricketts ¶162-65, Stated another way, these circuits do not detect a current or protect against an overcurrent condition -- the second current being provided in the second path exceeding a maximum current value -- as required by the claims. *Id.* Rather, the circuit detects voltages to determine when a jumpstarting operation is completed, by measuring a voltage across the clamps indicative of the vehicle voltage, scaled using a resistor to a voltage that can be safely input to an MCU. *Id.*

Petitioner's Reply on Page 16 states that Chen's circuit, which "automatically turn[s] off" the output current and thereby "prevent long-term high current output from damaging the lithium battery," is an overcurrent protection circuit. It is not. These circuits are measuring a voltage to determine when a jumpstarting operation should be complete because the voltage of the vehicle to be jumpstarted has returned to normal. Ricketts ¶162-65. These circuits are not preventing an overcurrent condition, which a POSITA would understand is a current output exceeding a maximum value. *Id.* The '506 specification confirms this common understanding of

overcurrent – an “excess of current” which is “detected” and a condition where current is limited to a maximum value. EX1001 5:17-25, 6:7-21 (“second protection circuit 111 may limit the second current below a predetermined threshold such as 400 A). There is no such detection circuit which accomplishes this in Chen.

B. Grounds 1B-1D

The Petition does not rely on any of the secondary references in these grounds to address the shortcomings of Chen outlined in Ground 1A for the independent claims, so these grounds fail to invalidate any claim.

V. INSKEEP GROUNDS

A. Ground 2A: §103 – Inskeep (US2010/0301800) in view of Johnson (US4,969,834)

1. Claims 1 and 21

As explained in Section IV.A.1.b, limitations [1.2], [1.3], and [1.4] require that all elements are disclosed with respect to one output port in a prior art reference, and limitations [21.2], [21.3], and [21.4] recite similar limitations.

a. Output Ports identified as meeting limitation [1.2]

For Limitation [1.2]/[21.2], the Petition cites the USB port and the DC 12V port P1 in FIG. 3 and FIGS. 2 and 4 in Inskeep as “one or more output ports of the at least one output port in a first operating mode.”

b. The Petition failed to analyze whether the DC 12V port P1 meets limitation [1.3]/[21.3]

The Petition only analyzed whether the current to the output terminals was greater than the current to the USB terminals, as shown below on Page 56 of the Petition.

are different from the jumper cable path); EX1003, ¶161. Also, based on the Inskeep teaching, the second current (to the jumper cables) is higher than the first current (to either of Inskeep's "USB" port 104 or 12V cigarette-plug port output 122). EX1003, ¶161. Indeed, Inskeep teaches the second current path should output "500A instantaneous-on, 5 seconds 300 A-off, 12 VDC" (EX1008, [0025]). The evidence here confirms this jumpstarting current is significantly greater than the first current that is output to Inskeep's USB port 104 that output according to the traditional "USB" standard (5V/0.5A) and furthermore indicates an amperage far exceeding Inskeep's normal "conventional cigarette style plug" of the 12V DC output 112. EX1009, [0032], [0034]; FIG. 3; EX1003, ¶161 and ¶26.

Besides a conclusory statement that the current to the jumper cables is higher than to Inskeep's cigarette lighter, there is no evidence cited in the Petition or supporting materials about the current capabilities of this port cited in Inskeep, or a comparison of this current capability to that of the jumper cables. Dr. Ricketts' explained this in ¶190 of his Declaration (EX2001), and during his deposition (EX1101,120:2-122:7). The Petition refers to a "conventional" plug but that, as explained by Dr. Ricketts, refers to the mechanical specifications or form factor of such a port and does not indicate a standardized maximum current to a POSITA.

EX1101, 157:11-159:4. Pages 19-20 of the Reply tries to cite new evidence from Inskeep about the usage of this port and voltage outputs to infer a maximum current, but this new evidence does not state the maximum current capability of the port, and in any event, is improper reply evidence and should be disregarded by the Board.

c. The USB port does not meet limitation [1.4]

The Reply largely repeats the same evidence as the Petition, and does not address the issue the Response and Dr. Ricketts raised. Pp. 51-53. Ricketts ¶¶192-97. Specifically, the evidence cited by the Petitioner explains how the USB port is prevented from operating at voltages below five volts.

[0032] The apparatus is formed in a stylized housing **100** having a handle **101** for ease of portability and a panel **102** including accessories outputs namely the USB port (USB1) **104** that is electrically coupled to the internal battery BT1. The USB port has a low voltage protection circuit to prevent operation of the USB port at voltages below 5 volts. The output voltage level can be made adjustable, however, in the preferred embodiment a 5 volt level is maintained by use of step-down transformer L1 with the signal stabilized by capacitors C3 and C4.

The above teaching in [0032] and FIG. 3 in Inskeep constitutes the entire evidence cited by the Petition on the claimed first protection circuit. This teaching, however, is directed to a circuit for maintain the USB port output voltage only during operation and does not suggest any feature or function with respect to “to protect the

battery pack when the battery pack is working in the first operating mode.” The Petitioner Reply does not address this deficiency in the Petition.

d. Conclusion: No output port meets all limitations [1.2], [1.3], and [1.4] / [21.2], [21.3], and [21.4]

Thus, the Petition failed to identify one output port that meets all of limitations [1.2], [1.3], and [1.4]. Limitations [21.2], [21.3], and [21.4] are also not all met for the same reasons.

e. The Petition Did Not Identify a “First Operating Mode” / “Second Operating Mode” in Inskeep (Limitations [1.2]/[1.3], Limitations [21.2]/[21.3])

The Petition described USB output port functionality with respect to limitations [1.2] and [21.2] without identifying any disclosure in Inskeep or Johnson that described what the output terminals were configured to do or capable of doing during this alleged “first operating mode.” Similarly, the Petition described output terminal functionality with respect to limitations [1.3] and [21.3] without identifying any disclosure in Inskeep or Johnson that described what the identified USB port was configured to do or capable of doing during this alleged “second operating mode.” As such, the IPR petition did not account for all of the requirements of the “first operating mode” and “second operating mode” under the proper construction of those limitations. Response pp. 53-54. Ricketts ¶¶201-02.

Relying on the claim construction dispute for limitation [1.2]/[1.3] and [21.2]/[21.3], Petitioner's Rely now cites new evidence, not previously analyzed in

the Petition, identifying new Figures and their circuits and structures with respect to these limitations, and specifically, to identify the two operating modes under Patent Owner's construction. The Reply identified new evidence not included in the Petition, concerning the display panel of the device. This evidence includes "An engine icon 18 is depicted when the jump starter circuit is activated. A USB icon 20 is depicted when the USB port is available for use and illustrating of the voltage output." EX1008 [0027]. But this evidence does not indicate the presence of a first operating mode and second operating mode according to the proper claim construction of these terms. These are merely status indicators indicating the functionality of both ports, and Petitioner has pointed to no disclosure that selectively configures the output port or terminal for operation in a first operating mode and second operating mode, while inhibiting the inactive output port or terminal, as required by Petitioner's constructions.

B. Ground 2B: §103 – Inkeep in view of Johnson and Durando (US2012/0068662)

The Petition does not rely on Durando to address the shortcomings of Chen outlined in Ground 1A for the independent claims, and thus this ground fails to invalidate any claim.

VI. NOOK GROUNDS

A. Ground 3A - Nook (WO2016/003471)

1. Claims 1, 2, 6, 8, 11-16, 19-22, 27-30, 33

a. The Petition Did Not Identify a “First Operating Mode” / “Second Operating Mode” in Nook (Limitations [1.2]/[1.3], Limitations [21.2]/[21.3])

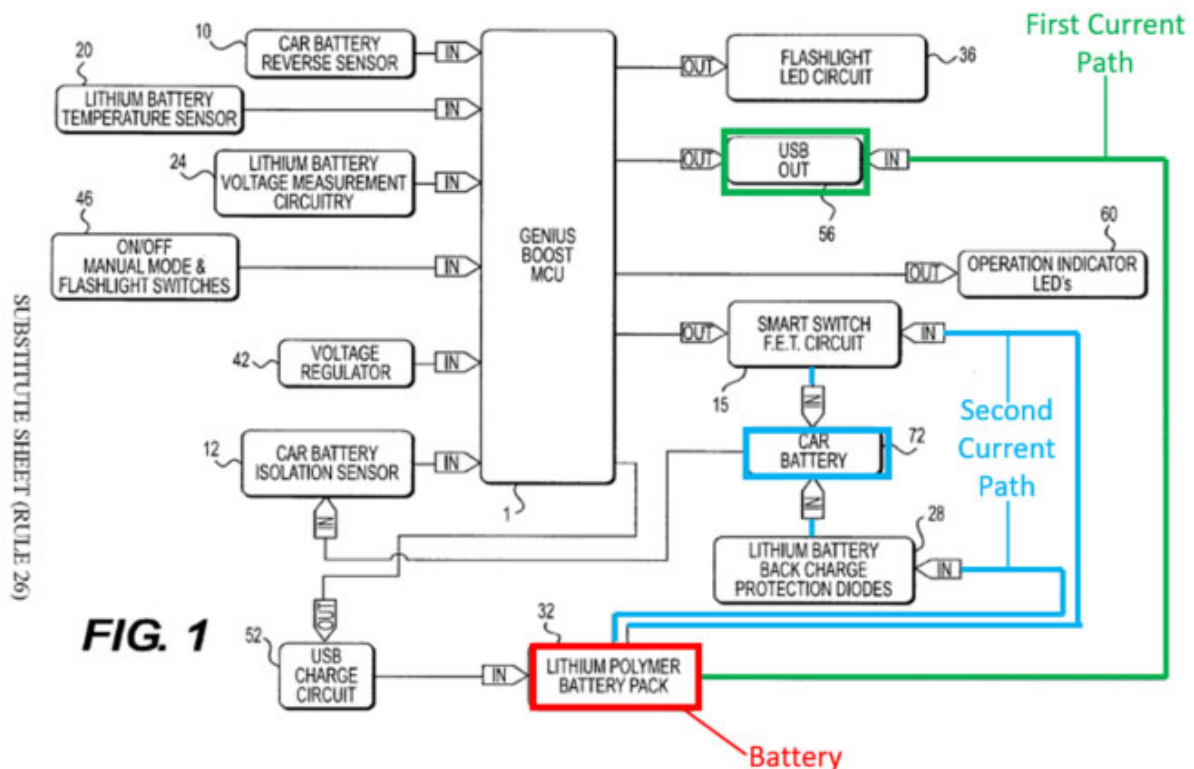
The Petition did not account for all of the requirements of the “first operating mode” and “second operating mode” under the proper construction of those limitations. Response at 56-58. Nook discloses a USB port that is always enabled to output a current unless the battery voltage is too low, in which case the USB port is disabled, and the jumpstarter output terminals are also disabled (without power because the power FET switch will not close). Thus, there is no second mode of operation under the proper construction. *Id.*; Ricketts ¶200.

The Reply on pages 25-26 cites new evidence, not included in the petition, concerning the circumstances in Nook's disclosed device under which the output port and output terminals can be configured to output current, to explain operation in the first and second operating modes. But the new evidence suffers from the same deficiency explained above with respect to the USB output, because the USB port is only disabled when the current to the output terminals is also inhibited – because of a low voltage condition. Therefore, the newly cited evidence does not disclose a second operating mode.

**b. The Petitioner Reply Cites to New Evidence
Concerning the Claimed Current Paths (Limitations
[1.2]/[1.3], Limitations [21.2]/[21.3])**

The Petition does not identify the current path between the USB port (the alleged output port) and the battery pack, or between the clamps (the alleged output terminals) and the battery pack. Petition 70-72. Because it does not identify any current path, the Petition does not compare these paths to determine whether they are different from one another, or separate structures.

The Reply now cites Fig. 1, with new annotations, to illustrate these paths and how they are different.



Reply p. 27.

Fig. 1 was not cited in the Petition, nor annotated to show these paths or any other teaching related to Limitations [1.2]/[1.3], Limitations [21.2]/[21.3]. Petitioner claims that the claim construction dispute over the “current path” limitations in Claim 1 justifies this identification of new Reply evidence under *Axonics*, but as explained in the introduction, *Axonics* expressly prohibits submitting new evidence when the Petition fails to make a prima facie case of invalidity, in this case, by failing to identify any current path or the differences between the paths.

c. Nook does not disclose “ a second protection circuit ... configured to prevent overcurrent condition when the battery pack is working in the second operating mode” (Limitations [1.5]/[21.5])

The Response, citing Dr. Ricketts, explained why none of the identified circuits prevent an overcurrent condition by taking an action based on the output current exceed a current threshold in the second operating mode. Pp. 59-60. EX2001 ¶¶107-08. As was the case for the Chen grounds, the Reply pp. 27-28 claims that Patent Owner added a requirement that a current needs to be detected. This is wrong. The Reply fails to explain why any of the identified circuits inhibit the output of current over a current threshold (and thus prevent an overcurrent condition) when the device is working in a second operating mode. None of the actions taken by the devices are based on the existence of an overcurrent condition, and the Petitioner has not explained why these circuits would prevent an overcurrent condition.

B. Grounds 3B-3E

1. Nook is not prior art

As explained in Section III.D, Nook is not prior art with respect to at least the independent claims. As such, these grounds fail to invalidate independent claims 1 or 21, and all challenged dependent claims, which depend on these claims.

2. The secondary references do not cure the deficiencies of Nook

The Petition does not rely on any of the secondary references in these grounds to address the shortcomings of Nook outlined in Ground 3A for the independent claims, so these grounds fail to invalidate any claim.

VII. CONCLUSION

Based on the record in this proceeding, Petitioner failed to meet its ultimate burden of proof on the unpatentability of Claims 1–3, 6–23, and 25–33.

Dated: March 5, 2025

Respectfully submitted,

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CERTIFICATION OF WORD COUNT 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 PATENT OWNER'S SUR-REPLY totals 5,600 words, excluding the parts exempted by 37 C.F.R. § 42.24(a). This word count was made by using the built-in word count function tool in the Microsoft Word 365 software used to prepare the document.

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true copy of the foregoing PATENT OWNER'S SUR-REPLY was served in its entirety this 5th of March, 2025 by electronic mail on the Petitioner via its attorneys of record:

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