

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
U.S. Patent No. 11,667,203

PATENT OWNER'S RESPONSE

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EXHIBIT LIST

Exhibit No.	Description
Ex. 2001	Expert Declaration of Dr. Ayman Fayed
Ex. 2002	<i>Curriculum Vitae</i> for Dr. Ayman Fayed
Ex. 2003	Expert Declaration of Dr. Ayman Fayed In Support Of Patent Owner Response
Ex. 2004	Updated <i>Curriculum Vitae</i> for Dr. Ayman Fayed
Ex. 2005	Deposition Transcript of the deposition of C. Arthur MacCarley, taken on May 13, 2025
Ex. 2006	Declaration of John Graves in support of Exhibits 2007 and 2008
Ex. 2007	Website Image of Homepage of car-ku.com, accessed on June 10, 2025 via https://www.car-ku.com/
Ex. 2008	Collin Morgan, “Tested: Best Portable Jump Starters for 2025,” Car And Driver (May 29, 2025), accessed via https://www.caranddriver.com/car-accessories/g42569313/best-jump-starters-tested/
Ex. 2009	U.S. Patent No. 9,954,207

I. INTRODUCTION

The NOCO Company (“Patent Owner” or “NOCO” or “Applicant”) is a first mover in the field of lithium-ion portable jump starters and accessories. Following years of research and design to develop a safe and convenient jump starter, NOCO launched its NOCO BOOST® line of jump starters in 2014 with safety features and charging technologies that revolutionized the industry. U.S. Patent No. 11,667,203 (the “’203 Patent”) covers NOCO’s USB charging innovations for jump starters and discloses a portable vehicle jump starter having a battery pack that can be charged via a 5-volt USB input, as well as various safety features associated with the charging process. Deltran USA LLC. (“Petitioner” or “Deltran”) challenged the patentability of all claims of the ’203 Patent, and the Board instituted *inter partes* review.

At first glance, the Grounds presented in the Petition seem plausible, but further examination reveals numerous issues. These problems stem from how the Petition was crafted—Petitioner has borrowed its Grounds from co-pending *inter partes* review proceedings involving related patents and has mistakenly leaned on collateral estoppel preclusion from a prior final written decision. But a square peg cannot fit in a round hole, and the Petition’s “one-size-fits-all” approach of copying others’ prior-art combinations does not work for the claims of the ’203 Patent. Among other flaws, Petitioner’s repurposed prior art combinations do not disclose all claim limitations present in Claim 1. The Grounds also lack a sufficient

motivation to combine and impermissibly rely on non-prior-art evidence.

Claim 1 requires a charging safety feature not present in Petitioner's prior art: a vehicle battery isolation sensor configured to detect the presence of a vehicle battery connected to the jump starter apparatus, such that the power supply is connected to the vehicle battery only when a vehicle battery is detected. This claim limitation requires the vehicle isolation sensor to detect the presence of a vehicle battery *before* the power supply is connected to the vehicle battery, but the Richardson reference used in Grounds 1-3, at best, only performs presence detection *after* the connection has been made. And the Yu reference in Grounds 4-6 does not even use vehicle battery presence detection to control its power supply connection. This missing limitation renders the Petition incurably deficient. And while Petitioner tries to address this feature by impermissibly applying collateral estoppel on a limitation-by-limitation basis, the Board is not precluded from reconsidering this limitation because the present proceeding does not present identical issues, nor were the identified factual findings necessary to the prior decision.

All of the Grounds also suffer from a motivation to combine deficiency that stems from Claim 1's USB charging limitations. Prior to the development of the NOCO BOOST® line of jump starters, traditional barrel chargers and other proprietary chargers allowed for the fast and efficient charging of portable jump starters. Conversely, USB was not a known option for charging jump starters or any

large-battery devices, given the limited power associated with it at the time. Yet, Petitioner argues that because it was known to boost a 5-volt USB voltage to charge a higher-voltage (but low-capacity) battery in small consumer electronics devices, a PHOSITA would have been somehow motivated to do the same for the high-capacity battery in a jump starter. That is not true. Because of the power limitations associated with traditional USB, a PHOSITA would not even have considered charging the battery of a high-powered tool, such as a jump starter, via USB in July of 2014 (the priority date of the '203 Patent). And because of this, it is unsurprising that Petitioner was not able to identify any prior art that teaches or suggests charging a jump starter device, or even a device having a comparable battery capacity, via USB. Moreover, the Petition does not account for the actual prior-art vehicle jump starters of Richardson and Yu, which are particularly ill-suited to be modified to rely on USB charging.

A determination that claims 1-11 are not unpatentable is respectfully requested.

II. THE '203 PATENT

A. Overview Of The State Of The Art

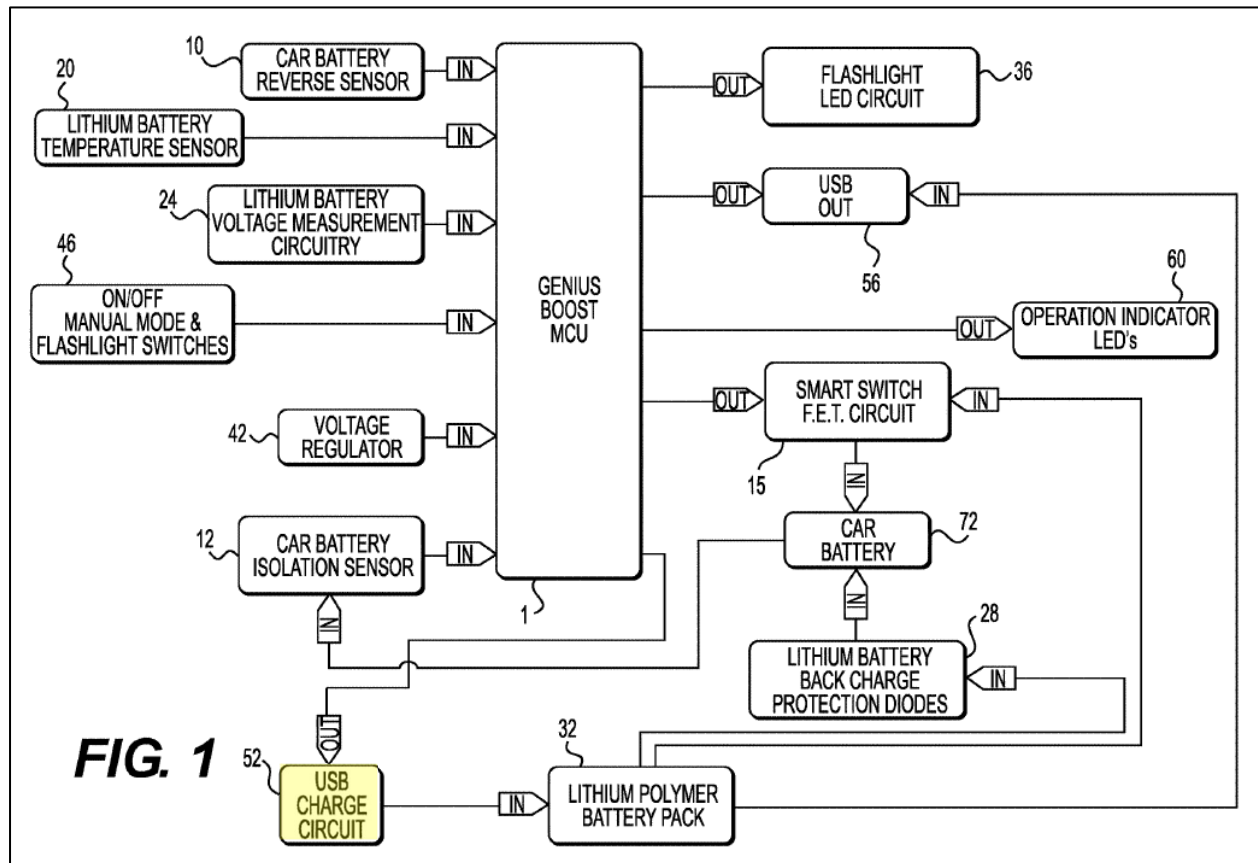
As explained in the '203 Patent, portable booster devices, often referred to as jump start devices or jump starters, include a high-discharge, high-capacity rechargeable battery that can be connected in circuit with a vehicle's battery through

a pair of cables in order to jump start the vehicle. *See* Ex. 1001, 1:13-16. Previously, recharging a jump starter powerful enough to jump start a 12-volt car battery relied on a high-power charger through a specialized 12-volt plug connector, such as a barrel charger. While various attempts were made to address problems associated with traditional jump starters (*e.g.*, safety concerns due to improper usage) before the '203 Patent, “each of the prior art solutions suffer[ed] from other shortcomings, either in complexity, cost or potential for malfunction.” Ex. 1001, 3:15-18. Thus, at the time of filing, there remained a need for further improvements to vehicle jump start devices. *Id.*, 3:18-20; Ex. 2003, ¶ 24.

B. The Invention Claimed In The '203 Patent

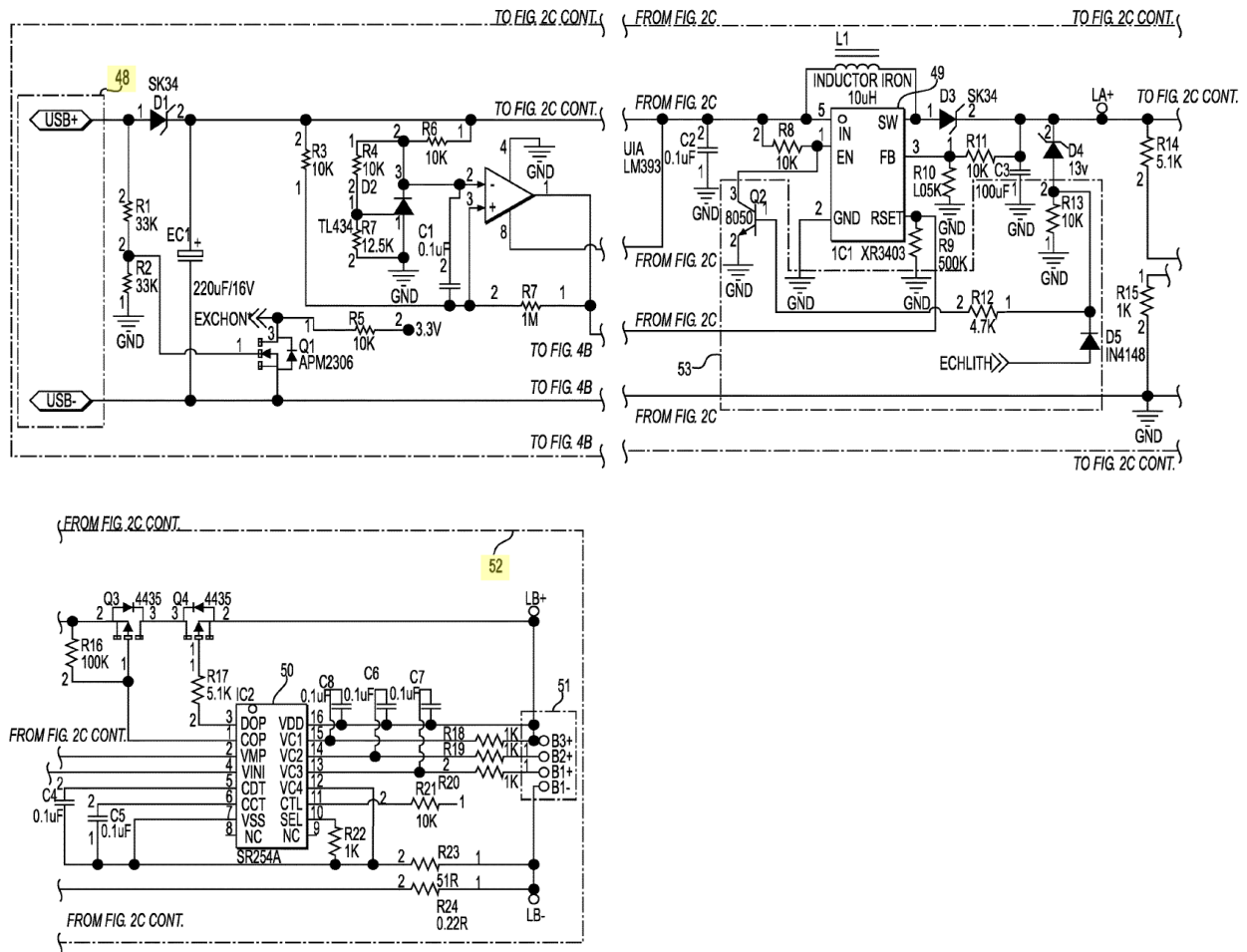
Recognizing the need for improved jump starter devices, NOCO developed a “Portable Vehicle Battery Jump Start Apparatus” that greatly reduced the complexity and potential for malfunction associated with its usage through a variety of advancements. Ex. 1001, Title; Ex. 2003, ¶ 25. The '203 Patent discloses techniques that, for example, “prevent[] the lithium battery pack from being connected to the vehicle battery 72 when the terminals of the battery 72 are connected to the wrong terminals of the booster device.” Ex. 1001, 4:47-52. The '203 Patent also describes a “vehicle battery isolation sensor” that is “configured to detect [the] presence of a vehicle battery.” *Id.*, 3:27-31.

As shown in Figure 1 below, the '203 Patent also discloses that a “USB charge circuit 52 converts power from any USB charger power source, charge voltage and current for charging the lithium battery pack 32,” (*id.*, 5:32-34):



Id., Fig. 1 (color annotation added).

Beneficially, “[t]he USB charge circuit 52 allows the internal lithium battery pack 32 to be charged using a standard USB charger.” *Id.*, 7:40-41. The micro-USB connector (item 48) described in the '203 Patent for charging the lithium polymer battery pack is included in the USB charge circuit (item 52) depicted by Figure 2C:



Id., Fig. 2C (color annotations added); Ex. 2003, ¶ 26.

The jump starter of the '203 Patent relies on the limited charging capabilities of a standard USB charger even though, “[a]t the heart of the handheld battery booster is a lithium polymer battery pack 32, which stores sufficient energy to jump start a vehicle engine served by a conventional 12 volt lead-acid or valve regulated lead-acid battery.” *Id.*, 4:23-27. The '203 Patent even illustrates the large size of the battery pack by providing an example configuration: “three 3.7V, 2666 mAh lithium polymer batteries in a 3S1P configuration.” Ex. 1001, 4:29-30. In order to

permit the jump starter to be charged using a USB cable, “[t]he 5V potential provided from standard USB chargers is up-converted to the 12.4 VDC voltage required for charging the internal lithium battery pack using a DC-DC converter 49.” *Id.*, 7:43-46. The advancement of using a USB type connector to charge a portable jump starter device, as well as various components like the DC-DC converter that make this solution possible, are captured in the claims of the ‘203 Patent. Ex. 2003, ¶ 27.

C. The Challenged Claims

The Petition challenges claims 1-11 of the ’203 Patent. Pet., p. 4. Claim 1 recites:

1. A jump starter apparatus for jump starting a vehicle battery, comprising:

a power supply that includes one or more rechargeable batteries;

a USB port configured to receive power from an external power source for charging the one or more batteries;

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;

a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus;

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

a power switch configured to electrically connect the power supply to the vehicle battery,

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.

Ex. 1001, 8:32-60.

Claim 1 is the only independent claim challenged, and all other challenged claims depend directly from claim 1. *Id.*, 8:61-10:17.

III. THE ALLEGED GROUNDS OF UNPATENTABILITY

The alleged Grounds of unpatentability asserted in the Petition are:

- Ground 1: Claims 1, 3-5, and 9 are unpatentable under 35 U.S.C. § 103(a) over U.S. Patent Publication No. 2013/0154543 A1 (“Richardson”) (Ex. 1005) in view of U.S. Patent No. 9,391,467 B2 (“Zhao”) (Ex. 1006).
- Ground 2: Claims 2, 10, and 11 are unpatentable under 35 U.S.C. § 103(a) over Richardson and Zhao in further view of Applicant Admitted Prior Art (AAPA) or Carku Product Brochure for the Epower-20 jump starter product (“Epower-20”) (Ex. 1012)/Carku Product Brochure for the Epower-21 jump starter product (“Epower-21”) (Ex. 1013).
- Ground 3: Claims 6-8 are unpatentable under 35 U.S.C. § 103(a) over Richardson and Zhao in further view of U.S. Patent Publication No. 2004/0130298 A1 (“Krieger”) (Ex. 1010).
- Ground 4: Claims 1, 3-5, and 9 are unpatentable under 35 U.S.C. § 103(a)

over Chinese Utility Model Patent No. CN 203211234 U (“Yu”) (Ex. 1007; Ex. 1008) and U.S. Patent No. 9,219,372 B2 (“Paparrizos”) (Ex. 1009).

- Ground 5: Claims 2, 10, 11 are unpatentable under 35 U.S.C. § 103(a) over Yu in view of Paparrizos and further in view of AAPA or Epower-20/Epower-21.
- Ground 6: Claims 6-8 are unpatentable under 35 U.S.C. § 103(a) over Yu in view of Paparrizos and further in view of Krieger.

As further detailed below, these references fail teach or suggest the vehicle battery isolation sensor and USB charging limitations required by claim 1. Ex. 2003, ¶¶ 29-30.

A. Overview Of The Asserted Prior Art

1. Richardson

Richardson is titled “Method And Apparatus For Providing Supplemental Power To An Engine.” Ex. 1005, p. 1. Richardson discloses a large “supplemental power source (jump starter)” for use in commercial applications. Ex. 1005, ¶ [0014]. Richardson’s jump starter is “useful when starting fleets of vehicles with dead batteries” since the device may be “rapidly recharged to start many vehicles in a row.” *Id.*, ¶ [0055]. While the Petition relies on Richardson to teach numerous elements of claim 1, Richardson fails to disclose the claimed vehicle battery isolation

sensor, the use of a USB input charger, or the boost conversion of an input charge. *See* Ex. 1005; Ex. 2003, ¶¶ 32-33.

2. Zhao

Zhao (Ex. 1006) is titled “Step-Up Battery Charging Management System And Control Method Thereof.” Ex. 1006, p. 1. Zhao discloses “a step-up battery charging management system,” (*id.*, 1:14-15), that may “receive DC input voltage V_{in} and may generate an output signal by boosting DC input voltage V_{in} .” *Id.*, 3:1-3. Zhao states that the “DC input voltage V_{in} can be provided to the step-up converter by a universal serial bus (USB) charger, or any other suitable low voltage power supply system.” *Id.*, 3:8-10. Zhao does not teach or suggest applying its techniques to charge a vehicle jump starter or comparable high-power device. *See* Ex. 1006; Ex. 2003, ¶¶ 34-35.

3. Epower-20/Epower-21

Epower-20 (Ex. 1012) and Epower-21 (Ex. 1013) “brochures” are two single-page fliers showing a portable vehicle charger (EPower-20) and a portable jump starter unit (EPower-21) that each include a USB output port for external charging of small electronic devices such as “mobile phone, tablet PC, other digital devices.” Ex. 1012, p. 1; Ex. 1013, p. 1. These references do not disclose a USB input charging port for charging the jump starter itself through a USB connection. Instead, both portable jump starter units relied on “14V/1A” input barrel chargers. Ex. 1012, p.

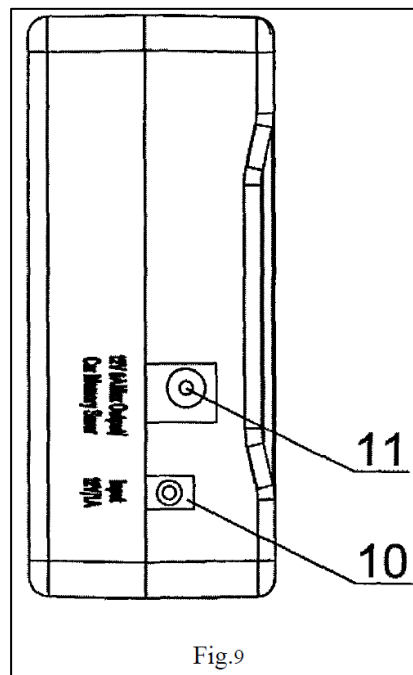
1; Ex. 1013, p. 1; Ex. 2003, ¶¶ 36-37.

4. Krieger

Krieger (Ex. 1010) is titled “Microprocessor Controlled Booster Apparatus With Polarity Protection,” and relates to a vehicle jump starter. Ex. 1010, p. 1. To address safety issues, Krieger’s jump starter includes a “switch 12 [that] is activated . . . only when a correct polarity connection between the batteries is attained.” Ex. 1010, ¶ [0029]. Krieger does not describe its input charging circuit in detail, stating only that the “booster system may be plugged into a Standard 110/220-volt electrical outlet.” Ex. 1010, ¶ [0053]; Ex. 2003, ¶¶ 38-39.

5. Yu

Yu (Ex. 1007; Ex. 1008) is titled “Automotive Emergency Starting Device.” Ex. 1008, p. 1. Yu discloses “an emergency automotive starting device” having various components, including “an internal battery, a charging input interface, a display module, a control module, a relay, input buttons and an output terminal.” Ex. 1008, Abstract. Similar to Richardson, Yu fails to teach or suggest the claimed vehicle battery isolation sensor. Yu also fails to teach or suggest the use of USB input charging, and instead depicts the use a traditional barrel charger (item 10):



Ex. 1008, Fig. 9. In addition to the barrel charger, Yu discloses a “19V output terminal 9” and a USB port that it describes as “a 5V output terminal 8.” Ex. 1008, ¶ [0028]; *see id.*, Fig. 7 (items 8 and 9); Ex. 2003, ¶¶ 40-42.

6. Paparrizos

Paparrizos (Ex. 1009) is titled “Buck Boost Charging For Batteries.” Ex. 1009, p. 1. Paparrizos seeks to solve the problem that “[c]omputer tablets and other mobile devices, such as mobile phones, digital SLR cameras, video recorders, audio devices, and so on are moving to battery packs with two (or more) Li-ion cells in series” but “since a large majority of USB devices are defined at 5V, it may not be possible to charge high voltage ($>5V$) 2S or 3S battery packs using a typically [sic] USB power source.” *Id.*, 1:9-26. In order to address this issue, Paparrizos discloses

that a “buck boost circuit 212 may be operated as a forward boost converter to increase the voltage level that is received at input terminal 102 to produce a suitable voltage level at charging terminal 104 or system terminal 106.” *Id.*, 3:67-4:4. Paparrizos does not disclose applying its techniques to charge a vehicle jump starter or comparable high-power device. *See* Ex. 1009; Ex. 2003, ¶¶ 43-44.

IV. THE PROSECUTION HISTORY OF THE '203 PATENT

The Petition dismisses the care taken by the Patent Office and misrepresents the proceedings in IPR2020-00944, which previously challenged issued claims of a parent application to the '203 Patent. Ex. 2003, ¶ 46, *see* Pet., p. 6.

A. The Parent Application's Claim Related To USB Charging Features Was Held Not Unpatentable In IPR2020-00944

The '203 Patent is a continuation application that claims priority back to, among other applications, U.S. Patent Application No. 14/325,938, which issued as U.S. Patent No. 9,007,015 (“’015 Patent”). During the prosecution of the '203 Patent, all claims of the '015 Patent were challenged in IPR2020-00944, which resulted in a Final Written Decision (“’015-FWD”) finding all claims unpatentable (Ex. 1034, p. 2), with the exception of claim 11:

The apparatus of claim 1, further comprising a USB charging port configured to provide charging power from an external power source to said internal power supply.

Ex. 1033, 9:1-3; Ex. 2003, ¶ 47. Specifically, while the secondary references of the

prior art applied (which were combined with Richardson) did not include USB charging features, Petitioner still argued that “[a] *PHOSITA* would be motivated to provide such a USB charging port to provide the added convenience to users.” Ex. 1034, p. 92 (emphasis in original); Ex. 2003, ¶ 48.

The Board rejected this argument as “conclusory.” Ex. 1034, p. 92. In particular, the ’015-FWD stated that Petitioner’s expert did “not identify any jump starter device having a USB input charging port.” *Id.*, p. 93. The ’015-FWD continued to explain:

The matter is much more complicated than what Petitioner’s argument makes it out to be. There is insufficient accounting by Petitioner of the expectation at the time of one with ordinary skill in the art about the ease or difficulty in locating a usable source to provide input charge to a USB port on a jump starter.

Id.

The ’015-FWD, including its findings with respect to the USB charging features of claim 11, were subsequently affirmed as patentable by the Federal Circuit. *The NOCO Company, Inc. v. Shenzhen Caraku Tech. Co., Ltd.*, Appeal Nos. 2022-1646, 2022-1741, 2024 U.S. App. LEXIS 3221 (Fed. Cir. Feb. 12, 2024) (Ex. 1015); Ex. 2003, ¶¶ 49-50.

**B. The Patent Office Expressly Considered Richardson, Krieger,
And The EPower-20 Brochure Before Allowing The '203 Patent**

The prosecution of the '203 Patent was thorough and searching. As detailed in the Patent Owner Preliminary Response (Paper 7, "POPR"), the Patent Office considered numerous prior-art references, including Richardson, Krieger, and the EPower-20 Brochure, throughout the lengthy prosecution history. *See* POPR, pp. 16-17. The '203 Patent issued on June 6, 2023. Ex. 1002, p. 6311; *see* Ex. 2003, ¶¶ 45-54.

V. CLAIM CONSTRUCTION

In an IPR, claim terms are to be construed in accordance with the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). But "[o]nly terms which are in controversy need to be construed, and then only to the extent necessary to resolve the controversy and material to the decision." *Facebook, Inc. v. Sound View Innovations, LLC*, IPR2017-01005, Paper No. 13 at 6 (P.T.A.B. Sept. 1, 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). NOCO does not propose that any terms need to be construed, but reserves its right to put forth constructions for any claim terms, including terms for which Petitioner formally or otherwise relies on a construction of a term.

VI. PERSON OF ORDINARY SKILL IN THE ART

Petitioner states that a person having ordinary skill in the art (“PHOSITA”) as of the claimed priority date would have been a “person with a bachelor’s degree in electrical engineering or its equivalent and two years of experience in the field of electrical engineering including some experience in design of battery charging systems.” Pet., p. 21. NOCO does not propose a different level of skill in the art, but reserves the right to propose a level of ordinary skill in the art in other proceedings.

VII. PETITIONER’S PRIOR ART FAILS TO RENDER THE VEHICLE BATTERY ISOLATION SENSOR LIMITATIONS OF CLAIMS 1 AND 5 OBVIOUS

A. Richardson Fails To Teach The Controlled Connection Of A Power Switch Based On A Vehicle Battery Isolation Sensor Prior To The Power Supply Being Connected To The Vehicle Battery (Claim 1)

The challenged claims require a vehicle battery isolation sensor that serves as a safety feature by monitoring for vehicle battery connection and controlling the power switch based on the detected connection. Richardson does not disclose this limitation.

1. Claim 1 Requires That The Vehicle Battery Isolation Sensor Control The Connection Of The Power Switch *Prior* To The Power Supply Being Connected To The Vehicle Battery

Claim 1 of the challenged ’203 Patent relates to a battery jumpstart apparatus that requires, among other limitations:

a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus;

...

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.

Ex. 1001, 8:43-60 (emphases added). As can be seen, claim 1 requires that the power switch is controlled such that the power supply only becomes connected to the vehicle battery when both of two conditions are met, one of which being that the vehicle battery isolation sensor indicates a connected vehicle battery. In other words, claim 1 requires actively monitoring the vehicle battery connection **before** the power supply is connected (*i.e.*, before the beginning of jumpstarting of the vehicle). If the vehicle isolation sensor indicates that no vehicle battery is connected, then the jumpstarting process will not be initiated, since no power supply connection will be formed. Ex. 2003, ¶¶ 137-138.

The specification of the '203 Patent confirms that the vehicle battery isolation sensor of claim 1 requires the safety feature of monitoring for improper vehicle

battery connection *prior to* initiating jumpstarting, and explains that:

Using these specific inputs, *the microcontroller software of MCU 1 can determine when it is safe to turn on the smart switch FET 15, thereby connecting the lithium battery pack to the jumper terminals of the booster device.* Consequently, if the car 10 battery 72 either is not connected to the booster device at all, or is connected with reverse polarity, the MCU 1 can keep the smart switch FET 15 from being turned on, thus prevent sparking/short circuiting of the lithium battery pack.

Ex. 1001, 5:67-6:13 (emphasis added). This safety feature of detecting whether a vehicle battery is connected prior to connecting the power supply to the vehicle battery can help prevent the misuse of the claimed jump starter apparatus. Ex. 2003, ¶¶ 139-140.

2. Richardson Teaches Detection Of A Disconnection Only After The Jump Starter Has Been Connected To The Vehicle

The Petition provides only a short discussion of the limitations related to the vehicle battery isolation sensor, choosing instead to lean heavily on collateral estoppel from the '015-FWD. *See* Pet., pp. 41-43, 48-49. But, as explained *infra*, collateral estoppel does not apply in this instance. Moreover, “Petitioner’s references to collateral estoppel do not relieve Petitioner from the burden to describe its contentions regarding obviousness in the Petition.” *Palo Alto Networks, Inc. v. Centripetal Networks, Inc.*, IPR2021-01153, Paper 10 (P.T.A.B. Jan. 24, 2022).

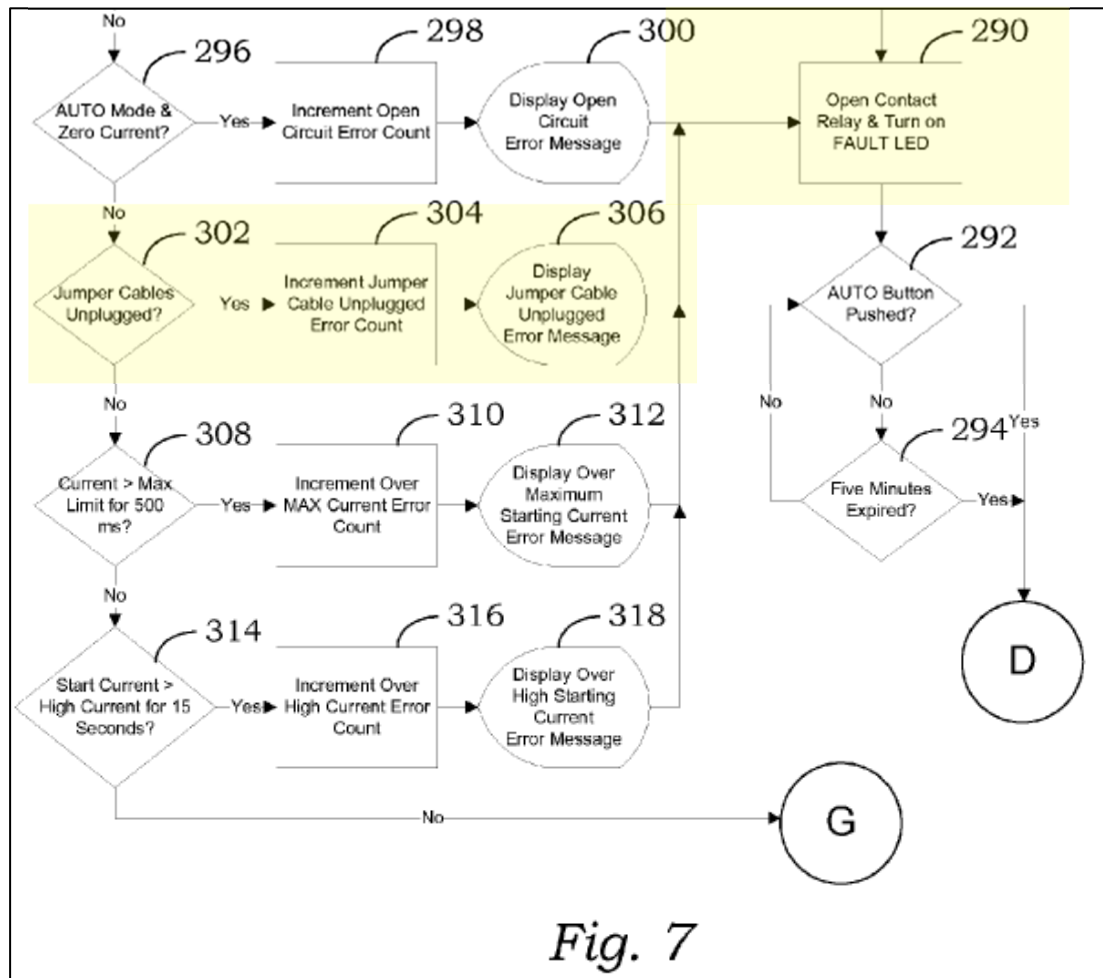
Here, the Petition conflates teachings from two separate features of Richardson: (1) Step 302, which involves monitoring whether the jumper cables have become disconnected *after* the jumpstarting energy transfer has already begun; and (2) Step 252, which involves monitoring vehicle voltage prior to jumpstarting, but does not relate to controlling the power switch based on an indication of the connection with the vehicle battery. Neither of these features of Richardson disclose the vehicle battery isolation sensor limitation of claim 1 which, as explained above, requires control of the power source connection prior to jumpstarting based on an indication that the vehicle battery is connected. Ex. 2003, ¶ 141.

Examining Step 302 of Richardson first, the prior art reference makes clear that this process step exclusively occurs *after* the jumpstarting energy transfer has already begun. Petitioner cites to paragraphs [0007] and [0041] when claiming that “Richardson discloses a vehicle battery isolation sensor as claimed.” Pet., p. 42. These paragraphs relate to Richardson’s ability to measure voltage during actual jumpstarting and open a relay circuit if the jump starter cables are determined to become disconnected:

If the system detects an increase in the difference between the measured jump starter battery voltage 20 and the voltage measured 30 across the contact relay 34 *indicating that one of the jump starter cables has been disconnected 302* from the vehicle’s battery or starter system 28 then a jumper cable unplugged error count is incremented 304, a “Jumper

Cable Unplugged” error message is displayed 306 on the LCD 46, *the contact relay 34 is opened* and the fault LED 56 is illuminated 290.

Ex. 1005, ¶ [0041] (emphases added). These process steps can be seen in the lower portion of Figure 7 in Richardson:

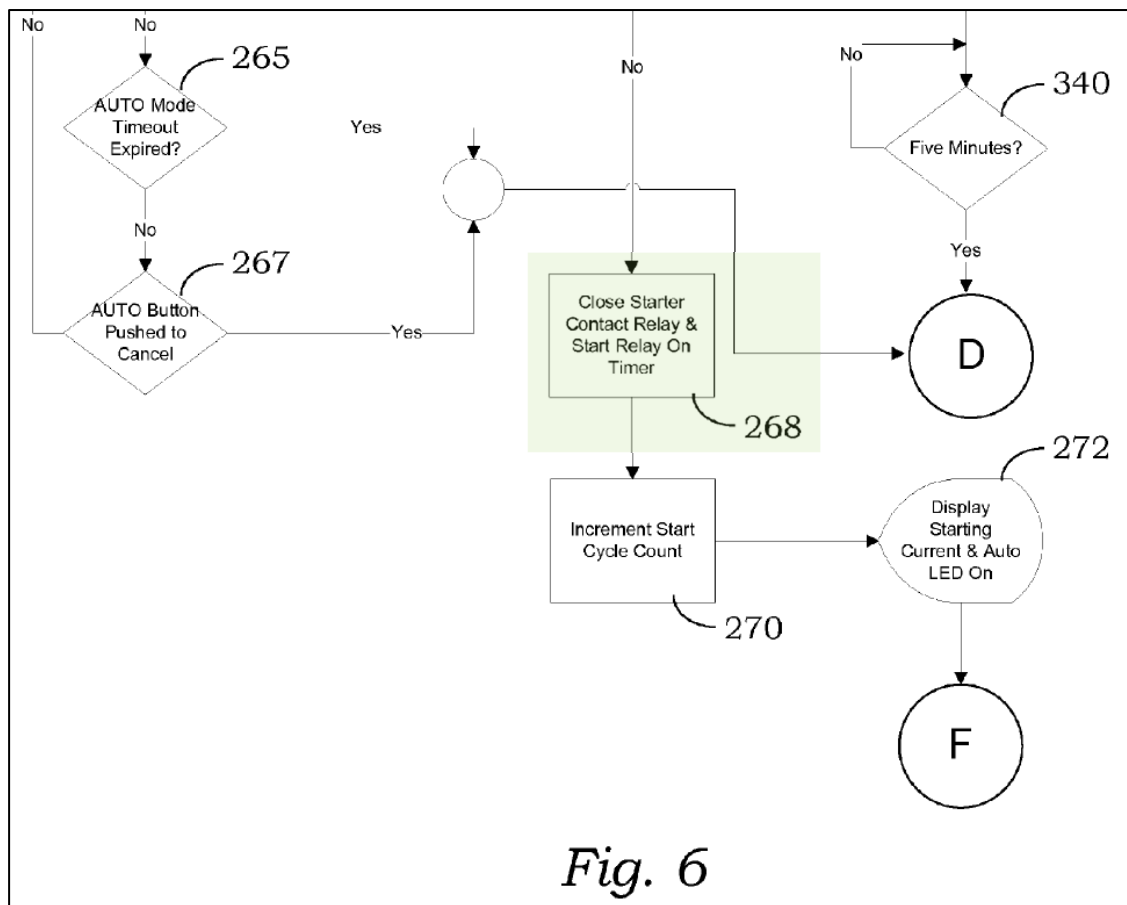


Ex. 1005, Fig. 7 (color annotations added); *see* Ex. 2003, ¶¶ 142-143.

Critical to the present analysis of claim 1, however, is recognizing that Step 302 of Richardson occurs only *after* the jumpstarting energy transfer has already begun, which occurs at Step 268:

If the maximum number of start attempts has not been exceeded 266, ***the contact relay 34 is closed and the contact relay on timer is started 268***, connecting the jump starter's capacitors 21 and batteries 22 to the vehicle's starting system 28.

Ex. 1005, ¶ [0035] (emphasis added); Ex. 2003, ¶ 144. This process step of beginning the energy transfer can be seen in the lower portion of Figure 6 in Richardson:



Ex. 1005, Fig. 6 (color annotations added). Indeed, Petitioner's expert confirmed that Step 302 of Richardson occurs only after the power supply is connected to the vehicle battery. See Ex. 2005, 47:10-14 (confirming that Step 302 occurs after Step

268, when “charging is in process.”)

There is no discussion anywhere in Richardson of Step 302’s determination of vehicle battery connection being used prior to the start of energy transfer, nor does the Petition try to point to any. Ex. 2003, ¶ 145. Therefore, the vehicle battery isolation sensor limitations of claim 1 cannot be taught by step 302 of Richardson.

3. The Voltage Monitoring Performed By Richardson Prior To The Jumpstarting Does Not Control The Connection Of The Power Supply Based On An Indication Of A Connected Vehicle Battery

Perhaps recognizing that Richardson’s teachings with respect to Step 302 fail to teach the vehicle battery isolation sensor limitations, the Petition further cites to paragraphs [0027] and [0034], which describe Step 252 of Richardson’s jumpstarting process as it relates to a “vehicle voltage sensor 30.” Pet., p. 42. While Step 252 does occur prior to the beginning of the energy transfer at Step 268, it does not involve controlling the power supply connection based on an indication of whether a vehicle battery is present. As explained below, regardless of whether a vehicle battery is properly connected to Richardson’s jump starter, the jumpstarting process of Richardson will proceed past Step 252. Accordingly, this feature of Richardson also fails to teach the vehicle battery isolation sensor limitations of challenged claim 1. Ex. 2003, ¶ 146.

The Petition asserts that “Richardson discloses a vehicle battery isolation

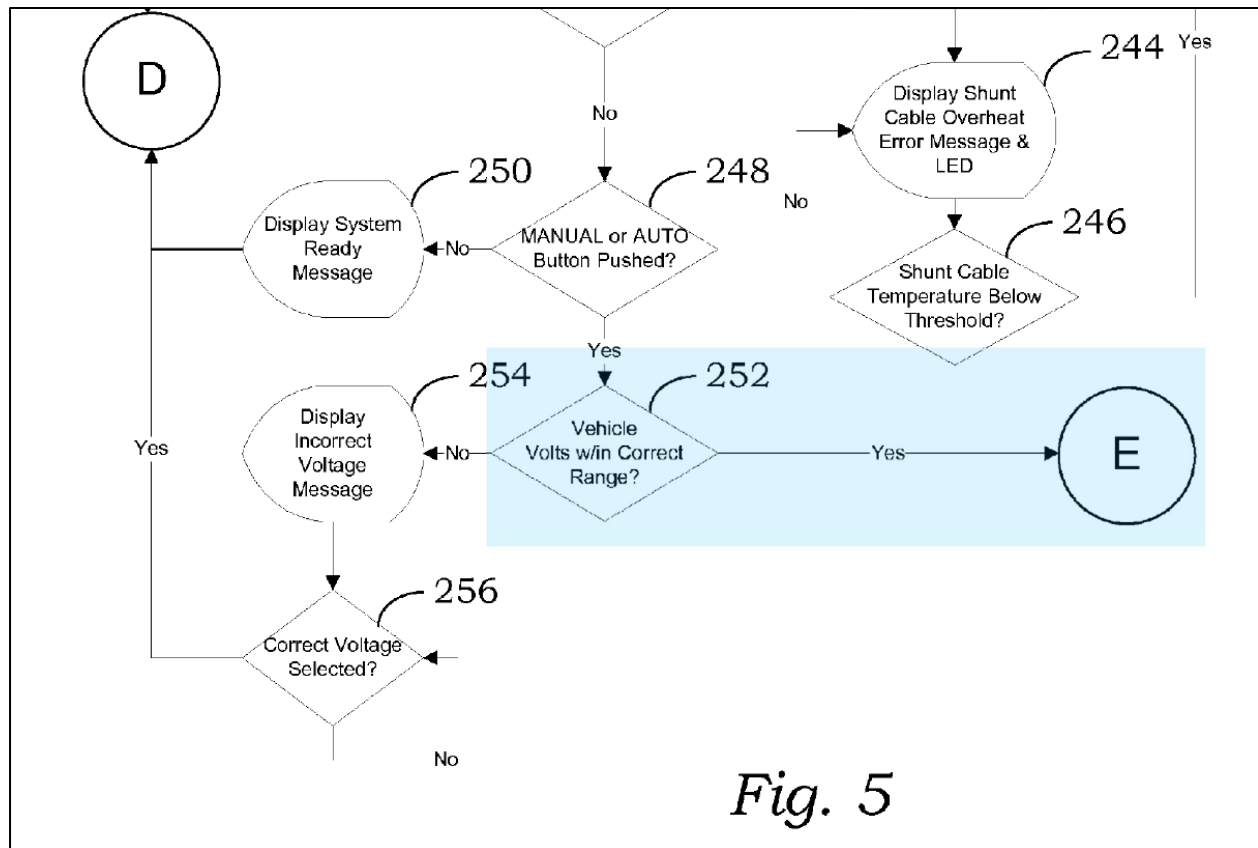
sensor as claimed” because “Richardson’s device makes a determination of battery presence at step 252 of the processing loop in connection with the operation of vehicle voltage sensor 30.” *Id.* Petitioner interprets step 252 as preventing Richardson’s system from initiating jump starting if the vehicle battery is near zero volts (*e.g.*, because it is in a disconnected state), but they fail to understand that Richardson permits low voltage readings to proceed past this step. Ex. 2003, ¶¶ 147-149.

Richardson discloses that Step 252 involves checking the voltage difference between the measured vehicle voltage and the selected voltage in order to determine if the jump starter has the correct battery voltage configuration:

If one of the push buttons 42 or 44 has been selected, the system will compare the operator-configured starter voltage against the voltage of the vehicle to be started 28. The jump starter 10 may be configured for 12, 18, 24, 30, 36, 42 or 48 volts, for example, using a selector jumper 55. For example, if the batteries 23 are both 12-volt batteries, the system may be configured for 12- or 24-volt operation It should be understood that two or more batteries of the same or different voltage levels may be used to meet the voltage requirements of the vehicle to be started. *If the difference between the voltage selected and the voltage measured is not within a predetermined range and tolerance 252, a “Wrong Selector Volts” message is displayed 254 on the LCD 46 and further operation is prohibited until the correct voltage is selected 256* at which point processing returns to the main processing

loop 210.

Ex. 1005, p. 34 (emphasis added). Step 252 of checking for the correct voltage can be seen in the lower portion of Figure 5 in Richardson:



Ex. 1005, Fig. 5 (color annotations added).

Petitioner's claim that "Richardson's device makes a determination of battery presence at step 252" misunderstands what is actually occurring in this step. Petitioner's position appears to be that Step 252 inherently teaches an isolation sensor that indicates when the vehicle battery is connected since a disconnected battery will not have a measured voltage within the correct range and will not be

able to proceed past Step 252. *See* Pet., pp. 41-43. This understanding was confirmed during the examination of Petitioner's expert. *See* Ex. 2005, 27:7-29:15 (Q: "according to your interpretation, without a vehicle battery connected, Richardson's process can never get to Step 258 in Figure 6, correct?" A: "Yes."). But that understanding of Step 252 is inaccurate, and a disconnected battery state would not prevent a user of Richardson's device from proceeding past Step 252.

Step 252 of Richardson is not monitoring for a disconnected state. Instead, Step 252 only determines if the user voltage selection is appropriate. Although Richardson does not expressly disclose what the "correct range" of voltage measurement in Step 252 would be, it is clear based on subsequent steps in Richardson's process that Step 252 does not prevent low voltage vehicle battery measurements from proceeding past this step. This is because Richardson expressly states that "manual mode," which only occurs after Step 252, must be able to "be used when the battery voltage of the vehicle is below 10 volts, *or if the vehicle's battery is not connected.*" *See* Ex. 1005, ¶ [0047] (emphasis added); Ex. 2003, ¶ 150.

Specifically, Richardson explains how the next step in the process after Step 252 is to determine whether the manual or automatic operation buttons were pressed by the user (*see* Ex. 1005, Fig. 5, Step 248):

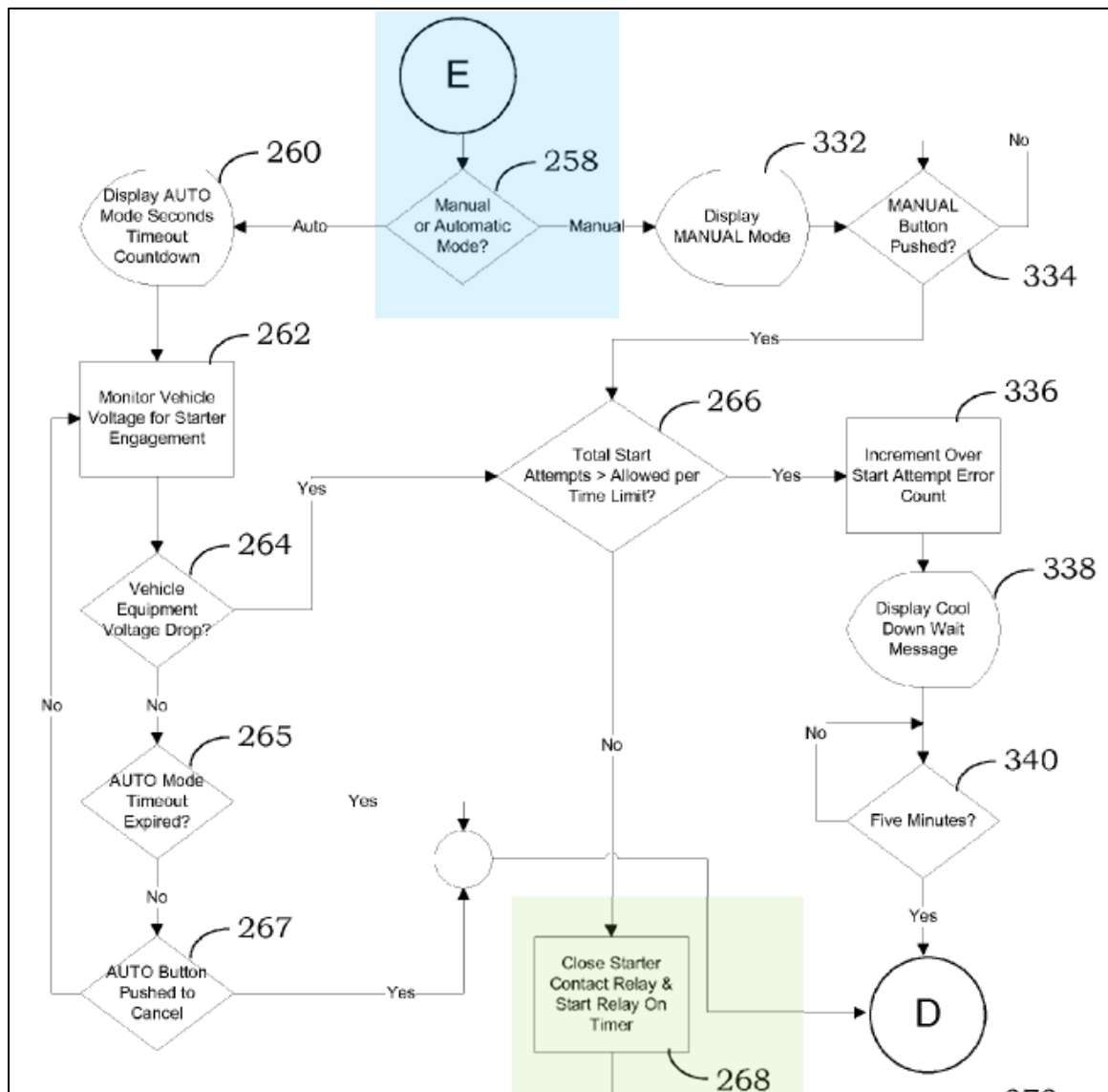
If the selected voltage is within the correct range 252, then the system

determines which button [manual or automatic mode] was selected 258.

Ex. 1005, ¶ [0035]; *see* Ex. 2005, 29:16-30:8. Richardson then describes the automatic process before continuing to discuss the manual process:

If manual mode is selected 258, “Manual” is displayed 332 on the LCD 46, the system will prompt the operator to press the manual button 44 again. If the manual button 44 is pressed a second time 334, then the system checks the number of start attempts 266 If the total start attempts have not exceeded the limit 266, the processing continues at block 268 as described above.

Ex. 1005, ¶ [0047]. As discussed above, Step 268 is where energy transfer from Richardson’s jump starter battery to the vehicle begins. Thus, Richardson discloses activating its jump starter while operating in a manual mode. *See* Ex. 2005, 31:3-32:13. This entire process workflow, which occurs after Step 252, is depicted in Figure 6 of Richardson:



Ex. 1005, Fig. 6 (color annotations added).

Critically, Richardson is clear that manual mode may be used when the vehicle battery is depleted below 10 volts or even when “the vehicle’s battery is not connected”:

If in manual mode, *the jump starter 10 may be used when* the battery voltage of the vehicle is below 10 volts, or if *the vehicle’s battery is*

not connected.

Ex. 1005, ¶ [0047] (emphasis added); *see* Ex. 2005, 35:22-24. Because Step 252 (the vehicle voltage check) occurs prior to the “manual mode” process (beginning at Step 258 and continuing through Step 268), the vehicle voltage check of Step 252 must allow for Richardson’s process to continue even if when the vehicle battery is below 10 volts or disconnected. Ex. 2003, ¶¶ 151-152.

As a result, when Step 252 checks the vehicle battery voltage for the “correct range,” a disconnected vehicle battery cannot lead to a “wrong selector volts” message being displayed and further operation being “prohibited.” *See* Ex. 1005, p. 34. This initial voltage check must instead permit Richardson’s jumpstarting process to proceed for low voltages (*e.g.*, a disconnected state), or else the described operation in manual mode would not be possible. Ex. 2003, ¶ 153.

When questioned about whether a battery with zero volts that needed to be jumpstarted using the manual process would have to proceed past Step 252, Petitioner’s expert conceded that the voltage “test must have been satisfied before it gets to connector E.” Ex. 2005, 39:16-40:4. Petitioner’s expert then admitted that the acceptable voltage range measured in Step 252 could exclude the zero voltage case where no battery is present, and that a different acceptable vehicle voltage range would prevent you from going into manual mode:

Can you arrive at Step 258 with a battery that has zero volts?

That's the question.

A. Oh, my apologies, then. It does not appear from Step 252 of the prior case that that is possible. That would, that would be a volt -- a vehicle voltage outside of the correct range.

Q. Well, then, how is it possible that if in manual mode the jump starter, 10, may be used when the battery voltage of the vehicle is below 10 volts or if the vehicle's battery is not connected?

A. You're raising it being that it is being blocked at 252 because it's out of the correct range. And *I see your point*.

Q. So you're saying, under your interpretation, that's not possible?

MR. CHANDRA: Objection. Misstates his testimony.

A. Well, it does depend. And I would -- to get to the bottom of this question, I'd like to determine definitively what is meant by vehicle voltage within the correct range because that correct range could exclude the zero -- the, basically, zero voltage case or the no battery present case.

But if one assumes that this decision -- vehicle volts within correct range inside the decision diamond, 252, includes the possibility of reading zero voltage at the battery which could occur either if the battery is not connected or if the battery is so stone dead that it is still - - it is reading zero, that *that would prevent you from going into manual mode*, which I believe is your question.

Ex. 2005, 40:8-41:17 (emphases added).

Because Step 252 must allow Richardson's system to go into manual mode in

the case where the battery is at a low voltage or disconnected, the voltage check occurring in Step 252 cannot be monitoring for a voltage range that does not include a zero or low-voltage reading. If Petitioner’s interpretation of Step 252 were accurate, then Richardson would be entirely incapable of using its manual mode.¹ Step 252 of Richardson therefore cannot provide a vehicle battery isolation sensor that “indicates that the vehicle battery is connected to the jump starter apparatus,” as required in challenged claim 1. Ex. 2003, ¶¶ 154-159.

Accordingly, Richardson fails to teach the vehicle battery isolation sensor limitations of claim 1. And, because collateral estoppel does not apply here, the Board is entitled to reexamine this deficiency of Richardson.

**4. If Petitioner’s Understanding Of Step 252 Were Correct,
Then Richardson Would Be Inoperable**

Were the Board to agree with Petitioner’s interpretation—that Step 252 of Richardson would prevent jump starting and display an incorrect voltage message when no vehicle battery is present—then the Petition’s Grounds would still be fatally flawed, because Richardson would be inoperative and therefore would not provide an enabling disclosure. Ex. 2003, ¶ 160. “Enablement of prior art requires that the reference teach a skilled artisan—at the time of filing—to make or carry out what it

¹ As detailed below, if Petitioner’s interpretation of Step 252 is correct, then Richardson is inoperable.

discloses in relation to the claimed invention without undue experimentation.” *In re Morsa*, 803 F.3d 1374, 1377 (Fed. Cir. 2015). But “if an obviousness case is based on a non-self-enabled reference, and no other prior art reference or evidence would have enabled a skilled artisan to make the claimed invention, then the invention cannot be said to have been obvious.” *Raytheon Techs. Corp. v. GE*, 993 F.3d 1374, 1377 (Fed. Cir. 2021); *see id.* at 1382 (finding that a prior art reference’s “self-enablement (or lack thereof) is not only relevant to the enablement analysis, in this case it is dispositive” because the party “does not contend that the [challenged] patent’s turbofan engine is enabled by other prior art or evidence of record”).

In this instance, Petitioner has relied on Richardson alone to teach many of the jump starter limitations of claim 1. But, as explained above in Section VII(A)(3), if Petitioner’s interpretation of Richardson is accepted, then Richardson’s device could never proceed past Step 252 in the event of a low voltage or no voltage reading. And if this were the case, then Richardson could never proceed down its manual operation pathway (Steps 332, 334) to reach the point that its power supply is connected at Step 268. Ex. 1005, Figs. 5-6; *see* Ex. 2003, ¶ 161. In other words, if Petitioner’s interpretation is accepted, then Richardson is a non-self-enabled reference that is fundamentally inoperative, and therefore would not enable a PHOSITA to arrive at the claimed invention.

B. Collateral Estoppel Does Not Preclude Patent Owner From Identifying Richardson’s Deficiencies

Rather than presenting sufficient evidence of unpatentability, the Petition repeatedly leans on collateral estoppel to argue that “Patent Owner is precluded from arguing” against findings from the ’015-FWD with respect to Richardson’s ability to teach various limitations in challenged Claim 1 and the prior art and printed publication status of Epower-20 and Epower-21. Pet., pp. 29-30, 42, 43, 46, 48. But collateral estoppel only applies when “(1) the identical issue was previously adjudicated; (2) the issue was actually litigated; (3) the previous determination was necessary to the decision; and (4) the party being precluded from relitigating the issue was fully represented in the prior action.” *Kroy IP Holdings, LLC v. Groupon, Inc.*, 127 F.4th 1376, 1380 (Fed. Cir. 2025). In this instance, multiple of these requirements for applying collateral estoppel are not met.

1. Collateral Estoppel Does Not Apply Because The Issues Are Not Identical

The first condition for collateral estoppel that is not met is the requirement that “the identical issue was previously adjudicated.” *Kroy*, 127 F.4th at 1380. It is true that “the collateral-estoppel effect of an administrative decision of unpatentability generally requires the invalidation of related claims that present identical issues of patentability.” *MaxLinear, Inc. v. CF CRESPE LLC*, 880 F.3d 1373, 1377 (Fed. Cir. 2018). But, in this instance, the challenged claims contain

several differences compared to the canceled claims of the prior '015 Patent, and those differences “materially alter the question of invalidity.” *Ohio Willow Wood Co. v. Alps S., LLC*, 735 F.3d 1333, 1342 (Fed. Cir. 2013). Additionally, the Petition relies on different statutory grounds, different prior art, and applies estoppel in a piecemeal manner that contravenes prior Federal Circuit holdings.

First and foremost, it should be recognized that Petitioner’s attempted application of collateral estoppel is very different from prior cases in the IPR context. Typically, as in several of the cases cited by Petitioner (*see* Pet., pp. 29-30), collateral estoppel is invoked with respect to the factual finding of unpatentability of an entire claim. Here, rather than asserting that challenged claim 1 presents identical issues of invalidity with respect to a previously-invalidated claim, Petitioner attempts to apply collateral estoppel in a piecemeal fashion to only a portion of the limitations in challenged claim 1. Namely, Patent Owner invokes collateral estoppel to try to preclude Patent Owner from arguing against only “limitations 1[PRE], 1(A), 1(D)–1(G).” ID, p. 21; *see* Pet., pp. 41-42, 43-44, 46, 48. This limitation-by-limitation usage of collateral estoppel is improper, and violates the requirement that factfinders analyze the obviousness of an “invention as a whole.” 35 U.S.C. § 103(a).

Claim 1 undisputably presents non-identical issues of patentability through, at least, its inclusion of “a USB port . . . for charging the one or more batteries” and a “DC-DC converter . . . configured to increase a voltage received from the external

power.” Ex. 1001, 8:36-42. None of the canceled claims of the ’015 Patent contain any comparable limitation. *See* Ex. 1034, pp. 7-8. Indeed, Petitioner makes no attempt to argue that claim 1 as a whole presents materially identical issues, and the Board already identified this. ID, p. 21 (“Petitioner has not demonstrated sufficiently that collateral estoppel should apply here as to the “USB port.”). Given that the challenged claims present substantially different invalidity issues, collateral estoppel cannot be invoked based on the prior unpatentability findings in the ’015-FWD.

The Federal Circuit has previously rejected attempts to apply collateral estoppel on a limitation-by-limitation basis between claims that present non-identical invalidity issues. For example, in *Interconnect Planning Corporation v. Feil*, cited on page 29 of the Petition, the Federal Circuit agreed with a patent owner who “assert[ed] that the district court incorrectly invoked collateral estoppel when it analyzed the reissue claims by comparing them with the original claims of the [previously-invalidated parent patent], then applying prior art only to the differences between the reissue claims and the original claims.” 774 F.2d 1132, 1136 (Fed. Cir. 1985). That court found that, because the “reissue claim is not substantially identical to the parent, the parent claim is of no further moment,” (*id.* at 1141), and further explained that:

The original claim is not prior art against the reissue claim. It is not

correct to weigh the reissue claim against the original claim. It is not correct to weigh the changes in the reissue claim against the original claim. It is the reissue claim alone that is to be analyzed in accordance with the Graham guidelines, and the differences to be considered are the differences between the reissue claim as a whole and the prior art.

Id.

In this instance, Petitioner has wrongly asked the Board to apply the prior art only to the differences between the challenged claims and the claims of the previously-canceled '015 Patent. Such a segmented approach, applying estoppel on a limitation-by-limitation basis, effectively treats the '015 Patent as prior art and prevents a holistic examination of challenged claim 1. *See id.* Improperly dissecting an independent claim into its individual elements, like Petitioner is attempting to do, is a practice that the Federal Circuit has repeatedly warned against. *See GE v. Raytheon Techs. Corp.*, 983 F.3d 1334, 1352 (Fed. Cir. 2020) (“The claimed invention and an invention in the prior art must both be analyzed as a whole for the same reason: an invention is more than the sum of its individual elements.”).

And here, not only is Petitioner arguing for the application of estoppel based on findings with respect to a materially different claim, but it is also doing so based on different patentability grounds—claim 1 of the '015 Patent was held unpatentable over Richardson based on anticipation under 35 U.S.C. § 102 (*see* Ex. 1034, p. 20), whereas Ground 1 in the Petition presents an obviousness ground under 35 U.S.C.

§ 103. As such, the Petition relies on different prior art (*i.e.*, the addition of Zhao) as well as different statutory grounds, which further changes the invalidity issues. *See, e.g., TicketNetwork, Inc. v. CEATS, Inc.*, IPR2018-00245, Paper 50 (P.T.A.B. May 31, 2019) (“Different art makes different grounds, which makes for different issues. Collateral estoppel is not appropriate where the issues are different.”).

Furthermore, even if the Board were to ignore the differences in the overall claims and consider applying collateral estoppel on a limitation-by-limitation basis, the individual claim limitations that Petitioner seeks to tie to the prior findings are still patentably distinct from the corresponding limitations in the previously-challenged '015 Patent. Petitioner claims that “the overlapping features (*i.e.*, the claimed safety features) have identical or nearly identical language.” Pet., p. 29. But a direct comparison between claim 1 of the challenged '203 Patent and claim 1 of the previously-challenged '015 Patent shows that substantial alterations were made:

1. A jump starter [[A]]apparatus for jump starting a vehicle engine battery, comprising:
 - a[[n]]—~~internal~~ power supply that includes one or more rechargeable batteries;
 - ~~an output port having positive and negative polarity outputs;~~
 - a USB port configured to receive power from an external power source for charging the one or more batteries;
 - 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;

~~a vehicle battery isolation sensor connected in circuit with said positive and negative polarity outputs, configured to detect presence of~~
~~[[a]]the vehicle battery connected between said positive and negative polarity outputs to the jump starter apparatus;~~

~~a reverse polarity sensor, separate from the vehicle battery isolation sensor connected in circuit with said positive and negative polarity outputs, configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery of a vehicle battery connected between said positive and negative polarity outputs and to provide an output signal indicating whether positive and negative terminals of said vehicle battery are properly connected with said positive and negative polarity outputs of said output port; and~~

~~a power switch configured to electrically connect the power supply to the vehicle battery, connected between said internal power supply and said output port; and wherein the power switch is controlled based on~~

~~a microcontroller configured to receive input signals from said the vehicle isolation sensor and [[said]]the reverse polarity sensor, and to provide an output signal to said power switch, such that said the power switch is turned on to cause said internal power supply to be connected to said output port 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. in response to signals from said sensors indicating the presence of a vehicle battery at said output port and proper polarity connection of positive and negative terminals of said vehicle battery with said positive and negative polarity outputs, and is not turned on when signals from said sensors indicate either the absence of a vehicle battery at said output port or improper polarity connection of positive and negative terminals of said vehicle battery with said positive and negative polarity outputs.~~

Ex. 1034, p. 7 (claim 1 of the '015 Patent); Ex. 1001, 8:32-67 (claim 1 of the challenged '203 Patent) (additions shown via underlining, deletions shown via strikethrough and double-bracketing).

As can be seen, there are numerous differences between claim 1 of the challenged '203 Patent and the previously-challenged '015 Patent. Looking just at the changes made related to the “vehicle battery isolation sensor” limitations, the substantive differences include:

- No longer a “microcontroller” that provides “an output signal to said power switch”;
- Now requiring that the power switch is controlled based on the vehicle battery isolation sensor currently indicating that the vehicle battery is “connected to the jump starter apparatus,” as opposed to the sensors indicating the “presence” of a vehicle battery; and
- No longer requiring that the vehicle battery isolation sensor is “connected in circuit with said positive and negative polarity outputs.”

Compare Ex. 1001, 8:32-67 *with* Ex. 1034, p. 7. These changes materially alter the question of unpatentability, particularly with respect to Richardson’s failure to teach the “vehicle battery isolation sensor” limitation, as discussed above in Section VII(A).

Because the challenged claims and the Grounds of the Petition present non-

identical issues of patentability relative to those considered in the '015-FWD, collateral estoppel does not preclude Patent Owner from demonstrating that Petitioner has erroneously relied on Richardson's teachings in its Grounds.

2. Collateral Estoppel Does Not Apply Because The '015 Patent Was Found Unpatentable On Multiple Independent Grounds That Were Each Alone Sufficient To Support Unpatentability

The third condition for collateral estoppel is also not met. As Petitioner recognizes, to invoke collateral estoppel a party must show that “(3) resolution of the issue was essential to a final judgment in the first action.” Pet., p. 29. As other courts have phrased this requirement, the previous determination must be “necessary to the decision.” *Kroy*, 127 F.4th at 1380. Petitioner pays little attention to this prerequisite in its Petition and claims that there is “no substantial dispute” with respect to this requirement. Pet., p. 30. But in this instance, the findings that Petitioner now relies on were, in fact, not necessary to the Final Written Decision for the '015 Patent, because that decision rested on multiple independent grounds of unpatentability. In other words, had the Board made different findings with respect to Richardson in the '015-FWD, the sole independent claim of the '015 Patent would have still been held unpatentable under the alternative prior art grounds involved in that proceeding. As a result, those Richardson findings cannot be considered “necessary to the decision,” and, therefore, Petitioner has improperly invoked

collateral estoppel.

The principle that alternative holdings can bar issue preclusion is well established and is outlined in the Second Restatement of Judgments: “[i]f a judgment of a court of first instance is based on determinations of two issues, either of which standing independently would be sufficient to support the result, the judgment is not conclusive with respect to either issue standing alone.” Restatement (Second) of Judgments § 27 cmt. i. While some circuit courts follow an alternative approach outlined in the First Restatement of Judgments, the Federal Circuit has consistently applied the approach of the Second Restatement. *See Masco Corp. v. United States*, 303 F.3d 1316, 1331 (Fed. Cir. 2002) (holding that “[a]ny one of these findings would have been sufficient to support the judgment of noninfringement of Claim 1, making them alternative, not cumulative, findings” and therefore “we are constrained by our precedent to hold that Masco is not precluded from relitigating the issues”); *Comair Rotron, Inc. v. Nippon Densan Corp.*, 49 F.3d 1535, 1538-39 (Fed. Cir. 1995) (holding that a finding was not essential to a judgment for collateral estoppel purposes where that judgment was supportable on other grounds); *Jean Alexander Cosmetics, Inc. v. L’Oreal USA, Inc.*, 458 F.3d 244, 252 (3d Cir. 2006) (“By contrast, the Courts of Appeals for the Tenth and Federal Circuits have refused to give preclusive effect to alternative findings that were each independently sufficient to support a judgment.”).

The Federal Circuit has further recognized that factfinders should be particularly wary of offensive collateral estoppel, like the kind Petitioner is trying to invoke in this instance, stating:

Courts are more cautious about applying offensive collateral estoppel than defensive collateral estoppel. That is because of the greater possibility for unfairness from the use of offensive collateral estoppel, due to the risks that the defendant may not have had the same incentive to defend vigorously in the first action and may not have had procedural opportunities in the first action that could have produced a different result in that case.

Intellectual Ventures I LLC v. Capital One Fin. Corp., 937 F.3d 1359, 1373 (Fed. Cir. 2019) (internal citations omitted).

In the Final Written Decision in IPR2020-00944, the obviousness determination based on the Richardson ground was not “necessary” or “essential” to the unpatentability holding of ’015 Patent. A determination ranks as necessary or essential “when the final outcome hinges on it.” *Bobby v. Bies*, 556 U.S. 825, 834-835 (2009). The ’015-FWD actually addresses the non-Richardson grounds first, stating that “Petitioner has proved by a preponderance of the evidence that claim 1 is anticipated by Klang.” Ex. 1034 at p. 37, *see id.* at pp. 106-107. The ’015-FWD then separately addresses the Richardson grounds, reaching the alternative conclusion that “Petitioner has proved by a preponderance of the evidence that claim

1 is anticipated by Richardson.” Ex. 1034, p. 67; *see id.*, pp. 106-107. Both of these grounds, including their respective underlying factual findings, could have independently supported the ultimate unpatentability holding of the ’015-FWD. In fact, had no Richardson grounds been presented in IPR2020-00944, the “final outcome” of the trial proceeding would have still led to claim 1 being found unpatentable. Therefore, due to the alternative findings on the Klang grounds, the prior IPR proceeding did not “hinge” on the Richardson grounds such that they could be considered “essential to the final judgment” in that first action.

Because none of the issues Petitioner identifies can be considered to meet the collateral estoppel requirement of being necessary to the prior decision, relitigation of these factual findings, including the teachings of Richardson, is not precluded.

3. Even If Applicable, Collateral Estoppel Would Still Not Preclude A Finding That Richardson Is Non-Enabling Prior Art

Petitioner has asserted that collateral estoppel precludes challenges against the prior determinations regarding Richardson. However, the factual findings that Petitioner points to from the ’015-FWD all relate to Richardson’s ability to teach claim limitations in previously-challenged claim 1 of the ’015 Patent. If collateral estoppel were to apply, it would be limited to the factual findings in that proceeding regarding only those specific claim limitations. Collateral estoppel would not extend to issues that were not previously adjudicated. *See Kroy*, 127 F.4th at 1380; *Voter*

Verified, Inc. v. Election Sys. & Software LLC, 887 F.3d 1376, 1383 (Fed. Cir. 2018) (“From the court’s opinion, it appears, as Election Systems has argued, that the § 101 issue was never ‘actually litigated,’ because the court did not evaluate that question.”). Therefore, Patent Owner cannot be precluded under collateral estoppel from demonstrating that the prior art is inoperative, as explained above in Section VII(A)(4).

C. Richardson Fails To Teach The Automatic Controlled Connection Of A Power Switch Based On A Vehicle Battery Isolation Sensor When The Jump Starter Apparatus Becomes Operational (Claim 5)

In addition to failing to teach the vehicle isolation sensor limitations of claim 1, Richardson particularly fails to teach the limitation of dependent claim 5, which further narrows the time period for which the vehicle battery detection is occurring:

5. The jump starter apparatus of claim 4, wherein the controller is configured to automatically cause the vehicle 10 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*.

Ex. 1001, 9:8-14. As shown above, claim 5 specifies that the controller (an element introduced in claim 4) automatically causes the vehicle battery isolation sensor to perform presence detection when the jump starter apparatus becomes “operational.”

Ex. 2003, ¶ 162.

During cross-examination, Petitioner's expert suggested two possible points in time for when Richardson's jump starter device would become "operational:" (1) "the device is operational if its electronics are working, which would follow as soon as you turn the power on," and (2) when current "is actually flowing from the jump starter into the subject vehicle battery" after Step 268 in Richardson. Ex. 2005, 15:5-11, 13:3-11. But the language of the '203 Patent makes clear that the jump starter apparatus becomes operational at the first point in time: when the device is powered on. *See* Ex. 1001, 8:3-4 ("309 is a 'power on' indicator showing that the device is powered up *for operation*."') (emphasis added). And given that claim 1 already requires presence detection prior to connecting the power supply, claim 5 would not make sense as a further narrowing limitation of claim 1 if "operational" meant when the device started to transfer energy to a connected vehicle. Ex. 2003, ¶ 163.

Thus, claim 5 adds a further temporal restriction to claim 1 that functions as a more-stringent safety feature. Ex. 2003, ¶ 164. While claim 1 requires that the vehicle battery isolation sensor perform its safety check sometime prior to the power supply being connected to the vehicle battery, claim 5 goes even further and requires this safety check when the "jump starter apparatus becomes operational." Richardson does not disclose vehicle battery presence detection at any time prior to connecting the power supply, and it certainly does not teach claim 5's requirement of doing so as soon as the jump starter becomes operational.

When addressing claim 5, the Petition claims that “Richardson teaches this limitation.” Pet., pp. 52-53. Petitioner provides only a superficial analysis of this claim limitation, largely repeating and citing to its arguments from limitation 1[D]. *See id.* (citing Ex. 1005, ¶¶ 16, 27, 35). Nowhere does the Petition address the temporal restriction of claim 5 that requires presence detection as soon as the device becomes operational. Ex. 2003, ¶ 165. And, unlike for limitation 1[D], Petitioner does not allege that collateral estoppel applies to claim 5. Accordingly, Petitioner has failed to meet its burden of demonstrating that Richardson teaches the limitation of claim 5, and the Board is not precluded from considering this deficiency in the Petition (even if collateral estoppel were to apply to claim 1).

Therefore, even if Petitioner’s understanding of Step 252 disclosing vehicle battery presence detection of claim 1 were correct, which, as explained above in Section VII(A)(3), it is not, the Grounds involving the unpatentability of claim 5 are still lacking. As explained, Richardson becomes operational when it “is initially powered on **200**.” Ex. 1005, ¶ [0022]; *see id.*, Fig. 3, Step 200. After powering on, Richardson goes through numerous steps before even reaching Step 252. *See id.*, Figs. 3-5. For example, Richardson’s device first performs numerous checks, including “self-test operations,” before starting its main processing loop “210.” *Id.*, ¶ [0023]. Continuing through its process, the reverse polarity detection of Step 214 occurs only “once jumper cables 60 have been manually connected to the vehicle to

be started.” *Id.*, ¶ [0027], Fig. 3. Also occurring after the device is powered on is the requirement that a manual or auto button have been pushed at step 248, otherwise a “Ready” message is displayed. *Id.*, ¶ [0033], Fig. 5. Then, well after the device has already been powered on and become operational, and only after the jump starter has been manually connected to the vehicle, and only after a user has made a selection of manual or automatic operation, does Richardson’s Step 252 finally check if the vehicle voltage is within a correct range. *Id.*, ¶ [0035], Fig. 5. Because it is occurring so long after Richardson’s device is powered on, and only after numerous manual tasks, Step 252 does not disclose claim 5’s required presence detection occurring when the jump starter apparatus becomes operational. Ex. 2003, ¶¶ 166-167.

Therefore, Petitioner has failed to show that claim 5 is unpatentable over Richardson in view of Zhao.

D. Yu Fails To Teach The Controlled Connection Of A Power Switch Based On Signals From A Vehicle Battery Isolation Sensor

Yu also fails to teach the vehicle battery isolation sensor limitations of claim 1. While Richardson failed to teach control of the power switch prior to initiation of energy transfer, Yu fails to teach this limitation because it simply does not teach or suggest using the vehicle battery isolation sensor to control the power switch at any point in time. Rather than implementing this automatic safety feature required

by claim 1, Yu instead relies on a user to evaluate a measured voltage on a display and make manual safety decisions. Ex. 2003, ¶ 168.

The Petition first claims that Yu teaches the vehicle battery isolation sensor limitations of claim 1 because it discloses an “external battery voltage detection circuit 45 which detects whether a battery is present (i.e. connected) or absent (i.e., disconnected).” Pet., p. 66. In support, Petitioner points to Yu’s statement that “[w]hen the device is connected to an external vehicle battery, the device will detect the external battery voltage and display the voltage on the LCD simultaneously.” Pet., p. 66 (citing Ex. 1008, ¶ [0009]). According to Petitioner, “[a] POSITA would have understood that, to prevent generating sparks, Yu’s microprocessor would determine whether a battery is present (i.e., connected to Yu’s jump starter) before switching on the relay 2.” Pet., p. 66; *see id.*, pp. 65-69, 72. But this is not how Yu functions.

Yu’s “external battery voltage detection circuit 45” only provides a voltage signal to be displayed on Yu’s display module. Unlike the “external battery reverse connection detection circuit 44” in Yu, which does control the relay 2 via microprocessor 42 (*see* Ex. 1008, ¶ [0003]), Yu’s “voltage detection circuit 45” is not used to control the relay 2. Instead, the reference makes repeated statements that confirm that this detection circuit is only intended to provide visual information to a user of Yu’s jump starter system:

- “*So that the external battery voltage can be displayed on the display module*, the control module also includes an external battery voltage detection circuit” Ex. 1008, ¶ [0006] (emphasis added).
- “When the device is connected to an external vehicle battery, the device will *detect the external battery voltage and display the voltage on the LCD simultaneously*. At this time, pressing the JUMP button of the input buttons controls whether the relay is on or off, so that the device will not generate sparks when it is connected.” Ex. 1008, ¶ [0009] (emphasis added).
- “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.” Ex. 1008, ¶ [0026] (emphasis added).
- “A signal is provided to the microprocessor 42 through the external battery voltage detection circuit 45, *so the external battery voltage can be displayed on the display module 5 to facilitate understanding of the external battery condition*.” Ex. 1008, ¶ [0027] (emphasis added).

Nowhere does Yu suggest using the signal received from the voltage detection circuit 45 to control the relay 2. The microprocessor 42 does not make a determination of whether the vehicle battery voltage is within a normal range or even present. Instead, it is the user who makes this determination and manually controls the relay 2. Specifically, the measured voltage is displayed to a user of the device, so that the user can use this information to determine whether or not to press the “JUMP button” to close relay 2 and begin the jumpstarting process. In other words, Yu has no vehicle battery detection sensor that is used to control a relay switch, as required in challenged claim 1. Ex. 2003, ¶¶ 169-171. This safety feature is completely absent from Yu, which instead chooses to rely on a manual determination by the user of when to activate the device.

As a fallback position, Petitioner tries to argue that “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., p. 68. Petitioner claims that modifying Yu to control the relay 2 via the external battery detection circuit 45 would have been straightforward and “a POSITA would have been motivated to implement these changes to obtain the known benefit of enhancing safety and avoiding generation of sparks, as taught by Yu.” *Id.*, p. 67. In other words, Petitioner effectively argues that, if the prior art does not actually teach the

claimed limitation, then the invention would still nevertheless have been obvious, because it would have been straightforward to implement. Ex. 2003, ¶ 172.

This unsupported argument is a clear case of impermissible hindsight reconstruction. Petitioner points to no prior art evidence in support of this fallback position. Instead, Petitioner merely points to the testimony of its own expert, Dr. MacCarley. *See* Pet., pp. 68-69 (citing Ex. 1003, ¶ 160). But that paragraph of the MacCarley Declaration merely parrots the language of the Petition *verbatim*, and therefore should be given little weight. *See, e.g., Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 12 at 5 (P.T.A.B. Feb. 10, 2023) (“I determine that the Board was correct in giving little weight to Petitioner’s expert because the expert declaration merely offered conclusory assertions without underlying factual support and repeated, *verbatim*, Petitioner’s conclusory arguments.”).

Even putting aside the fact that Petitioner has provided no evidence in support of the proposed modification, altering Yu in this manner makes little sense for a number of reasons. First, Yu’s jump starter system already presents a solution that it claims avoids sparks, so a PHOSITA would not have sought to further modify Yu based on the reference’s teachings alone. In particular, Yu waits until a user presses the “JUMP button” before transferring energy, so that the device “will not generate sparks when it is connected.” Ex. 1008, ¶ [0009]. Petitioner’s suggested motivation to modify Yu is therefore deficient. Ex. 2003, ¶ 173.

Furthermore, modifying Yu's system to rely on the vehicle battery voltage to controllably connect/disconnect its power supply would not be as straightforward as Petitioner claims. Yu currently relies on a user to evaluate the displayed vehicle battery voltage and to determine whether to press the "JUMP button." But, if Yu was modified to simply prevent jumpstarting when a vehicle battery voltage is undetected, then Yu's system would not be able to jumpstart vehicles when the battery voltage is so low that automatic detection is not possible. In other words, the proposed modification would render Yu worthless in many actual jump-starting applications. This is precisely why the challenged '203 Patent includes a "manual button" to "allow[] the user to jump-start vehicles that have either a missing battery, or the battery voltage is so low that automatic detection by the MCU is not possible." Ex. 1001, 5:20-23. Put simply, Petitioner's proposed modification restricts the manual operation that Yu's device relies on. Without building in a manual override—something that would require further redesign of Yu's system, which is not suggested by the Petition—the proposed modification to Yu's system would render it partially inoperable. Ex. 2003, ¶¶ 174-175.

In light of these deficiencies, and similar to Richardson, Yu fails to teach the vehicle battery isolation sensor limitations.

VIII. THE PETITION FAILS TO DEMONSTRATE THAT A PHOSITA WOULD HAVE APPLIED USB CHARGING TECHNIQUES TO A JUMP STARTER AT THE TIME OF THE PRIORITY DATE

As Patent Owner previously demonstrated in its POPR, 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. *See* POPR, pp. 22-52; Ex. 2003, ¶¶ 58-153. Patent Owner maintains that, for all of the reasons outlined in the POPR, Petitioner has failed to demonstrate a sufficient motivation to combine the prior art as proposed in the combinations of Grounds 1-6. The Decision Granting Institution (Paper 8, “ID”) identified concerns with some of Patent Owner’s motivation to combine positions, and Patent Owner provides the following remarks to address these concerns.

A. No Problem With Traditional Barrel Chargers Was Perceived In The Art At The Time, Nor Was USB A Known Technique For Charging Large-Capacity Batteries

As Patent Owner previously explained, charging of portable jump starter devices, like every other device having a large-capacity battery in July of 2014, relied on barrel chargers or other proprietary charging techniques, which provided charging power that was suitable for these large-capacity batteries. POPR, p. 2; *see* Ex. 2003, ¶¶ 79-86. Indeed, it is not surprising that Petitioner was not able to identify any prior art that teaches or suggests charging a jump starter device, or even a device having a comparable battery capacity, via USB. But when considering this lack of

recognition in the art, the ID rejected the extended charging time as a mere drawback. The ID specifically noted that a PHOSITA “would have considered the relative advantages, including convenience and availability, against these disadvantages in assessing the combination” and cited *Winner International Royalty Corp. v. Wang*. ID, p. 32 (citing 202 F.3d 1340, 1349 n.8 (Fed. Cir. 2000)). But part of the inventive aspect of the ’203 Patent was the recognition that USB charging, even with severe drawbacks that deterred all others from considering it a viable charging solution for high-capacity jump starter batteries, would be accepted by consumers, and ultimately successful.

It is true that, “if there’s a ***known technique*** to address a ***known problem*** using prior art elements according to their established functions, then there is a motivation to combine.” *Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380 (Fed. Cir. 2023) (internal citations omitted) (emphases added). And it is precisely this motivation to combine reasoning that Petitioner relies on when supporting its prior art grounds. *See, e.g.*, Pet., p. 27 (“USB charging circuits . . . were well-known in the art and a POSITA would have been motivated to combine the USB charging circuits . . . into a battery powered jump starter like Richardson”); *id.*, p. 63. In this instance, however, USB was not a known technique for charging any large-capacity battery due, in part, to the extended charging times that were associated with USB in 2014. Indeed, assessing whether claimed subject matter involves the “application

of a known technique” will “[o]ften” require “a court to look to interrelated teachings of multiple patents; *the effects of demands known to the design community or present in the marketplace*; and the background knowledge possessed by a person having ordinary skill in the art.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417-18 (2007) (emphasis added). The Grounds of the Petition fail to account for the market demands known in the art at the time, and therefore overlooked the fact that USB was not a known solution to charging large capacity batteries.

The *Winner* case, cited by the ID, is in accord, and actually involved the Federal Circuit rejecting an attempt to combine prior art references to establish obviousness based on facts similar to those present here. In *Winner*, the district court held that skilled artisans would have had no reason to combine two prior art references because they did not perceive any meaningful problems with the long-used prior art method. *See Winner*, 202 F.3d at 1349 (upholding the district court’s finding that “there was no apparent disadvantage to the dead-bolt mechanism of [the prior art], and therefore the motivation to combine would not stem from the ‘nature of the problem’ facing one of ordinary skill in the art, because no ‘problem’ was perceived”). Similarly here, there was no perceived problem with using barrel chargers, nor was USB charging considered a known solution for charging any large-capacity batteries. Ex. 2003, ¶¶ 87-88.

Again, Petitioner has provided no prior art evidence that USB charging was

considered a viable option for large-capacity batteries. Instead, Petitioner is forced to rely on Chinese utility model CN203788026 (Ex. 1023, “Wang”) that is not prior art, and states that this reference “explicitly contemplates USB charging the batteries of a jump starter via a DC-DC boosting technique.” Pet., p. 41. First off, the extensive degree to which Petitioner has relied on non-prior-art evidence—as its only showing of USB charging of portable jump starters—is impermissible. *See, e.g., Qualcomm Inc. v. Apple Inc.*, 134 F.4th 1355, 1365 (Fed. Cir. 2025) (“We recognize that there are *instances* in which a petition may rely in part on AAPA, such as to indicate the general knowledge of a person of ordinary skill in the art, without contravening § 311(b).”); *Qualcomm Inc. v. Apple Inc.*, 24 F.4th 1367, 1375 (Fed. Cir. 2022) (characterizing a prior holding as “affirming PTO’s reliance on a non-prior art document in *inter partes* review for **limited** purposes”) (emphasis added).

More importantly, the source of this evidence is problematic. The non-prior-art Wang Utility Model was filed on April 18, 2024, but, as the Petition notes, “[i]n a January 17, 2014 email, the ’203 patent inventor, Jonathan Nook, requested that Carku produce a battery powered jump starter that included USB charging” for NOCO. Pet., p. 34 (citing Ex. 1053). Although the priority date of the ’203 Patent was not until July 2014, the product design for the NOCO BOOST® devices was already complete before then. This is evident based on the complete detailed

schematics included in the '203 Patents. With a completed design, in late 2013 and early 2014, NOCO was meeting with manufacturing companies to find someone to manufacture the product, including Carku and numerous other companies located in a particular industrial park in China. *See* Ex. 2007, p. 7 (Carku's website listing its headquarters as "Building A, Qixing Creative Square, Lianrun Rd., Gaofeng Community, ***Dalang Street, Longhua District, Shenzhen, Guangdong***, China").

Shortly thereafter, the Wang Utility Model was filed by someone out of the very same location. *See* Ex. 1023, p. 1 (listing the applicant address as "Xinghui Science and Technology Industrial Park, West Huaning Road, Dalang Community, ***Dalang Street, Longhua New District, Shenzhen, Guangdong*** Province"). The Wang Utility model describes, at a very high level, a similar type of jump starter design that NOCO was looking to have manufactured. Thus, rather than demonstrating that other artisans were independently identifying the same problem and solution, this reference likely discloses subject matter obtained directly or indirectly from the inventors of the challenged '203 Patent. So even if this reference were a U.S. application, it would still likely not qualify as prior art or be entitled to any weight. If anything, this disclosure is evidence of competitors copying the invention of the '203 Patent.

B. Even If Considered, A PHOSITA Would Have Deemed USB To Be A *Nonviable* Option For Charging A Jump Starter, Not Simply An Alternative With Some Drawbacks

As discussed, because there was no perceived problem with prior charging systems, and because a PHOSITA would not have considered USB to be a charging solution for large capacity batteries, then, similar to the *Winner* court, the Board should not reach the step where “the benefits, both lost and gained, should be weighed against one another.” *Winner*, 202 F.3d at 1349 n.8. Yet, even if the Board were to weigh the disadvantages against the advantages of USB charging, the PHOSITA at the time considered USB to be a nonviable option for portable jump starters, rather than simply a less-desirable alternative. Ex. 2003, ¶¶ 89-93.

As previously demonstrated in the POPR, given the size of typical vehicle engines, jump starters are required to provide a massive peak current in order to properly function, typically between 1000 and 4000 amperes, which thereby requires portable jump starter devices to have large-capacity internal battery cells. POPR, p. 23-26; Ex. 2003, ¶ 71. Because of the high capacity batteries required in a jump starter, a PHOSITA would not have considered 2014-era USB, which was known to have a limited, specified power output, to be a viable charging solution. Moreover, the inefficiencies associated with boost converting a low voltage would have only furthered the distance between the limited charging power of USB and barrel chargers. Ex. 2003, ¶¶ 80. Again, “[t]he relevant inquiry is whether or not a person

having ordinary skill in the art would be motivated to combine references *despite drawbacks* that the combination might present.” *Arctic Cat Inc. v. Polaris Indus.*, 795 F. App’x 827, 833 (Fed. Cir. 2019).

When discussing the motivation to combine the references in Grounds 1-6, the Petition never even addresses the fact that jump starter battery packs are required to have larger-capacity battery packs than common consumer electronic devices. Instead, the Petition wrongly narrows its discussion to addressing only charging voltage differences; namely, the desirability of charging higher voltage batteries with a 5-volt input. *See* Pet., pp. 32, 60. In doing so, Petitioner has fallen prey to hindsight bias by wrongly assuming that a boosted USB charge would be suitable to charge any 12-volt battery pack, regardless of its size. But, unlike digital multimeters, pocket calculators, cellphones, or other small consumer electronic devices that Petitioner uses in its prior art examples, portable vehicle jump starters are more equivalent to electric lawnmowers, snowblowers, and other high-power cordless tools. Ex. 2003, ¶ 85. Petitioner also presents evidence that USB as a charger has been well-known and utilized for years before the ’203 patent “in over **7 billion** consumer devices.” Pet., p. 39. However, despite the fact that USB charging and portable jump starters had previously been widely adopted by consumers, Petitioner can point to no example of USB charging of a portable jump starter or any other large-capacity battery. This only further confirms that those

skilled in the art did not consider USB a viable charging solution for jump starters. Ex. 2003, ¶ 91-93.

The relevant inquiry, and what the Petition fails to address, is whether a PHOSITA would have chosen to charge the large, high-capacity battery pack of a jump starter using the limited power output capabilities of USB at the time. One would not have done so. Ex. 2003, ¶ 92. And more importantly, they certainly would not have modified the specific vehicle jump starter systems of Richardson and Yu to include USB charging. Ex. 2003, ¶¶ 94-135.

C. A PHOSITA Would Have Been Particularly Dissuaded From Even Attempting To Add USB Charging To The Unique Jump Starters Of Richardson And Yu

A PHOSITA would not have modified the particular systems of Richardson and Yu—one of which has a very large capacity battery that relies on rapid recharging from a vehicle’s electrical system and the other already implements a USB port but still chose not to rely on it for charging. *See* POPR, pp. 27-51.

The Institution Decision recognized that “Richardson expresses some desire to start a fleet of vehicles (Ex. 1005 ¶ 55), voltages up to 48 volts (*id.* ¶¶ 34, 54), and rapid recharging (*id.* ¶ 54). ID, p. 25. Yet the Institution Decision noted that “Richardson’s teachings are not so limited” because “Richardson broadly describes a battery charger for charging a vehicle battery and voltages ranging from 12 to 48 volts.” *Id.* But, in Richardson’s depicted system, “the batteries 23 are 12-volt

batteries and a battery 25 is a 6-volt battery,” such that the output may be either 12, 18, 24, or 30 volts. Ex. 1005, ¶ [0034]. The fact that Richardson’s system includes three batteries, two of which are 12-volt batteries that are individually capable of jumpstarting a standard vehicle, in no way demonstrates that Richardson’s system would not present a unique charging challenge that would have further deterred a PHOSITA from relying on USB charging. Ex. 2003, ¶ 103.

The Institution Decision also noted that “Richardson does not discuss any specific capacity requirements.” ID, p. 25. While it is true that Richardson does not expressly discuss specific capacity requirements, by the nature of being a portable jump starter, Richardson’s batteries are required to have a minimum capacity such that they can be used to jump start “fleets of vehicles with dead batteries.” *See* Ex. 1005, ¶ [0055]; Ex. 2003, ¶ 104. The Board also stated in the Institution Decision that it “disagree[d] that limitation 1[C] requires increasing to a particular power voltage or battery capacity.” ID, p. 32; *see id.*, p. 45. But whether the claim language includes a specific charging voltage or battery capacity is inconsequential when evaluating the proposed combination, since the Grounds that Deltran put forth rely on Richardson’s and Yu’s automotive jump starters. In other words, the claims may not be tied to a particular battery capacity, but the prior art references certainly are. Both the jump starter of Richardson and Yu provide a battery output above 12-volts and at a high current, because that is what is required to jump-start any standard

automobile.

With respect to Yu, the Institution Decision initially found Patent Owner’s argument that “Yu included a separate barrel charger and therefore implicitly rejects USB charging” to be unpersuasive because the addition of a secondary input does not negate the capability of USB charging. ID, p. 46. As Patent Owner previously explained (*see* POR, pp. 41-46), the knowledge that the authors of Yu were already contemplating USB output charging and boost conversion techniques, yet still chose to rely on a barrel charger, is evidence that is relevant to whether a PHOSITA would have made the proposed combination. *See Polaris Indus. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1069 (Fed. Cir. 2018) (recognizing the relevance of a prior art reference’s teachings “even if a reference is not found to teach away”). But even if one ignores Yu’s choice to use a barrel charger instead of USB, this still would not change the fact that Petitioner has failed to demonstrate that a PHOSITA would have modified Yu’s large-capacity battery to be charged via USB, as previously demonstrated. POPR, pp. 49-51. Ex. 2003, ¶ 130.

Patent Owner respectfully submits that the Board should not overlook the reasons that make Richardson’s and Yu’s systems particularly unsuitable for charging via USB.

IX. GROUNDS 2 AND 5 ARE IMPROPERLY BASED ON NON-PRIOR ART EVIDENCE

While the above arguments are sufficient to overcome all Grounds, Petitioner's Grounds 2 and 5 of the Petition are also improper for relying on non-311(b) evidence as part of the basis for these Grounds. In particular, rather than relying on prior art evidence, Petitioner has impermissibly presented applicant admitted prior art (AAPA) as part of the basis of both of these Grounds.

As the Federal Circuit recently confirmed, because the basis of an IPR ground “can only include prior art consisting of patents or printed publications, and because AAPA is not a prior art patent or printed publication (per *Qualcomm* I), it follows that the plain meaning of [35 U.S.C.] § 311(b) does not permit the basis to include AAPA.” *Qualcomm*, 134 F.4th at 1365. The *Qualcomm* court held that the board in that proceeding “should not have considered [the ground involving AAPA] in its final written decision” because that petitioner chose to present AAPA as part of the basis of its ground. *Id.*, at 1368; *see id.* (“We see no support for the position that an IPR petitioner should not be held to its express inclusion of AAPA in the basis of a ground.”).

Similarly to the challenger in *Qualcomm*, in this proceeding, Petitioner has mistakenly chosen to present AAPA as part of the basis of Grounds 2 and 5:

Petitioner requests cancellation of claims 1-11 on the following grounds:		
Ground	Claims	Obviousness Combination under §103
G1	1, 3-5, 9	Richardson in view of Zhao
G2	2, 10, 11	G1 combination in further view of AAPA or Epower-20/Epower-21
G3	6-8	G1 combination in further view of Krieger
G4	1, 3-5, 9	Yu in view of Paparrizos
G5	2, 10, 11	G4 combination in further view of AAPA or Epower-20/Epower-21
G6	6-8	G4 combination in further view of Krieger

Pet., p. 4 (color annotations added). *See also, id.*, p. 54 (“The combination of Richardson–Zhao and AAPA renders obvious claim 2.”); (“[T]he Richardson–Zhao–AAPA/Epower-20/Epower-21 combined device renders claim 9 obvious and the same combination renders claims 10 and 11 obvious.”). “[T]hese are express statements by [Petitioner] that AAPA was part of the basis of [Grounds 2 and 5]—a violation of § 311(b).” *Qualcomm*, 2025 U.S. App. LEXIS 9614, at *25. Indeed, the Petitioner in *Qualcomm* similarly presented AAPA as part of its impermissible ground. *See id.* (“AAPA in view of Majcherczak”).

Accordingly, the Board should not consider Grounds 2 and 5. Claims 2, 10,

and 11 cannot be held unpatentable, because Petitioner has not presented *any* proper grounds challenging the patentability of these claims.

X. CONCLUSION

For the reasons set forth above, challenged claims 1-11 of the '203 Patent are not unpatentable.

Respectfully submitted,

Dated: June 11, 2025

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CERTIFICATE OF WORD COUNT

Pursuant to Rule 37 C.F.R. 42.24(d), the undersigned hereby certifies that, based upon the word count of the word-processing system used to prepare this response, the number of words in this Patent Owner Response is 13,973.

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that on June 11, 2025, complete and entire copies of the **PATENT OWNER RESPONSE** and supporting exhibits have been served in their entirety by e-mail on the following counsel of record for Petitioner:

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