

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DELTRAN USA LLC
Petitioner

v.

THE NOCO COMPANY
Patent Owner

Case IPR2024-01219¹

Patent No. 11,667,203

PETITIONER'S DEMONSTRATIVES FOR ORAL ARGUMENT

¹ ADC Solutions Auto LLC was joined as a petitioner to this proceeding based on a petition and a motion for joinder in IPR2025-00885.

Pursuant to the November 20, 2025 Order Setting Oral Argument (Paper 21)
and 37 C.F.R. § 42.70, Petitioner, Deltran USA LLC hereby files its
Demonstratives for use at Oral Argument, attached hereto.

Dated: December 10, 2025

Respectfully submitted

By: /s/ Ryan N. Miller
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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §42.6(e), I certify that on this 10th day of December, 2024, I served a copy of PETITIONER'S DEMONSTRATIVES FOR ORAL ARGUMENT by electronic mail on Patent Owner's counsel, lead and back-up, and ADC's Counsel as follows:

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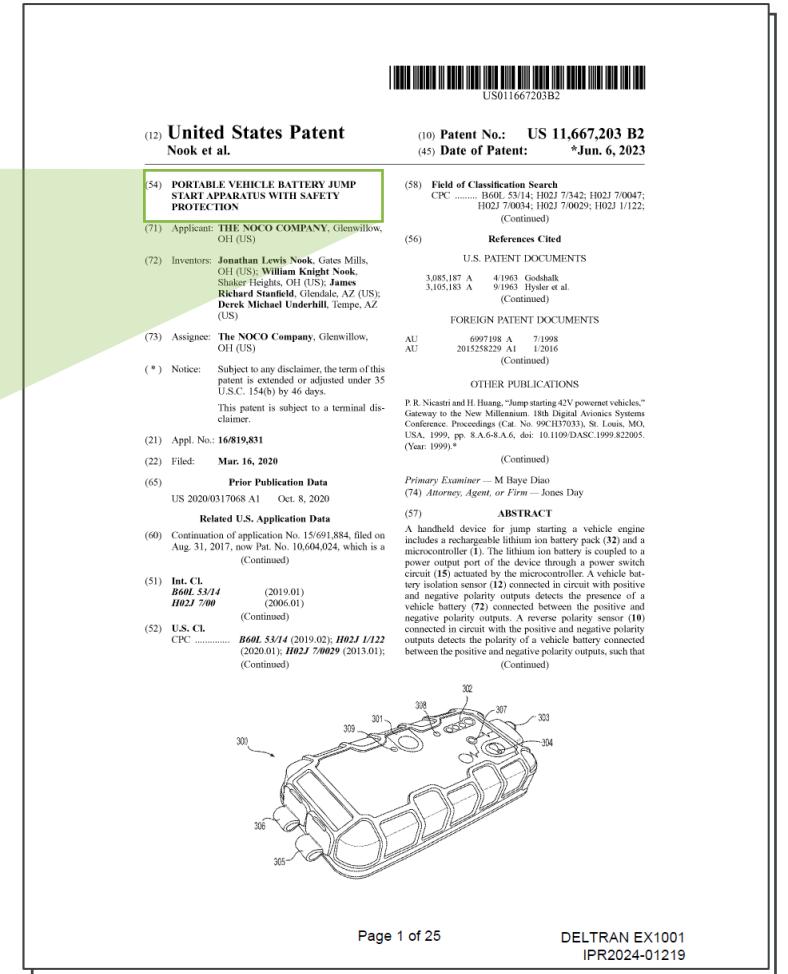
IPR 2024-01219

U.S. Patent No. 11,667,203 B2¹

¹ADC Solutions Auto LLC was joined as a petitioner to this proceeding based on a petition and a motion for joinder in IPR2025-00885.

The '203 Patent

(54) **PORTABLE VEHICLE BATTERY JUMP
START APPARATUS WITH SAFETY
PROTECTION**



The '203 Patent – Independent Claim 1

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.

Claim 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.

Instituted Grounds

Ground 1	Claims 1, 3-5, 9	Richardson in view of Zhao
Ground 2	Claims 2, 10, 11	Richardson in view of Zhao in further view of AAPA or Epower-20/Epower21
Ground 3	Claims 6-8	Richardson in view of Zhao in further view of Krieger

Ground 4	Claims 1, 3-5, 9	Yu in view of Paparrizos
Ground 5	Claims 2, 10, 11	Yu in view of Paparrizos in further view of AAPA or Epower-20/Epower21
Ground 6	Claims 6-8	Yu in view of Paparrizos in further view of Krieger

Paper 2 (Petition) at 4; Paper 8 at 2.

**Ground 1:
Claims 1, 3-5, and 9 are obvious
in view of Richardson and Zhao**

Combination of Richardson and Zhao

			Taught By
	1[PRE]	A jump starter apparatus for jump starting a vehicle battery, comprising:	Richardson
	1[a]	a power supply that includes one or more rechargeable batteries;	Richardson
USB CHARGING	1[b]	a USB port configured to receive power from an external power source for charging the one or more batteries ;	Zhao
	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;	Zhao
Safety Features	1[d]	a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus;	Richardson
	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	Richardson
	1[f]	a power switch configured to electrically connect the power supply to the vehicle battery,	Richardson
	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.	Richardson

Board Has Confirmed Teachings of Richardson and Zhao in Prior IPRs

- **IPR2020-00944** – found claims of parent '015 patent unpatentable
 - Richardson found to teach similar **safety features**
- **IPR2024-00577** – found challenged claims of '023 patent unpatentable, including similar **safety features** and **USB charging**
 - Richardson & Zhao and Yu & Paparrizos
- **IPR2024-00671** – found challenged claims of '243 patent unpatentable, including similar **safety features** and **USB charging**
 - Richardson & Zhao and Yu & Paparrizos

The claim language regarding the safety features in the 015, 023, 243, and 203 patents are not identical

POSITA Would Be Motivated to Combine Teachings of Richardson and Zhao

Adding Zhao's USB charging as a secondary charging option provides:

- (1) Standardized power input
- (2) Reduce proprietary chargers
- (3) Ubiquitous availability
- (4) Backup charging option

Board affirmed this combination was obvious in IPRs 2024-00577 & 2024-00671

Ground 4:
Claims 1, 3-5, and 9 are obvious
in view of Yu and Paparrizos

Combination of Yu and Paparrizos

			Taught By
	1[PRE]	A jump starter apparatus for jump starting a vehicle battery, comprising:	Yu
	1[a]	a power supply that includes one or more rechargeable batteries;	Yu
USB CHARGING	1[b]	a USB port configured to receive power from an external power source for charging the one or more batteries ;	Paparrizos
	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;	Paparrizos
Safety Features	1[d]	a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus;	Yu
	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	Yu
	1[f]	a power switch configured to electrically connect the power supply to the vehicle battery,	Yu
	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.	Yu

Board Has Confirmed Teachings of Yu and Paparrizos in Prior IPRs

- **IPR2024-00577** – found challenged claims of '023 patent unpatentable, including **safety features** and **USB charging**
 - Richardson & Zhao and **Yu & Paparrizos**
- **IPR2024-00671** – found challenged claims of '243 patent unpatentable, including **safety features** and **USB charging**
 - Richardson & Zhao and **Yu & Paparrizos**

POSITA Would Be Motivated to Combine Teachings of Yu and Paparrizos

Adding Paparrizos USB charging as a secondary charging option provides:

- (1) Standardized power input
- (2) Reduce proprietary chargers
- (3) Ubiquitous availability
- (4) Backup charging option

Board affirmed this combination was obvious in IPRs 2024-00577 & 2024-00671

Overview of NOCO's Arguments

Ground 1:

- Disputes Richardson teaches timing of limitation 1[g]
- Disputes motivation to add USB as a secondary charger to Richardson
- Disputes Richardson teaches claim 5

Ground 4:

- Disputes that Yu teaches control of relay in limitation 1[g]
- Disputes motivation to add USB as a secondary charger to Yu

Grounds 3 and 6

- NOCO alleges that AAPA is improper basis for these grounds

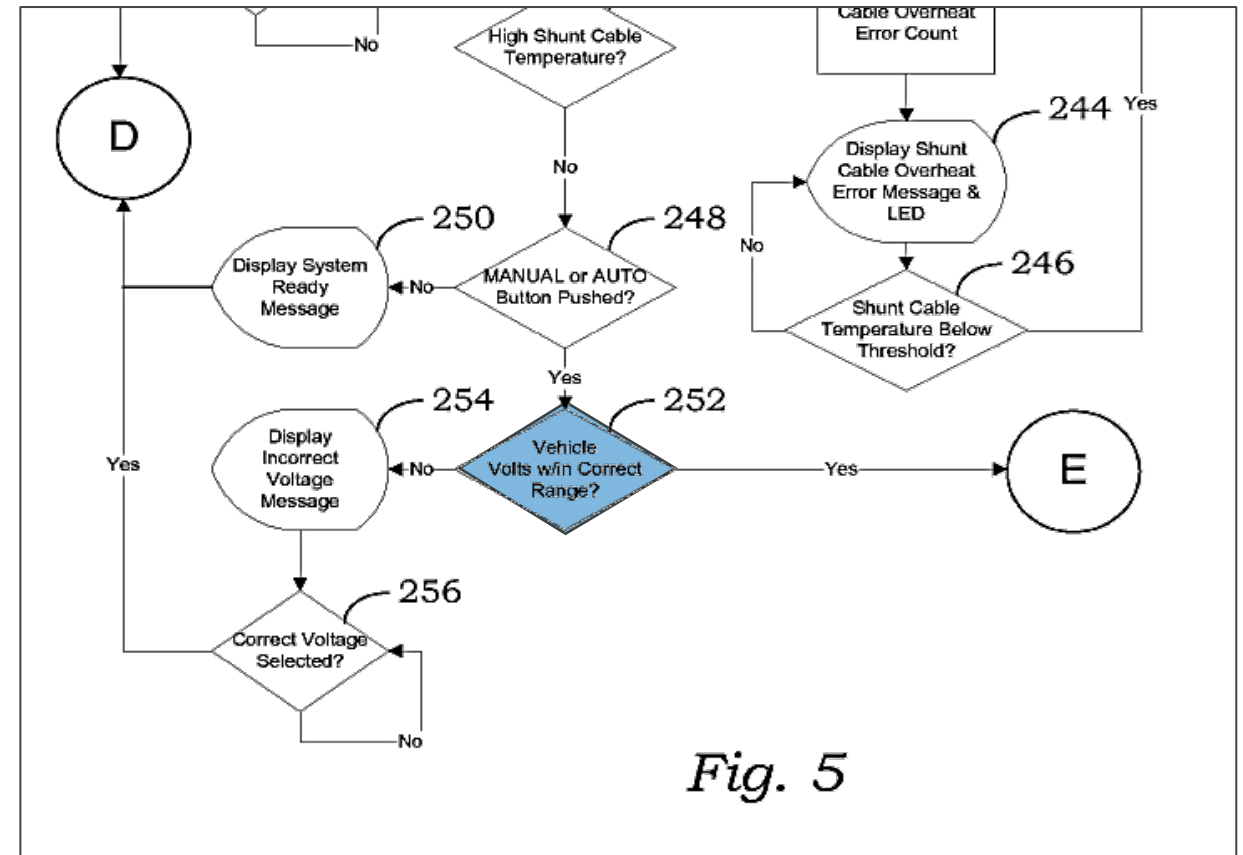
Ground 1: Disputed Limitation 1[g]

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.
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- Dispute focuses on detecting presence of battery (not polarity)
- Richardson has two modes: auto and manual
- In auto mode, Richardson closes the power switch (relay) only if step 252 detects an appropriate battery is present and connected

Richardson Step 252

- No dispute that **step 252 occurs prior to closing contract relay.** Paper 11 at 22.
- Richardson's step 252 prevents the contact relay (*i.e.*, the power switch) from closing if an appropriate vehicle battery is not present. Paper 14 at 3-4; Paper 2 at 41-43; see EX1058 (Fayed Tr.) at 41:9-15, 44:18-45:4



EX1005 at Fig. 5; Paper 2 at 41-43; Paper 14 at 3-4

NOCO's Argument is Premised on Richardson's Manual Mode

- NOCO's Arguments:
 1. Petitioner's (alleged) interpretation is that step 252 detects a dead battery and prohibits further operation if dead battery is detected
 - *This is incorrect. Petition maps Richardson's auto-mode which detects presence of an appropriate battery at step 252.*
 2. NOCO alleges this interpretation renders Richardson's **manual mode** inoperable and, therefore, non-self-enabled
 - *This is incorrect. First, manual mode is optional. Second, Richardson works even if NOCO is correct as to Petitioner's interpretation.*

NOCO's Arguments Are Red Herrings

- The Petition maps Richardson's auto-mode. Auto-mode, by itself, teaches limitation 1[g].
- Whether Richardson's manual mode is inoperable or not is irrelevant to the Grounds of the Petition.

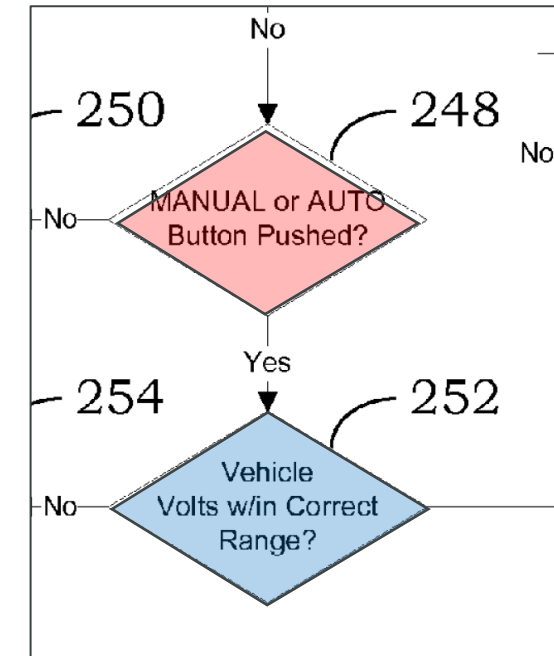
"[T]he relevant inquiry is not whether [a prior art reference] was enabled when it was published, but ***whether a person skilled in the art would have been able to combine the relied-upon elements of [the prior art]***" at the time of the challenged patent." *Analog Devices, Inc. v. Xilinx, Inc.*, 2022 WL 1157604, at *14 (PTAB Apr. 13, 2022) (emphasis added)

Regardless, Richardson is Enabled

- At Step 248, Richardson requires the system to be in one of auto or manual mode
- A POSITA would understand that at step 252 Richardson could have different tests for manual and auto mode

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

Richardson Fig. 5:



Paper 14 at 6-8; EX1057, ¶¶18-22;
EX1005 at Fig. 5; Paper 2 at 41-43.

Ground 4 – Disputed Limitation 1[g]

- NOCO argues that Yu does not teach “using the vehicle battery isolation sensor to control the power switch”
- Instead, NOCO argues that ***the user*** controls the power switch

This is a tortured and incorrect reading of Yu

Yu Expressly Teaches Switch is Controlled by Microprocessor, not “a User”

It is undisputed that the microprocessor of Yu, not a user, controls the relay (power switch).

“the microprocessor controls the opening and closing of the relay through the relay switch circuit....” EX1008, ¶4.

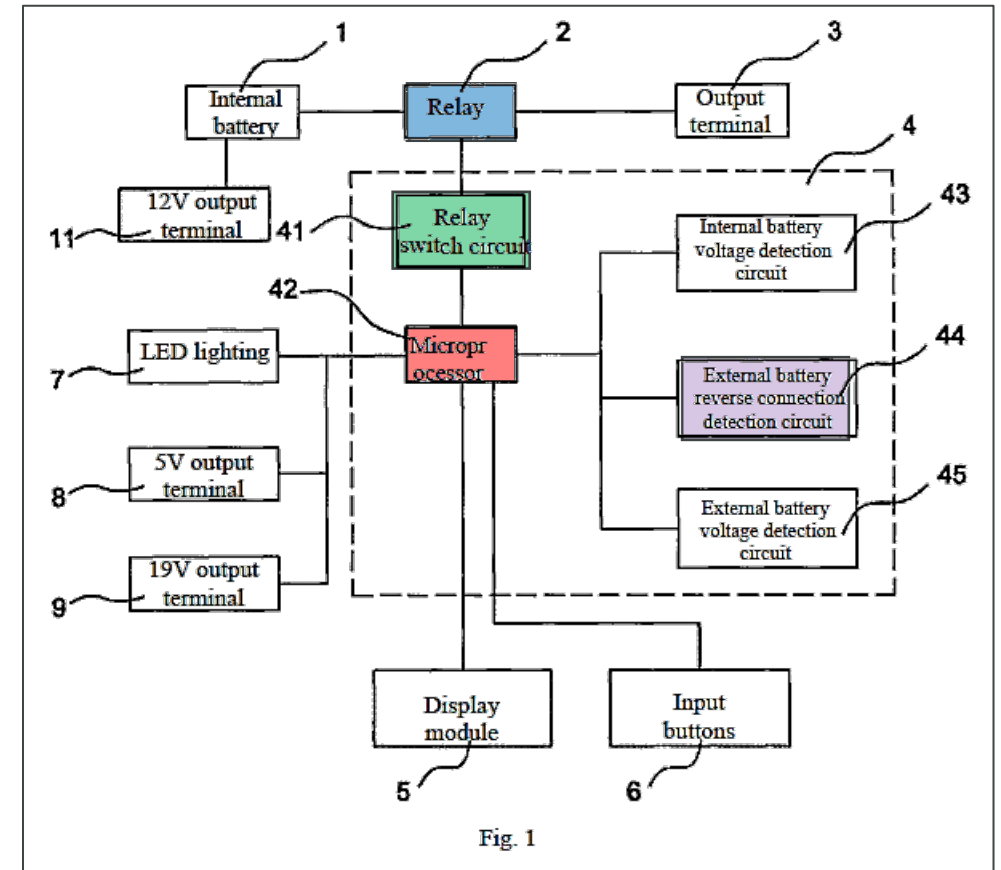
Yu's Microprocessor Controls The Switch based on a Battery Presence Sensor

- Yu expressly states that the microprocessor detects the external battery voltage:

"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 added)

That Yu Also Displays The Voltage Does Not Contravene Yu's Other Express Disclosure

- NOCO argues that because Yu displays the external battery voltage, the microprocessor does not evaluate the voltage.
- But Yu's **microprocessor** is the only component that receives the **external battery voltage detection signal** and will not allow the **relay** to close unless the voltage is within the "normal range"



NOCO's Expert Confirmed that Only the Microprocessor Can Control the Relay

Q. So I'll ask it again. It's a yes or no question. If I took [] the microprocessor out, can the JUMP button control the relay?

[Dr. Fayed]: It will have no means for executing that command, so it will not be able to.

Grounds 1 and 4: Motivation to Combine

NOCO Presents Generic Arguments Regarding USB Charging Times

- NOCO's makes same argument for both combination of Richardson & Zhao (Ground 1) and Yu & Papparizos (Ground 4)
- NOCO argues that a POSITA would have considered USB to be a "**nonviable**" charging means for a jump starter because it would take "too long" to charge

Time to Charge Using USB?

- NOCO's argument is another **Red Herring**
- NOCO does not dispute that USB **would**, in fact, charge a jump starter given sufficient time. Paper 17 at 17.

"Our caselaw is clear. It's not necessary to show that a combination is 'the **best** option, only that it be a **suitable** option.'" *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 800 (Fed. Cir. 2021) (emphasis added)

No dispute that USB is a viable option

NOCO's Expert opined that:

*"A person of skill in the art, therefore, would likely conclude that adding a USB charging facility is only useful maybe as an optional/secondary method of charging (perhaps overnight) when the device is not **being used** and that the device must have a primary method that can charge the device at a reasonable rate"*

*Clearly, a "**secondary**" charger is a **viable** option.*

USB Charging Times is a Fabricated Issue

- No mention of **any** charging times in the '203 patent
- No evidence to suggest a POSITA would have been concerned with charging times
- No evidence, calculation, or statement from NOCO of what a "reasonable" charging time for a jump starter might be

Evidence Shows USB Well Within “Reasonable” Charging Time

- **EX1062:** PSX3 prior art portable jump starter – 72 hours to full charge
- **EX1061:** V39, prior art USB battery bank with large capacity battery, charged by USB
- Petitioner’s Expert calculated charging times based on V39: well within 72-hour charge time of on-market jump starters (PSX3) as of ‘203 patent 2014 priority date

Paper 14 at 14-20; EX1062; EX1061; EX1057 at ¶¶49-57.

Richardson is Not Limited as NOCO Suggests

- NOCO argues Richardson requires (1) a 48V battery and (2) charging through a running vehicle; and, therefore, POSITA would not be motivated to add USB. Paper 11 at 59-60.
- ***No battery size requirement.*** Richardson has one sentence broadly suggesting that ***up to*** 48V batteries *could* be used – no requirement. Paper 14 at 20-21.
- ***No reliance only on rapid recharging.*** Richardson clearly teaches a separate, external battery charger. Paper 14 at 21-23.

Yu's Inclusion of USB Output Port is Irrelevant to Proposed Combination

- NOCO argues that Yu's inclusion of a USB input port means that Yu considered and rejected a USB output port. Paper 11 at 61.
- ***But nothing in Yu supports this conjecture.*** Paper 14 at 22-23.
- Even if true, Papparizos provides a reason to add USB – regardless of what the Yu authors knew or chose to do. Paper 14 at 23; Paper 2 at 63-64.

Ground 1: Richardson Teaches Claim 5

NOCO's Reading of Claim 5 Inserts Unstated Limitations and Ignores Plain Claim Language

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.

Claim 5 Requires Sensing When Both Conditions Are Satisfied

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

**[1] the vehicle battery is electrically connected to the
jump starter apparatus and**

[2] the jump starter apparatus becomes operational.

NOCO Changed Its Argument

- POR ignored electrically connecting to jump starter apparatus:

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.

Paper 11 at 43.

- Sur-Reply now acknowledges first condition:

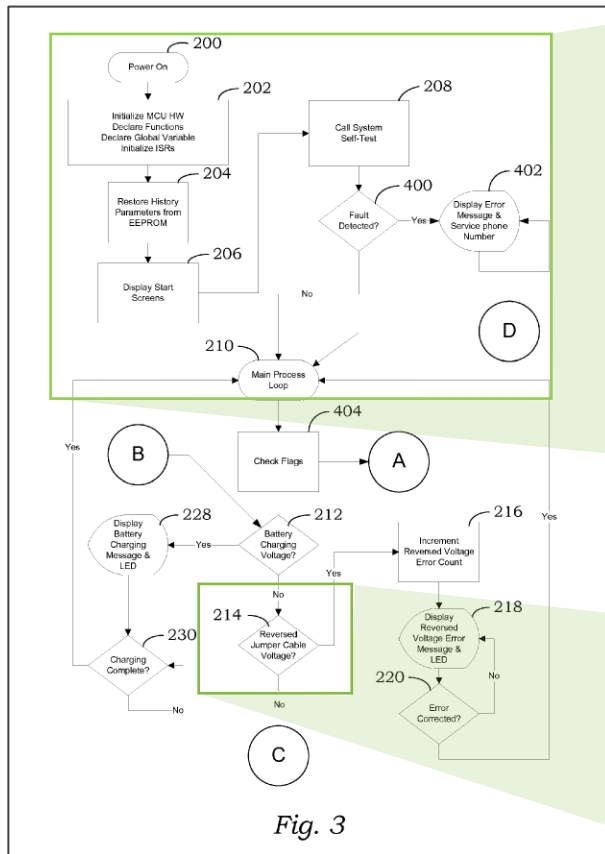
operational means the timepoint when the device is powered on. In other words, claim 5 requires specific action at the time when, for example, a user has hooked up the power cables to the vehicle battery and has pressed a button to power on the jump starter.

Paper 17 at 16.

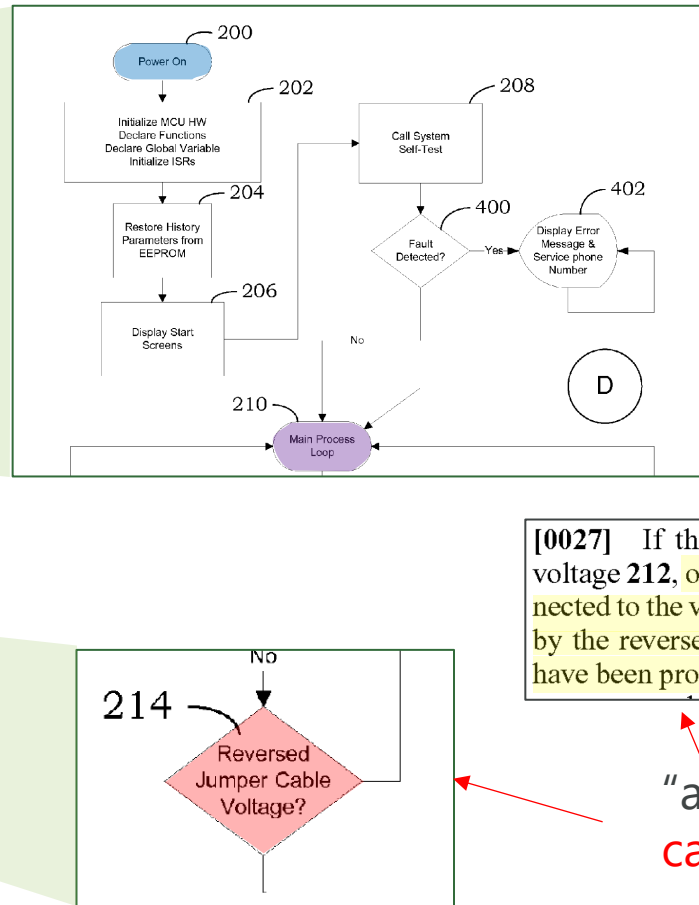
NOCO's (New) Construction of Claim 5 Confirms that Richardson Meets the Limitation

- NOCO agrees there are two conditions that must be satisfied.
Paper 17 at 15.
- NOCO asserts that “claim 5 requires specific action at the time when, for example, a user has **hooked up the power cables** to the vehicle battery and has **pressed a button to power on** the jump starter.” *Id.* at 16.

Richardson Performs Steps As Claimed and According to NOCO's Construction



EX1005 (Richardson) at Fig. 3



"a user... has pressed a button to power on the jump starter" which allows Richardson's system to become operational.

EX2010 (MacCarley Tr.) at 13:3-22; Paper 11 at 44; Paper 17 at 16.

[0027] If the system does not detect a battery charging voltage 212, once 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 214. If the volt-

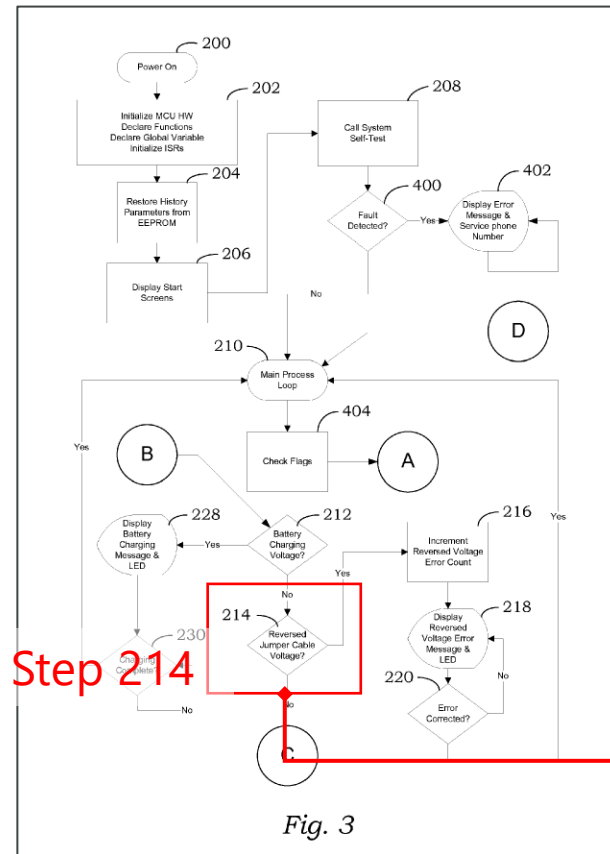
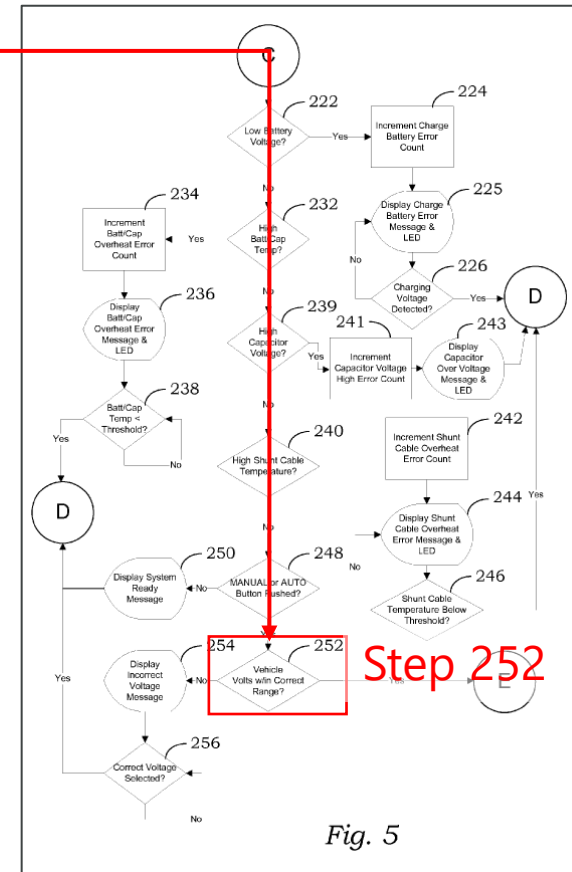
EX1005 at ¶27.

"a user has hooked up the power cables to the vehicle battery"

Paper 14 at 25-26.

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Richardson Automatically Performs Steps from 214 through 252



NOCO's Arguments Confuse What Specific Action Must occur

- NOCO argues “[b]ut claim 5 requires **presence detection** when the ‘jump starter apparatus **becomes** operational,’ not when it **is** operational (*i.e.*, turned on).” Paper 17 at 16 (emphasis in original, colors annotated)
- **This is not true.** Claim 5 requires controller to “automatically cause” sensors to detect.

Grounds 2 and 5: Not Improperly Based on AAPA

Grounds 2 and 5 are not “based on” AAPA

- Both Grounds specifically cite prior art references Epower20 & Epower21 as additional, separate teachings of a “portable” jump starter (claim 2).
- Grounds 2 and 5 explain how claims 2, 10, and 11 are obvious in further view of Epower-20/Epower-21.

Claims are Unpatentable Regardless of Collateral Estoppel

Petition Does not “Heavily Rely” on Collateral Estoppel

- The Petition provides, for each limitation, a mapping of the references – regardless of whether collateral estoppel is found to apply
- The Board’s previous findings are relevant where the same prior art is being applied and the challenged patent recites similar features based on identical disclosure to previously challenged patents, regardless of collateral estoppel
- The Board need not reach a decision on collateral estoppel, because the same disclosure in the same prior art is in the record and before the Board once more