UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DELTRAN USA LLC
Petitioner

v.

THE NOCO COMPANY
Patent Owner

Case IPR2024-01219
Patent No. 11,667,203

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

TABLE OF CONTENTS

UPDATED EXHIBIT INDEX iii

LISTING OF CHALLENGED CLAIMS vii

I. INTRODUCTION 1

II. NOCO MISREPRESENTS FACTS, THE PETITION, AND THE PRIOR ART. 2

A. Despite NOCO's mischaracterizations, Richardson teaches limitation 1[G] 2

1. Even under NOCO's claim construction, Richardson's step 252 teaches the claimed feature 3

2. NOCO's argument that Richardson is inoperable is irrelevant to the grounds of the petition and factually incorrect 5

B. Yu teaches limitation 1[G] 8

C. NOCO's Motivation to Combine Arguments Are Disingenuous and Factually Incorrect. 13

1. NOCO Does not Argue That USB Would Not Work Given Sufficient Time 13

2. NOCO Intentionally Ignores Prior Art Evidence of USB-

Charged Jump Starters. 14

3. NOCO is incorrect that "USB [is] a nonviable option for portable jump starters." 17

4. A POSITA Would Have Considered USB Charging to be Appropriate for Both Richardson and Yu 20

D. Richardson Teaches Claim 5 23

1. NOCO's Interpretation of Claim 5 Ignores Key Portions of the Claim 23

2. Under a correct understanding, Richardson teaches claim 5 25

III. GROUNDS 2 AND 5 ARE NOT "BASED ON" AAPA.....26

IV. COLLATERAL ESTOPPEL 27

V. NOCO HAS WAIVED ARGUMENTS 27

VI. CONCLUSION.....28

UPDATED EXHIBIT INDEX

Ex #	Exhibit Description
1001	U.S. Patent No. 11,667,203 ("the '203 Patent")
1002	Prosecution History of the '203 Patent
1003	Expert Declaration of C. Arthur MacCarley
1004	*Curriculum Vitae* for C. Arthur MacCarley
1005	U.S. Patent Publication No. 2013/0154543 A1 to Richardson et al. ("Richardson")
1006	U.S. Patent No. 9,391,467 B2 to Zhao et al. ("Zhao")
1007	Chinese Utility Model Patent No. CN 203211234 U to Yu ("Yu")
1008	Certified English Translation of Yu
1009	U.S. Patent No. 9,219,372 B2 to Paparrizos et al. ("Paparrizos")
1010	U.S. Patent Publication No. 2004/0130298 A1 to Krieger et al. ("Krieger")
1011	U.S. Patent Publication No. 2013/0241488 A1 to Dao ("Dao")
1012	Carku Product Brochure for the Epower-20 jump starter product ("Epower-20")
1013	Carku Product Brochure for the Epower-21 jump starter product ("Epower-21")
1014	IPR2020-00944 Exhibit 1022 – Declaration of Xingliang (Leon) Lei
1015	IPR2020-00944 Exhibit 2024 – Transcript of Deposition of Xingliang (Leon) Lei
1016	U.S. Patent Publication No. 2013/0285596 A1 to Zhou et al. ("Zhou")
1017	U.S. Patent No. 9,035,599 B2 to Amemiya et al. ("Amemiya")
1018	Chinese Utility Model Patent No. CN 202512152 U
1019	Certified English Translation of CN 202512152 U
1020	Chinese Utility Model Patent Publication No. CN 201226449Y

Ex #	Exhibit Description
1021	Certified English Translation of CN 201226449Y
1022	Chinese Utility Model Patent No. CN 203788026 U
1023	Certified English Translation of CN 203788026 U
1024	Declaration of Jeffrey L. Ravencraft of USB Implementers Forum, Inc., dated October 28, 2023 ("Ravencraft Decl.")_
1025	Battery Charging Specification, Revision 1.0, Mar. 8, 2007 from the Universal Serial Bus Implementers Forum ("USB-IF"), Ex. D to Ravencraft Decl.
1026	Transcript of Deposition of Bryan A. Legates, dated September 25, 2023 ("Legates Dep. Tr.")
1027	Bryan Legates, "Current-Limited DC/DC Converter Simplifies USB Power Supplies," LINEAR TECHNOLOGY MAGAZINE, (Feb. 1, 2001),
1028	Complaint filed against Defendants in the Middle District of Florida (ECF No. 1), filed on November 13, 2023
1029	XR3403 Datasheet by XySemi Inc., Rev. 0.5
1030	Defs. Deltran USA and Deltran Operations USA Stipulation Regarding Invalidity Contentions
1031	Brents, Barry, "Automotive Electronics Drive The Need For Circuit Protection," Electronic Design (May 7, 2014), accessed via https://www.electronicdesign.com/technologies/power/article/21799679/automotive-electronics-drive-the-need-for-circuit-protection
1032	Healey, James R., "Newest VW lacks USB, only iPhones welcome," USA Today (July 8, 2014), accessed via https://www.usatoday.com/story/money/cars/2014/07/08/vw-gti-2015-usb-iphone/12378577/
1033	U.S. Patent No. 9,007,015 to Nook et al. ("the '015 Patent")
1034	Final Written Decision in IPR2020-00944 (Paper 73) as to the '015 Patent, dated November 3, 2021
1035	Judgment Affirmed, Fed. Cir. R. 36 (ECF No. 52) in Nos. 2022-1646, 2022-1741, Fed. Cir. appealed from IPR2020-00944, dated February 12, 2024
1036	U.S. Patent No. 5,793,185 to Prelec et al. ("Prelec")

Ex #	Exhibit Description
1037	[INTENTIONALLY BLANK]
1038	[INTENTIONALLY BLANK]
1039	Excerpt of Prosecution History of the '023 patent, Amendment and Response to Non-Final Office Action dated October 25, 2021†
1040	U.S. Patent No. 9,954,391 to Lei ("Lei")
1041	U.S. Patent No. 2007/0108940 to Sainomoto et al. ("Sainomoto")
1042	Fronter Economics, The Development of the USB Standard, An Interoperability Case Study (available at https://www.frontier-economics.com/media/uful43pg/case-study-the-development-of-the-usb-standard-final.pdf), last visited July 11, 2024.
1043	Wikipedia.co, USB, (available at https://en.wikipedia.org/wiki/USB), last visited on July 11, 2024.
1044	www.diskmfr.com, USB versions differences and development history (available at https://www.diskmfr.com/usb-versions-differences-and-development-history/), last visited July 11, 2024.
1045	Wikipedia.com, Boost Converter (available at https://en.wikipedia.org/wiki/Boost_converter), last accessed July 11, 2024.
1046	U.S. Patent No. 4,451,743 to Suzuki et al.
1047	IPR2024-00577, Patent Owner Preliminary Response, June 4, 2024
1048	IPR2024-00671, Patent Owner Preliminary Response, June 13, 2024
1049	"Chevrolet, GMC Pack USB Ports Into 2014 Pickups," cars.com (2013) (available at https://www.cars.com/articles/chevrolet-gmc-pack-usb-ports-into-2014-pickups-1420663052892/) (last accessed July 14, 2024)

† The Petition's exhibit list mistakenly stated that EX1039 was the prosecution history for the '015 patent, instead of the '023 patent as intended. Only the exhibit list included this error, filed exhibit and citations to this exhibit properly referenced the '023 patent. The listing of Exhibit 1039 is hereby corrected.

Ex #	Exhibit Description
1050	Len Sherman, "The Basics of USB Battery Charging: A Survival Guide," Maxim Integrated (December 9, 2010)
1051	Comparison of invalidated '015 patent claims to '203 Patent claims
1052	Wayback Machine Capture of www.bestbuy.com from June 3, 2012
1053	Declaration of Yingchun Wan, dated May 11, 2020
1054	IPR2024-0000671, Decision Granting Institution of *Inter Partes Review*, August 29, 2024
1055	IPR2024-00577, Decision Granting Institution of *Inter Partes Review*, August 29, 2024
1056	Def. Deltona Transformer Corp.'s Stipulation Regarding Invalidity Contentions
1057	Reply Expert Declaration of C. Arthur MacCarley
1058	Transcript of Deposition of Dr. Fayed
1059	Public Trial Transcript pages 794-1069, ITC-337-TA-1359
1060	Final Initial Determination, ITC-337-TA-1359
1061	Voltaic V39 archived website
1062	Powerstation PSX3 Jump Starter Manual 2013
1063	Youtube Video regarding PSX Jump Starter
1064	Archived website – Richardson Infinity Series Jump Starter
1065	Dell Alienware 18 Specifications (2013)
1066	Transcript of Deposition of Dr. Fayed in IPR2024-00671
1067	Voltaic V39 archived website showing USB cable
1068	IPR2024-00671, Paper 24, Final Written Decision, '243 patent (August 26, 2025)
1069	IPR2024-00577, Paper 25, Final Written Decision, '023 patent (August 26, 2025)

LISTING OF CHALLENGED CLAIMS

U.S. Patent No. 11,667,203 (Claims 1-11)

Claim	Claim Language
1[PRE]	A jump starter apparatus for jump starting a vehicle battery, comprising:
1[A]	a power supply that includes one or more rechargeable batteries;
1[B]	a USB port configured to receive power from an external power source for charging the one or more batteries;
1[C]	a DC-DC converter coupled between the USB port and the one or more rechargeable batteries and configured to increase a voltage received from the external power source for charging the one or more rechargeable batteries;
1[D]	a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus;
1[E]	a reverse polarity sensor, separate from the vehicle battery isolation sensor, configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery; and
1[F]	a power switch configured to electrically connect the power supply to the vehicle battery,
1[G]	wherein the power switch is controlled based on signals from the vehicle battery isolation sensor and the reverse polarity sensor such that the power supply is connected to the vehicle battery when both (i) the vehicle battery isolation sensor currently indicates that the vehicle battery is connected to the jump starter apparatus, and (ii) the reverse polarity sensor currently indicates that the jump starter and the vehicle battery are connected with the proper polarity connection.
2	The jump starter apparatus of claim 1, wherein the jump starter apparatus is a hand-held device.

Claim	Claim Language
3[A]	The jump starter apparatus of claim 1, further comprising: a positive battery terminal connector for electrically connecting the jump starter apparatus to a positive terminal of the vehicle battery; and
3[B]	a negative battery terminal connector for electrically connecting the jump starter apparatus to a negative terminal of the vehicle battery.
4	The jump starter apparatus of claim 1, further comprising: a controller that receives the signals from the vehicle battery isolation sensor and the reverse polarity sensor and controls the power switch.
5	The jump starter apparatus of claim 4, wherein the controller is configured to automatically cause the vehicle battery isolation sensor to detect presence of the vehicle battery and the reverse polarity sensor to detect polarity of the vehicle battery when the vehicle battery is electrically connected to the jump starter apparatus and the jump starter apparatus becomes operational.
6	The jump starter apparatus of claim 1, wherein the power switch is a FET switch.
7	The jump starter apparatus of claim 1, wherein the reverse polarity sensor comprises an optically coupled isolator phototransistor coupled to a vehicle battery terminal connector via a diode.
8	The jump starter apparatus of claim 1, wherein the vehicle battery isolation sensor comprises an optically coupled isolator phototransistor coupled to a vehicle battery terminal connector via a diode.
9	The jump starter apparatus of claim 1, further comprising: a battery charge controller configure [sic] to control charging of the one or more rechargeable batteries from the USB port.

Claim	Claim Language
10	The jump starter apparatus of claim 9, wherein the jump starter apparatus is further configured to provide power for charging an external device.
11	The jump starter apparatus of claim 10, further comprising: a USB output port for providing power from the rechargeable power supply for charging the external device.

I. INTRODUCTION

NOCO's Response misrepresents the Petition, the prior art, and a POSITA's knowledge. The Board should reject the unreliable premises of NOCO's arguments and find that the challenged claims are unpatentable.

NOCO presents three main arguments: (1) it would not have be obvious to combine Richardson and Zhao or Yu and Paparrizos due to purportedly long charging times; (2) Richardson and Yu fail to teach the (alleged) order-of-steps and battery-presence-sensor-based control of limitation 1[G]; and (3) Richardson fails to teach detecting a vehicle battery immediately after the device is powered on according to NOCO's contorted interpretation of claim 5. Each of these arguments are built on mischaracterizations and should be rejected.

NOCO's first argument is a red herring, a POSITA would not consider charging times to be either a perceived or actual issue. Indeed, the Board recently rejected NOCO's arguments regarding the Richardson–Zhao and Yu-Paparrizos combinations in parallel IPR proceedings. *See ADC Solutions Auto, LLC d/b/a Type-S v. The Noco Company*, IPR2024-00671, paper 24, Final Written Decision (Aug. 26, 2025) (EX1068); *ADC Solutions Auto, LLC d/b/a Type-S v. The Noco Company*, IPR2024-00577, paper 25, Final Written Decision (Aug. 26, 2025) (EX1069). Second, Richardson's step 252 and Yu's system both teach limitation 1[G] even under NOCO's construction; and NOCO's premise that Richardson is not self-

enabled is unsupported. Third, under a proper understanding of claim 5, Richardson clearly teaches the claimed feature.

In addition to the above, NOCO misrepresents Petitioner's collateral estoppel arguments as asking the Board fill gaps in non-estopped claim elements with the prior art and ignores the fact that Grounds 2 and 5 include alternative, non-AAPA references. Instead, regardless of collateral estoppel, the Petition maps the teachings of the prior art and provides non-AAPA based grounds for all claims.

II. NOCO MISREPRESENTS FACTS, THE PETITION, AND THE PRIOR ART.

Petitioner urges the Board to treat NOCO as an unreliable narrator. Throughout the Response, NOCO misrepresents the Petition, the references, the experts, and the law. Through truncated quotations and willful ignorance of known facts, NOCO re-frame's the petition as its preferred strawman, because, as explained below, the evidence supports the Petition's actual arguments.

A. Despite NOCO's mischaracterizations, Richardson teaches limitation 1[G]

Richardson's system when used in "auto" mode unambiguously teaches limitation 1[G], even under NOCO's asserted construction. *See* Pet., 41-49.

NOCO does not dispute that Richardson performs reverse polarity detection or that Richardson's vehicle voltage sensor is involved in controlling the contact relay (power switch). *See* POR., 44-45. Instead, NOCO argues that step 252 of

Richardson fails to teach detecting the presence of a battery according to the order-of-steps (allegedly) required by limitation 1[G].[2] EX1057, ¶¶3-4. However, NOCO has mischaracterized the petition's mapping of Richardson to limitation 1[G] and is factually incorrect regarding Richardson's disclosure.

1. *Even under NOCO's claim construction, Richardson's step 252 teaches the claimed feature*

Even under NOCO's interpretation, Richardson teaches limitation 1[G]. NOCO argues that because Richardson's manual mode allows the jump starter to be used with a dead battery or if no battery is present, Richardson's step 252 does not detect the presence of a non-dead battery. POR, 24-25. NOCO is incorrect both regarding the petition's mapping and how Richardson's device functions.

The Petition relies on Richardson's auto-mode which teaches the claimed feature. Richardson's step 252 prevents the contact relay (*i.e.*, the power switch) from closing if an appropriate vehicle battery is not present. *See* Pet., 41-43. Dr. Fayed agrees that if the difference in voltage is outside of a "predetermined range" then further operation, including closing of the contact relay, is prohibited. EX1005,

[2] As to NOCO's argument regarding step 302, Petitioner does not concede that NOCO's interpretation of limitation 1[G] is correct, but chooses to focus on Richardson's step 252.

¶34; Pet., 43; EX1058, 41:9-15 (Q. If the difference between the connected battery, the vehicle battery, and the configuration that the user selected is outside of that predetermined range in tolerance, then Richardson says further operation is prohibited, correct? A. That's what it explains, yes."), 44:18-45:4 (confirming that the contract relay is not closed if Step 252 returns a "no"). Accordingly, there is no dispute that if step 252 detects the presence of an appropriate battery (*i.e.*, the difference in voltage is *within* the predetermined range), then the contact relay (power switch) will close if Richardson's other safety checks are also passed. EX1057, ¶¶5-8.

Accordingly, a POSITA would understand that when operating in auto-mode, Richardson's step 252 only returns a "yes" if an appropriate battery is present—as opposed to manual mode may be used if a battery is not present or if a battery voltage is under 10 volts (*e.g.*, a dead battery)). EX1005, ¶47 (stating that manual mode may be used for an under 10V battery and without a battery). Regardless of how manual mode operates, Richardson's disclosed auto-mode operates according to NOCO's alleged timing requirement for limitation 1[G]—step 252 detects an appropriate battery ***before*** the switch is closed. EX1057, ¶¶7-9.

NOCO's arguments—premised on Richardson's ***manual*** mode—fall flat. Limitation 1[G] is clearly taught by Richardson's auto-mode and the petition relies on this mapping alone.

2. *NOCO's argument that Richardson is inoperable is irrelevant to the grounds of the petition and factually incorrect*

NOCO argues that Richardson is a "non-self-enabled reference that is fundamentally inoperative," if Richardson's step 252 is interpreted as returning a "no" when a dead battery or no battery is present. POR, 31. Specifically, NOCO argues that this interpretation conflicts with Richardson's description of manual mode. NOCO's arguments fail for several reasons.

First, NOCO mischaracterizes the Petition to set up a red-herring argument. NOCO incorrectly summarizes the Petition as stating "[s]tep 252 of Richardson would prevent jump starting and display an incorrect voltage message when no vehicle battery is present." POR, 30. But, this is only NOCO's re-framed target of what "Petitioner's position ***appears to be****...." Id.* NOCO alleges this re-framed argument was "confirmed" by Dr. MacCarley. POR, 25. But again, NOCO has mischaracterized the record.

NOCO fails to recognize that the Petition and Dr. MacCarley both focus on Richardson's auto-mode. *See* §II.A.1, *supra*. Indeed, the Petition cites portions of Richardson that discuss how auto-mode works. Pet, 42 (citing EX1005, ¶¶7, 27, 34, 41); EX1057, ¶¶12-16 (explaining that Richardson discusses "manual" mode in ¶47); *cf.* POR, 26-27 (summarizing Richardson's disclosure but skipping twelve paragraphs that discuss auto-mode); EX2003, ¶151 (same). NOCO ignores

Richardson's auto-mode and the Petition's mapping of the same to create its red herring. Accordingly, the Board should not take NOCO's characterizations at face value. Instead, as discussed above, the Petition maps Richardson's auto-mode. *See* §II.A.1, *supra*.

Second, whether Richardson is "inoperable" or enabled based on manual mode is irrelevant to the grounds of the Petition. Dr. Fayed agrees that manual mode is an optional feature in Richardson. EX1058, 51:16–52:4 ("[Richardson] says that you ***may*** be able to use the device if you are in manual mode…. So ***that's an option*** or a feature that exists in it." (emphasis added)). Thus, Richardson teaches at least one embodiment where auto mode is included but manual mode is not. In that embodiment, auto mode still meets the claimed features. *See* §II.A.1, *supra*; EX1057, ¶17.

"[T]he relevant inquiry is not whether [a prior art reference] was enabled when it was published, but whether a person skilled in the art would have been able to combine ***the relied-upon elements*** of [the prior art]" at the time of the challenged patent. *Analog Devices, Inc. v. Xilinx, Inc.*, 2022 WL 1157604, at *14 (PTAB Apr. 13, 2022); *see also Apple Inc. v. Corephotonics, Ltd.*, 861 Fed. Appx. 443, 450 (Fed. Cir. 2021) ("[R]egardless of the forum, prior art patents and publications enjoy a presumption of enablement….").

Third, NOCO is ***factually incorrect*** that Richardson would be inoperative

and/or non-self-enabled. A POSITA would understand that at step 252 Richardson could simply use two different "predetermined ranges"—one for manual mode and another for auto-mode. EX1057, ¶¶18-20. As shown in the table below, step 252 could provide different results for each battery scenario depending on which mode the system is in:

Vehicle Battery State	Result of Step 252	
	Manual Mode	Auto-Mode
Vehicle Battery Appropriate for Selected Jump Starter Voltage	Yes	Yes
Dead Vehicle Battery	Yes	No
No Vehicle Battery Connected	Yes	No

Indeed, step 248—the step immediately prior to step 252—requires the user to put the jump starter in one of the two modes by pressing "auto" or "manual" ***before*** step 252 can occur. EX1005, ¶33-34, Fig. 5 (annotated below).

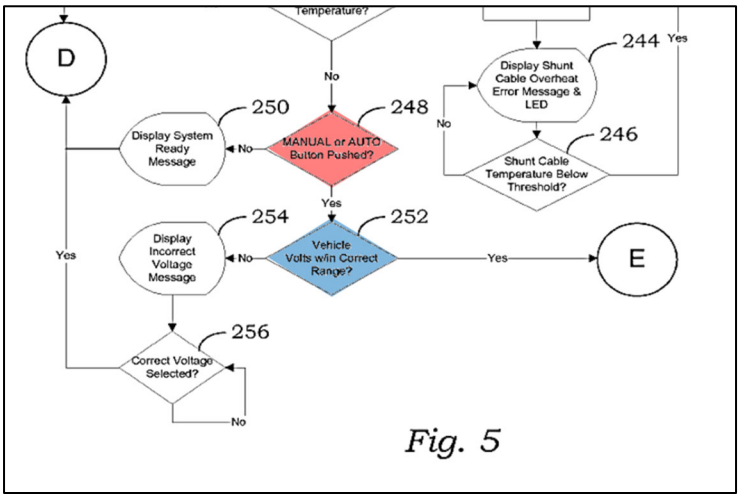


Fig. 5

Thus, the jump starter is already in either manual or auto-mode before step 252 occurs. Accordingly, it makes sense that Richardson could simply have two "predetermined ranges" that are evaluated at step 252 depending on which mode the system is in. EX1057, ¶¶18-20.

Further, the fact that Dr. Fayed was able to confirm that the Infinity Series jump starter is "definitely Richardson['s] [commercial embodiment]" (EX1058, 50:7-12) is further proof that Richardson enables a POSITA to understand how to construct Richardson's system. EX2003, ¶101; EX1058, 49:19-50:22 (Dr. Fayed testifying that he has seen Richardson's commercial embodiment and that it works to jump start vehicles); EX1057, ¶21; *See In re Morsa*, 803 F.3d 1374, 1377 (Fed. Cir. 2015) ("Enablement of prior art requires that the reference teach a skilled artisan…to make or carry out what it discloses…without undue experimentation");.

Accordingly, NOCO is incorrect that Richardson would be "inoperable." Instead, a POSITA would readily understand that Richardson's system would operate with both auto and manual mode included in the system. EX1057, ¶22. Lastly, NOCO's cited law regarding lack of enablement is inapplicable where the reference is, in fact, enabled.

B. Yu teaches limitation 1[G]

NOCO argues that Yu does not teach limitation 1[G] because Yu does not use "the vehicle battery isolation sensor to control the power switch at any point in time."

POR, 46-47. Instead, NOCO twists Yu as describing that ***the user*** "evaluate[s] a measured voltage on a display and make[s] manual safety decisions." POR, 47. Essentially, NOCO believes that ***the user*** controls the power switch of Yu. This argument is unsupported by Yu and is contrary Dr. Fayed's own testimony. EX1057, ¶23.

It is undisputed that the relay (power switch) of Yu is controlled by the microprocessor, not a user. Yu explicitly states that "***the microprocessor controls the opening and closing of the relay*** through the relay switch circuit…." EX1008, ¶4. Indeed, Dr. Fayed confirmed that Yu is configured so that only the microprocessor can control the relay. EX1058, 56:16-21("Q: Aside from the relay switch circuit, is there anything else connected to the relay that can control the relay? A. No, there isn't…"); 57:11-14 ("And there's one line going from the microprocessor to the relay switch circuit, correct? **A. Yeah, that is correct.**") Dr. Fayed also confirmed that ***the microprocessor*** is what closes the relay after the JUMP button is pressed. EX1058, 58:5-11; EX1057, ¶24.

Figure 1 of Yu shows that the only input to the relay is from the relay switch circuit which in turn receives its input from the microprocessor. EX1008, Fig. 1(annotated below).

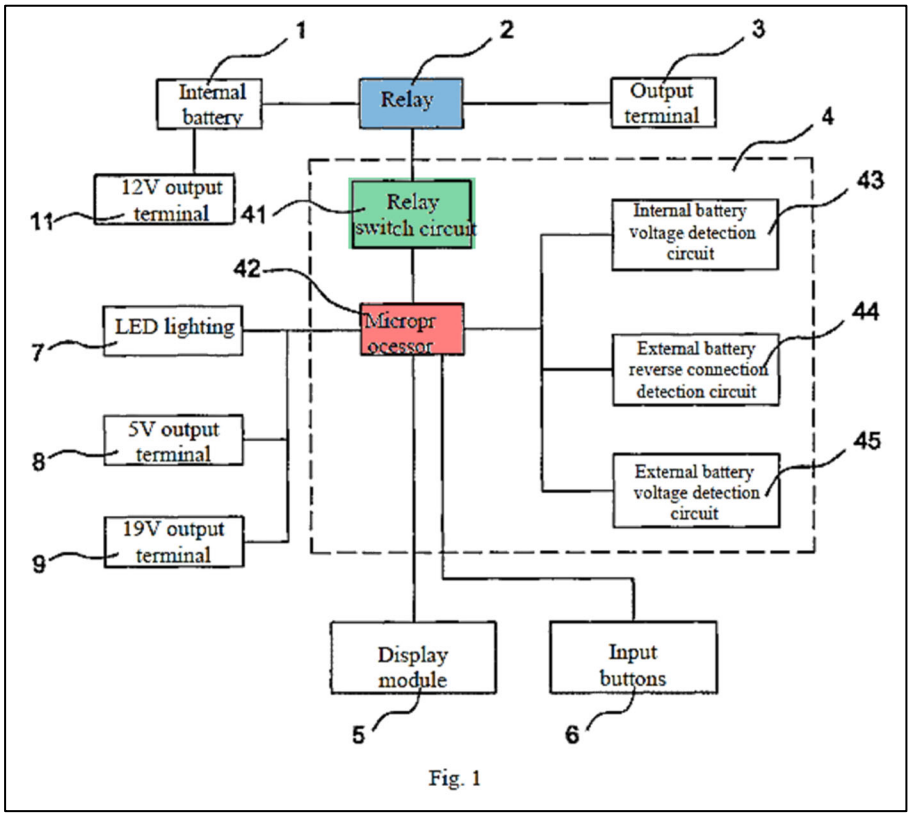


Fig. 1

Despite this undisputed fact that Yu's microprocessor controls the relay, NOCO ***still*** argues that Yu's requirement that the "JUMP" button is pressed somehow means that the "user" is making the decision of whether it is safe to close the power switch. POR, 49. This argument relies on a contorted interpretation of Yu's disclosure. EX1057, ¶25.

Yu essentially teaches that three conditions must be met for the microprocessor to close the relay and initiate jump starting: (1) the connection must have correct polarity; (2) the connected vehicle battery voltage must be within a "normal range," and (3) the JUMP button must be pressed. EX1008, ¶26. Yu explains that:

> ***If the output terminal 3 is connected to the external battery with correct polarity***, the external battery voltage detection circuit 45 will operate. ***The microprocessor 42 will detect the external battery voltage*** and simultaneously display this voltage on the LCD. ***If the external battery voltage is within the normal range, then the JUMP button of the input buttons 6 can be pressed to close the relay 2***, and the internal battery will output current to the vehicle to be started through the output terminal 3.

EX1008, ¶26 (emphasis, colors added). Coupled with Yu's description that "the microprocessor controls the opening and closing of the relay" (¶4), the portion in blue above could be rewritten as: "then the JUMP button of the input buttons can be pressed [***so that the microprocessor will***] close the relay 2." EX1057, ¶26.

Accordingly, if any of the conditions (1), (2), or (3) are not met, the microprocessor will ***not*** close the relay. Critically, regarding the second condition, if the vehicle battery voltage is ***not*** within the normal range, pressing the JUMP button will do nothing—Yu's microprocessor will ***not*** close the relay. A POSITA would understand that, contrary to NOCO's assertions, Yu ***does not*** rely on a user to decide whether the voltage is within the "normal range." EX1057, ¶27.

Conditions (1)—proper polarity—and (2)—battery present—meet the two conditions required in limitation 1[G]. The inclusion of condition (3)—the JUMP

button is pressed—does not place Yu's system outside of the scope of the claim. Indeed, claim 1 recites "[a] jumps starter apparatus…***comprising***…." Moreover, Yu's system achieves the same safety feature described by the '203 Patent regardless of condition (3)—the relay will not close unless (1) proper polarity and (2) the presence of a vehicle battery are detected. EX1057, ¶¶28-29. Accordingly, Yu teaches limitation 1[G].

Lastly, NOCO mischaracterizes the Petition's alleged "fallback position" by quoting, but omitting, critical words in the Petition. POR, 49-51. The Petition states: "***To the extent Patent Owner argues Yu does not disclose a battery presence sensor***, it would have been obvious to a POSITA to detect the presence of vehicle battery based upon the OUT-CHECK signal received from external battery detection circuit 45." Pet. 68. NOCO, however, omits the emphasized language. POR, 49; EX1057, ¶30.

Importantly, NOCO ***does not*** argue that Yu does not disclose a battery presence sensor; instead, NOCO only quibbles whether the microprocessor controls the relay ***based on*** the vehicle battery detection sensor. *See* POR, 46 ("Yu fails to teach… ***using the vehicle battery isolation sensor*** to control the power switch."), 49 ("Yu has no vehicle battery detection sensor ***that is used to control a relay switch***.") In other words, the alleged "fall back" position is not at issue because NOCO does not argue that Yu fails to disclose a battery presence sensor. EX1057, ¶31.

C. NOCO's Motivation to Combine Arguments Are Disingenuous and Factually Incorrect.

NOCO argues that "a PHOSITA would not have been motivated to modify any portable vehicle jump starter, much less the specific jump starters of Richardson and Yu to be charged via USB in 2014." POR, 52. Specifically, NOCO argues three points to reach this conclusion: (1) "USB was not a known technique for charging any large-capacity battery" (POR, 53); (2) a POSITA "considered USB to be a nonviable option for portable jump starters" (POR, 57); and (3) USB charging would be unsuitable for Richardson and Yu (POR, 61). EX1057, ¶32.

NOCO's arguments fail because they import concepts into Richardson (battery capacity, charge time) that are not critical to Richardson's described system. Further, NOCO intentionally misleads the Board as to argument (1), and is incorrect regarding (2) and (3). EX1057, ¶33. In addition, the Board has recently rejected the same arguments from NOCO and found that it would have been obvious to combine Richardson and Zhao and, separately, Yu and Paparrizos. EX1068, 30, 47; EX1069, 30, 46-47.

1. *NOCO Does not Argue That USB Would Not Work Given Sufficient Time*

While NOCO argues that USB would take "too long" to charge Richardson or Yu's jump starters, NOCO ***does not*** argue that USB would fail to charge either device given a sufficient amount of time. *See generally* POR. Neither Dr. Fayed nor NOCO

offer any evidence to support their contention that a POSITA would have recognized charging times as a problem when adding USB charging to a jump starter. *See generally* EX2003. The Board should reject NOCO's unsupported premise that charging times would have been a concern to a POSITA, particularly where the '203 Patent makes no mention of charging times. *See Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1570 (Fed. Cir. 1997); *see also* EX1068, 23; EX1069, 2; EX1057, ¶34.

2. *NOCO Intentionally Ignores Prior Art Evidence of USB-Charged Jump Starters.*

NOCO and its expert both assert, without evidence, that "USB was not a known technique for charging any large-capacity battery" and/or that "USB was [not] considered a known solution for charging any large-capacity batteries." POR, 53; EX2003, ¶88. These appear to be knowingly false statements by NOCO and its expert.

First, NOCO was aware of Epower-10, a prior art jump starter that includes a large capacity battery charged by USB. As seen below, Exhibit 1053, filed with the Petition, includes a product catalog depicting Epower-10 and its technical specifications. EX1053, 63 (reproduced-in-part below).



As Dr. Fayed agreed, Epower-10 includes a "micro USB5V/2A" input, which is a micro-USB charging input. EX1058, 34:19-35:19; EX1057, ¶¶35-38.

Dr. Fayed confirmed that the Epower-10 listing "look[ed] familiar" and that he saw it "in the context of the ITC." EX1058, 35:2-4. In fact, Dr. Fayed was questioned regarding Epower 10 during the ITC trial: "Q. …[NOCO's counsel] asked you that there is -- the schematic for the E-Power 10 did not have a port -- to connect the jumper cables. Do you recall that? A. I recall that, yes." EX1059, 994:15-995:13[3]; *see also*, *id.*, 994:15-996:14. Further, on July 5, 2024, the ITC held that "E-Power 10 is prior art under 35 U.S.C. § 102(a)(1), as it was on sale prior to

[3] NOCO's direct examination regarding E-power 10 appears to have occurred in a confidential session that Petitioner does not have access to.

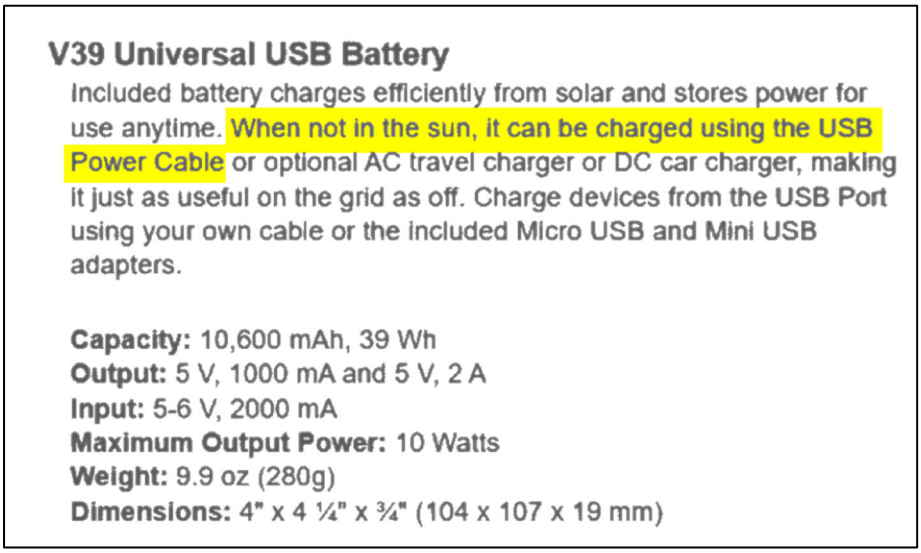
the July 3, 2014 effective filing date of" the '203 Patent.[4] EX1060, 290.

Accordingly, NOCO and/or Dr. Fayed were aware of E-power 10, that it included USB charging[5], and that E-power 10 was found to be prior art to the '203 Patent. Therefore, NOCO and Dr. Fayed knew that their statement "USB was not a known technique for charging large-capacity batteries" was false. EX1057, ¶¶39-40.

Second, even putting aside E-power 10, it was known to charge large capacity batteries with USB prior to the '203 Patent. For example, the Voltaic V39 battery bank is a prior art device that included a large 10,6000 mAh battery charged by USB. EX1061 (dated October 28, 2013). Given that '203 Patent's 8,000 mAh battery is a "large size [] battery pack," there is no question that a 10,600 mAh battery is also a large size battery. POR, 6 ("The '203 Patent even illustrates the large size of the battery pack" of 8,000 mAh). As shown below, the V39 product can be charged "using the USB Power Cable" and lists a 5-6V, 2000 mA power input. EX1061, 1 (reproduced-in-part, annotated below). EX1057, ¶¶41-42.

[4] The ITC's finding was regarding the '023 patent which shares the same priority date as the '203 Patent.

[5] Dr. Fayed testified that ***all*** jump starters (which would include Epower-10) require large capacity batteries. EX1058, 15:4-8; EX2003, ¶84.



V39 Universal USB Battery

Included battery charges efficiently from solar and stores power for use anytime. When not in the sun, it can be charged using the USB Power Cable or optional AC travel charger or DC car charger, making it just as useful on the grid as off. Charge devices from the USB Port using your own cable or the included Micro USB and Mini USB adapters.

Capacity: 10,600 mAh, 39 Wh
Output: 5 V, 1000 mA and 5 V, 2 A
Input: 5-6 V, 2000 mA
Maximum Output Power: 10 Watts
Weight: 9.9 oz (280g)
Dimensions: 4" x 4 ¼" x ¾" (104 x 107 x 19 mm)

Considering either Epower-10 or the Voltaic V39, NOCO's assertion that "USB was not a known technique for charging any large-capacity battery" is unequivocally false. Instead, a POSITA would have known about both Epower-10 and the Voltaic V39 and, therefore, would have considered USB to be a known technique for charging large capacity batteries (*i.e.*, V39, Epower-10) as well as for charging portable jump starters (*i.e.*, Epower-10), contrary to NOCO's assertions in its POR. EX1057, ¶43.

3. *NOCO is incorrect that "USB [is] a nonviable option for portable jump starters."*

NOCO argues that "the PHOSITA at the time considered USB to be a nonviable option for portable jump starters." POR, 57. The crux of this argument is Dr. Fayed's assertion that jump starters required large capacity batteries and high-power charging sources to maintain a "***reasonable/practical/useful/typical***"

charging time. EX2003, ¶77 ("requires a high-power charging energy source in order to maintain a ***reasonable/practical*** charging time."), 78 ("…to maintain a ***useful*** charging time…"), 84 ("…to maintain a ***typical*** charging time…). Without explaining the bounds of "reasonable/practical/typical/useful" charging times, NOCO nakedly asserts that using USB to charge a jump starter would result in unacceptable charging times. POR, 57-58. These assertions are false.

A POSITA would not have considered the charging time of a large capacity battery using USB charging to be unreasonable. EX1057, ¶¶44-45. Indeed, the Petition does not belabor the issue of "charging times" because a POSITA would have known that charging times using USB would have been well within expected charging times for jump starters. *See* Pet. 32-33 (addressing the increased charging time that USB charging would introduce); EX1003, ¶77.

For example, Exhibit 1062 is a 2013 copyrighted product manual for the Powerstation PSX3 jump starter, which was published at least as of December 13, 2013. EX1062; EX1063, 1. The PSX3 manual states that its "initial charge could take up to 72 hours." EX1062, 10 (reproduced-in-part below).

> **Charging the PSX3 before initial use**
> We recommend charging the PSX3 on a regular basis. The initial charge could take up to 72 hours.

Accordingly, a POSITA would have known that a 72-hour charging time is a

reasonable/practical/typical/useful for a jump starter as of the '203 Patent's priority date. EX1057, ¶¶46-48.

By comparison, the Voltaic V39's large battery would have taken just 4 hours to fully charge using its included 5V, 2A USB charger. In the table below, Dr. MacCarley's calculations (which use Dr. Fayed's equations) demonstrate that even with a hypothetical 127.2 Wh battery, the slowest USB charging power available in 2014, and Dr. Fayed's 80% efficiency, charging times would still not exceed the 72-hour charge time for the PSX3 jump starter. EX1057, ¶¶49-57.

Nominal Capacity and Voltage	**Capacity**	**Charging Power**	**Time to Full Charge**
10,600 mAh, 3.7V	39 Wh	5V, 2A (10W)	3.9 hours
		5V, 0.5A (2.5W)	15.6 hours
		5V, 0.5A @ 80% eff. (2W)	19.5 hours
10,600 mAh, 12V	127.2 Wh	5V, 2A (10W)	12.72 hours
		5V, 0.5A (2.5W)	50.88 hours
		5V, 0.5A @ 80% eff. (2W)	63.6 hours

In other words, even a battery (127.2 Wh) that is over ***four times larger*** than the patent's described "large" battery (29.6 Wh) and a slow, inefficient charging input, the time to fully charge the battery would not exceed the known, typical charge time of 72 hours. EX1057, ¶56; EX1001, 4:30-33 ("The resulting battery pack provides…29.6 Wh [capacity]"). Accordingly, NOCO's assertion that USB would be a "nonviable" option because it would result in an "unreasonable/unpractical/atypical/non-useful" charging time is factually incorrect. EX1057, ¶55-57.

Lastly, it is worth noting that Dr. Fayed acknowledged during the ITC trial that USB charging is at least "useful maybe as an optional/secondary method of charging (perhaps overnight) when the device is not being used..." EX1059, 991:5-19; EX1058, 72:13-73:7. Accordingly, NOCO's assertion that USB is a "nonviable" charging option is directly contradicted by Dr. Fayed's earlier testimony. EX1057, ¶58.

4. *A POSITA Would Have Considered USB Charging to be Appropriate for Both Richardson and Yu*

NOCO argues that a POSITA would not have modified Richardson or Yu to include USB charging because (1) Richardson "has a very large capacity battery that relies on rapid recharging from a vehicle's electrical system" and (2) Yu "already implements a USB port but still chose not to rely on it for charging." POR, 59. However, NOCO is incorrect regarding Richardson's jump starter and merely speculates regarding Yu's choices. EX1057, ¶59.

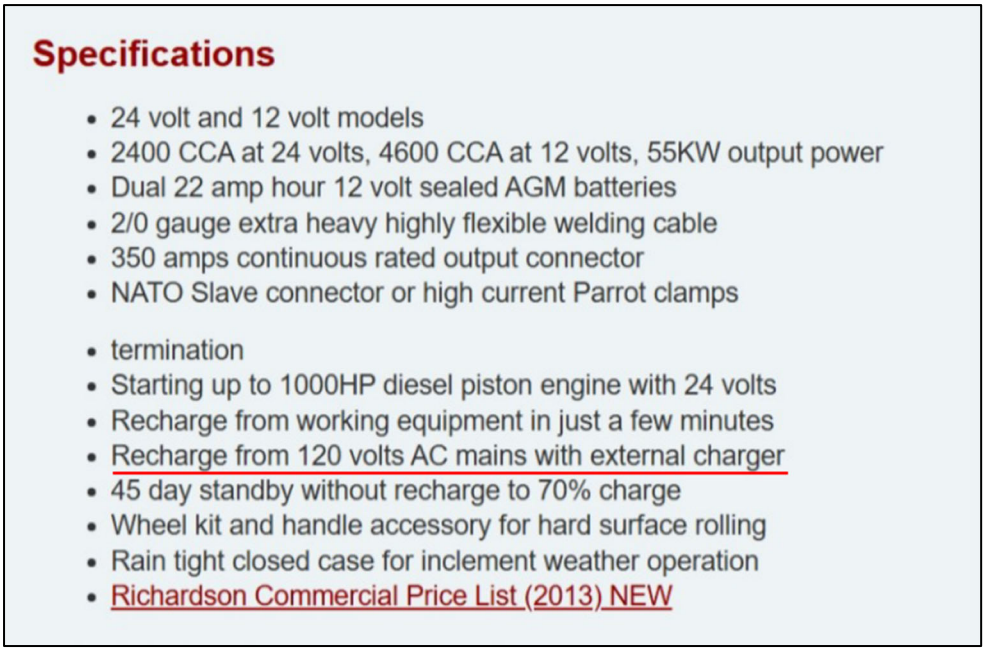
First, Richardson's system does not rely solely on rapid recharging from a running vehicle, nor does Richardson require a large capacity battery. Instead, Richardson does not mention battery capacity at all and only discusses charging times in a single sentence at the end of its disclosure. EX1005, ¶55 ("this allows the capacitors 21 and jump starter batteries 22 to be fully recharged in about 1 to 5 minutes"). Considering the absence of any discussion of battery capacity and only a

passing mention of charging times, a POSITA would have understood that neither are critical to Richardson. EX1057, ¶60. Accordingly, NOCO's arguments regarding the importance of battery capacity and charging times are untethered to the evidence. Indeed, the '203 Patent offers no discussion of charging times or battery capacities. *See generally*, EX1001. NOCO cannot demand a greater level of detail from the prior art than what is taught by the '203 Patent. *See Lockwood*, 107 F.3d at1570; *see also* EX1068, 24; EX1069, 24.

Although Richardson mentions that the jump starter batteries can be configured from 12 to 48 volts, Richardson never provides an example configuration that exceeds 30 volts and Richardson's independent claims do not require any specific voltage. EX1005, ¶34*;* EX1057, ¶60-63. Accordingly, NOCO's arguments regarding battery capacity improperly rely on cherry-picked embodiments of Richardson while ignoring others, but "[a] reference must be considered for everything that it teaches, not simply the described invention or a preferred embodiment." *In re Applied Materials, Inc.*, 692 F.3d 1289, 1298 (Fed. Cir. 2012).

Further, Richardson teaches that a battery charger (*e.g.*, an AC charger) is one way to charge its jump starter batteries. Specifically, Richardson's step 226 looks for a charging voltage that "indicate[s] that ***a battery charger (not shown)*** has been connected to the batteries 22." EX1005, ¶28. A POSITA would understand that this refers to a plug-in battery charger. Indeed, Exhibit 1064 shows that the commercial

embodiment of Richardson's jump starter allows "[r]echarg[ing] from 120 volts AC mains with external charger." EX1064, 2 (reproduced-in-part, annotated below); EX1059, 988:19-989-19 (Dr. Fayed confirming that the Infinity Series is Richardson's commercial embodiment).



Thus, contrary to NOCO's assertion, Richardson expressly contemplates the use of an external, AC battery charger. EX1057, ¶64-65.

Second, NOCO's assertion as to Yu's (alleged) considerations is pure speculation. NOCO argues that the fact that Yu's authors knew about USB output ports means that they also knew about USB charging input ports and the (alleged) choice to not include USB charging means a POSITA "would not have made the [Petition's] proposed combination." POR, 61. This argument makes no sense. First, there is no evidence to suggest that Yu's authors made any conscious choice not to

include USB charging input. Second, as the petition explains, a POSITA would have been motivated to add USB charging as a secondary charger due at least to the convenience, popularity, and ubiquitous availability of USB ports. Pet, 63-64. Lastly, to the extent NOCO argues that Yu and Paparrizos cannot be safely combined, Petitioner notes that Yu and Paparrizos provide more detail of the relevant features than the '203 Patent and a POSITA would have known how to safely combine the teachings. EX1057, ¶66; *see also Lockwood*, 107 F.3d at 1570 (explaining it is improper to require a greater level of detail in the prior art than the challenged patent); EX1068, 45-46; 1069, 45-46.

D. Richardson Teaches Claim 5

1. *NOCO's Interpretation of Claim 5 Ignores Key Portions of the Claim*

NOCO cherry-picks claim language to misconstrue claim 5 and misapply the teachings of Richardson. POR, 43. Instead, under a proper understanding of claim 5, Richardson plainly teaches the recited feature. EX1057, ¶67.

Claim 5 recites:

> The jump starter apparatus of claim 4, wherein the controller is configured to automatically cause the vehicle battery isolation sensor to detect presence of the vehicle battery and the reverse polarity sensor to detect polarity of the vehicle battery ***when*** the vehicle battery is

electrically connected to the jump starter apparatus ***and*** the jump starter apparatus becomes operational. (emphasis added)

NOCO argues that claim 5 requires the controller to cause the sensors to perform detection "when the device is powered on," regardless of whether the vehicle battery is electrically connected to the jump starter. POR, 43-44; EX1057, ¶68.

NOCO's interpretation, however, ignores that the claim requires an additional condition: that "the vehicle battery is electrically connected to the jump starter." In other words, Claim 5 requires "automatically caus[ing]" the two sensors to detect when both conditions are satisfied: (1) "the vehicle battery is electrically connected to the jump starter apparatus" **and** (2) "the jump starter apparatus becomes operational." If only one condition is satisfied, then the claim is not met. This is consistent with a POSITA's understanding of the plain and ordinary meaning of the claim. EX1057, ¶69; EX1003, ¶¶116–117.

In addition, NOCO also ignores that the controller "automatically cause[s]… ***the reverse polarity sensor to detect polarity of the vehicle battery*** when" both conditions are satisfied. Critically, the reverse polarity sensor cannot do any "detecting" ***unless the vehicle battery is electrically connected to the jump starter apparatus*** (*i.e.*, red/black clamps are attached, but the power switch is still open). Dr. Fayed agrees: "Q: If the red and black clamps are not connected to anything, can

the reverse polarity sensor make a determination of polarity? ***A. If the battery is not connected, then there is no polarity to determine***. It's an open circuit." EX1058, 21:12-18; *see also*, *id.*, 19:12-22:2; EX1057, ¶70. This further confirms that a POSITA would not ignore the first condition—that the vehicle battery is electrically connected to the jump starter apparatus. NOCO's arguments which are premised on ignoring this condition should be rejected.

Further, NOCO's arguments regarding the word "operational" do not negate the claim's other required condition: the vehicle battery is electrically connected to the jump starter apparatus. POR, 44; EX1057, ¶68-70.

Lastly, claim 5's requirement that "the vehicle battery ***is electrically connected*** to the jump starter apparatus" is different from closing the power switch to connect the jump starter ***battery*** to the vehicle battery. Indeed, claim 1 describes closing the power switch "such that the [jump starter] ***power supply*** is connected to the vehicle battery." By contrast, claim 5 is directed to the time when the red/black clamps are connected to the vehicle battery, but ***before*** the power switch is closed. *See* EX1058, 20:4-12; EX1057, ¶71.

2. *Under a correct understanding, Richardson teaches claim 5*

Richardson teaches that at step 214 "[o]nce jumper cables 60 have been manually connected to the vehicle to be started 28, the voltage is measured by the reverse voltage sensor 24 to determine if the cables have been properly connected to

the vehicle." EX1005, ¶27; Pet., 50–53; EX1003, ¶¶115–117. Further, Richardson's step 252 detects the presence of a vehicle battery and occurs *after* step 214—*i.e.*, the jumper cables are connected to the vehicle battery and the jump starter is powered on. EX1005, Figs. 3, 5; *see* §II.A.1, *supra*. Thus, Richardson teaches that reverse polarity and battery presence detection both occur when (1) the vehicle battery is electrically connected to the jump starter apparatus (*i.e.*, the jumper cables are connected) and (2) the jump starter apparatus is operational (*i.e.*, the jump starter is turned on). EX1057, ¶72-73.

III. GROUNDS 2 AND 5 ARE NOT "BASED ON" AAPA

The Petition does not present any grounds where AAPA is the primary reference. *See Shockwave Med., Inc. v. Cardiovascular Sys., Inc.*, 142 F.4th 1371, 1379 (Fed. Cir. 2025) (holding AAPA was not a "basis" when used as a "reference" to establish limitation within a POSITA's general knowledge). Notwithstanding the Petition's "AAPA" label, the cited admission is a U.S. patent that is prior art under §102, was attached as an exhibit (EX1036), and is a permissible ground under the AIA. *See* Pet, 54 (quoting EX1001, 3:10-14 ("U.S. Pat. No. 5,793,185 [] discloses a hand-held jump starter....")).

Nevertheless, Grounds 2 and 5 state "AAPA **and/or** Epower-20/Epower-21" and explain how claims 2, 10, and 11 are obvious in further view of Epower-20/Epower-21. *See* Pet., 54-57, 76-77. Accordingly, the Petition explains how the

claims are obvious over non-AAPA prior art publications.

IV. COLLATERAL ESTOPPEL

NOCO mischaracterizes Petitioner as "ask[ing] the Board to apply the prior art only to the differences between" the challenged claims and previously-canceled '015 Patent claims. However, the Petition separately maps Richardson's teachings to the claims ***and*** notes Board's relevant prior findings. *See* Pet., §XI. While Petitioner maintains that collateral estoppel applies, the Board's prior findings are persuasive evidence regardless of collateral estoppel. *See* Pet. 29-30.

Further, the Board recently considered NOCO's arguments and found that a POSITA "would have had reason to combine the teachings of Richardson and Zhao" and "teachings of Yu and Paparrizos." *See, e.g.*, EX1069, 25, 39, 43. Thus, the Board has found that every feature in Claim 1 of the '203 Patent is taught by either Richardson or Zhao ***and*** the Board has found that it would have been obvious to combine the teachings of Richardson and Zhao. Regardless of whether collateral estoppel applies, the Petition presents the same facts that underpin the Board's findings and, therefore, the Board should reach the same conclusions here.

V. NOCO HAS WAIVED ARGUMENTS

NOCO has waived arguments not raised in its Response. Specifically, NOCO has attempted to circumvent word limits by citing arguments raised only in its POPR. *See*, *e.g.*, POR, 52 (citing 30 pages of the POPR), 59 (citing "POPR, pp. 27-51"), 61

(citing "POPR, pp. 49-51"). "By raising an argument in its Preliminary Response, but not its Response, a patent owner waives said argument." *Parus Holdings, Inc. v. Google LLC*, 70 F.4th 1365, 1373 (Fed. Cir. 2023). It is improper for NOCO to circumvent word limits and incorporate arguments not raised in its Response.

VI. CONCLUSION

For the reasons described above and in the Petition, Petitioner respectfully requests claims 1-11 of the '203 Patent be cancelled as unpatentable.

Respectfully submitted

Dated: September 3, 2025

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CERTIFICATION OF WORD COUNT

The PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE excluding the caption contains 5,551 words, excluding the parts exempted by 37 C.F.R. § 42.24(c). This word count was made by using the built-in word count function tool in the Microsoft Word software used to prepare the document.

Respectfully submitted,

Dated: September 3, 2025

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that on this 3rd of September, 2025, complete and entire copies of the PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE and supporting EXHIBITS have been served in their entirety by electronic mail on counsel for Patent Owner, according to the filed mandatory notices and power of attorney, as follows:

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