

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THE NOCO COMPANY, INC.,
Petitioner,

v.

PILOT, INC.,
Patent Owner.

IPR2022-01417
Patent 11,104,236 B2

Before JEFFREY W. ABRAHAM, JULIA HEANEY, and
STEVEN M. AMUNDSON, *Administrative Patent Judges*.

ABRAHAM, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318

I. INTRODUCTION

A. *Background and Summary*

The NOCO Company, Inc. (“Petitioner”) filed a petition for an *inter partes* review (Paper 1 (“Pet.”)) challenging claims 1–27 of U.S. Patent No. 11,104,236 B2 (Ex. 1001 (“the ’236 patent”)). Pilot Inc. (“Patent Owner”) did not file a Preliminary Response.

On February 14, 2023, we instituted an *inter partes* review of all of the challenged claims based on all of the grounds identified in the Petition. Paper 6. Patent Owner did not file a Response to the Petition, Petitioner filed a Reply (Paper 8 (“Reply”)), and Patent Owner did not file a Sur-reply. We did not hold an oral hearing for this proceeding. *See* Ex. 3001.

We have jurisdiction under 35 U.S.C. § 6. We issue this Final Written Decision pursuant to 35 U.S.C. § 318(a). Based on the record before us, we conclude that Petitioner has shown by a preponderance of the evidence that claims 1–27 of the ’236 patent are unpatentable.

B. *Real Parties-in-Interest*

Each party identifies itself as the real party-in-interest. Pet. 50; Paper 4, 2.

C. *Related Matters*

The parties state that the ’236 patent is at issue in one district court litigation that is currently stayed: *Pilot Inc. v. The NOCO Company, Inc.*, No. 2:22-cv-00389-SPL (D. Ariz.). Pet. 1 n.2, 51; Paper 4, 2.

D. *The ’236 Patent (Ex. 1001)*

The ’236 patent, titled “Automobile Charger,” issued on August 31, 2021, and is directed to “a novel automobile charger with a safe power supply charging quickly.” Ex. 1001, codes (45), (54), 1:21–23. The ’236

patent explains that prior art automobile charging devices, i.e., devices for jump starting vehicles, suffered from various problems, including an inability to automatically detect whether a load (e.g., an automobile storage battery) is connected, whether an automobile engine or storage battery has a reverse current, and whether the battery state is suitable for heavy power generation. Ex. 1001, 1:28–34. The '236 patent aims to solve these problems, and depicts one solution in Figure 1, reproduced below.

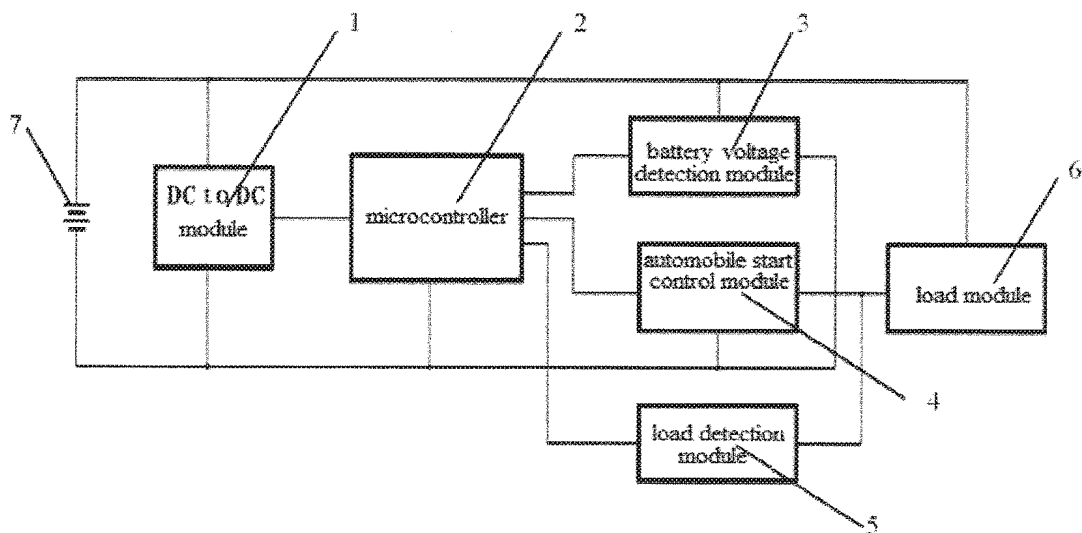


Figure 1 is a block diagram showing one embodiment of an automobile charger that includes DC to DC module 1, microcontroller 2, battery voltage detection module 3, automobile start control module 4, load detection module 5, load module 6, and direct current power supply 7 (the jump starter battery). Ex. 1001, 2:64–3:2. Although not shown in Figure 1, the '236 patent states that load module 6 “comprises the automobile storage battery and the automobile engine is located on the end of the load module.” Ex. 1001, 3:33–35.

The '236 patent explains that the DC to DC module provides “the stable voltage for the microcontroller which collects relevant data” and “determines whether the automobile storage battery is connected with the automobile engine through the load detection module.” Ex. 1001, 4:14–26. When the load is correctly connected, the automobile start control module (an electronic switch) is automatically activated, and the battery starts to supply power to the load module. Ex. 1001, 2:29–30, 4:26–28. If the load is not connected, or positive and negative polarities are reversed, the automobile start control module is automatically deactivated, and the battery stops supplying power to the load module. Ex. 1001, 4:29–33.

The '236 patent explains that its automobile charger provides benefits over prior art devices, including, *inter alia*, (1) controlling the supply power for the load, which protects the product and reduces the product size and material cost, (2) providing low voltage protection to prevent damage caused by over-discharging the battery, (3) preventing improper operations by the user, such as reversed polarity, which can cause damage to the automobile or direct current power supply, and (4) employing voltage backflow protection for an abnormal load, wherein the automobile start line is closed to protect the battery when an abnormal voltage is detected. Ex. 1001, 2:31–47.

E. Illustrative Claims

Of the challenged claims, claims 1, 13, 18, and 23 are independent claims. Claim 1 is illustrative and reproduced below.

1. An apparatus for jump starting a vehicle engine, comprising:
an internal power supply;
an output port having positive and negative polarity outputs;

- a load detection sensor connected in circuit with said positive and negative polarity outputs, configured to detect presence of a vehicle battery connected between said positive and negative polarity outputs;
- a reverse polarity sensor connected in circuit with said positive and negative polarity outputs, configured to detect polarity 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;
- a power switch connected between said internal power supply and said output port; and
- a microcontroller configured to receive input signals from said load detection sensor and said reverse polarity sensor, and to provide an output signal to said power switch, such that said power switch is turned on to cause said internal power supply to be connected to said output port 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. 1001, 5:11–44.

F. Unpatentability Challenges

Petitioner presents the following challenges in the Petition:

Claim(s) Challenged	35 U.S.C. §¹	Reference(s)/Basis
1, 2, 5–12	102	Nook-015 ²
3, 4	103	Nook-015, Petruzzi ³
13, 14, 17–19, 22–24, 27	102	Nook-024 ⁴
15, 16, 20, 21, 25, 26	103	Nook-024, Petruzzi

Petitioner relies on the declaration of Jonathan R. Wood, Ph.D. (Ex. 1003, the “Wood Declaration”).

II. ANALYSIS

A. Legal Standards

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). The burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

¹ The relevant sections of the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, took effect on March 16, 2013. In view of our determination, discussed below, that the challenged claims are not entitled to a priority date earlier than April 21, 2021, the filing date of the ’236 patent, the current versions of §§ 102 and 103 apply.

² US 9,007,015 B1, issued Apr. 14, 2015 (Ex. 1004).

³ US 9,245,888 B2, issued Jan. 26, 2016 (Ex. 1010).

⁴ US 10,604,024 B2, issued Mar. 31, 2020 (Ex. 1005).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. Inc., v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987); *see also Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1334 (Fed. Cir. 2008) (to anticipate a patent claim under 35 U.S.C. § 102, “a single prior art reference must expressly or inherently disclose each claim limitation”). Moreover, “[b]ecause the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements ‘arranged as in the claim.’” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

Whether a reference anticipates is assessed from the perspective of one of ordinary skill in the art. *See Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003) (“‘[T]he dispositive question regarding anticipation [i]s whether one skilled in the art would reasonably understand or infer from the [prior art reference’s] teaching’ that every claim element was disclosed in that single reference.” (alterations in original) (quoting *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991))). Additionally, “[u]nder the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates.” *MEHL/Biophile Int’l Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed. Cir. 1999) (citation omitted); *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349–50 (Fed. Cir. 2002).

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103 (2018). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when present, objective evidence of nonobviousness.⁵ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

To show obviousness, it is not enough to merely show that the prior art includes separate references covering each separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). “This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418–19 (2007). On the other hand, an obviousness analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007).

“[A] patent application is entitled to the benefit of the filing date of an earlier filed application only if the disclosure of the earlier application

⁵ The parties have not asserted or otherwise directed our attention to any objective evidence of nonobviousness.

provides support for the claims of the later application, as required by 35 U.S.C. § 112.” *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008). To satisfy this written description requirement of 35 U.S.C. § 112, a priority application must “reasonably convey[] to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date.” *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). “[T]he purpose of the written description requirement is to ‘ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor’s contribution to the field of art as described in the patent specification.’” *Id.* at 1353 (quoting *Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 920 (Fed. Cir. 2004)). “It is the specification itself that must demonstrate possession,” and “a description that merely renders the invention obvious does not satisfy the requirement.” *Id.* at 1352.

B. Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art would have had “a Bachelor’s Degree in a relevant engineering discipline such as electrical engineering and at least two years of relevant experience in the design and/or development of automotive electrical systems, or a Masters or more advanced degree in a relevant engineering discipline such as electrical engineering.” Pet. 6–7 (citing Ex. 1003 ¶ 46). Patent Owner does not challenge Petitioner’s definition or offer its own.

In light of the record before us, we adopt Petitioner’s proposal regarding the level of ordinary skill in the art. Based on our review of the ’236 patent and the prior art of record, we determine that the definition offered by Petitioner comports with the qualifications a person would have

needed to understand and implement the teachings of the '236 patent and the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that specific findings regarding ordinary skill level are not required “where the prior art itself reflects an appropriate level and a need for testimony is not shown”) (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985)).

C. Claim Construction

In an *inter partes* review, we construe claim terms according to the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2023). Under *Phillips*, claim terms are afforded “their ordinary and customary meaning.” *Phillips*, 415 F.3d at 1312. “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Id.* at 1313. “Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.*

Petitioner argues that “[a]ll of the claim terms are given their plain meaning, as understood by the [person of ordinary skill in the art], unless indicated otherwise.” Pet. 9.

After considering the arguments and information Petitioner presents, we determine that we do not need to expressly construe any terms for purposes of this Decision. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly

those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”)).

D. Whether the '236 Patent Is Entitled to an Earlier Priority Date

The '236 patent claims priority through a series of continuations to US 9,525,297 (“the '297 patent”), filed as Application No. 14/569,352 on December 12, 2014. Ex. 1001, code (63), 1:5–15. The '297 patent claims the benefit of priority to Chinese Application No. 201420212173.5 filed on April 28, 2014. Ex. 1001, code (30), 1:15–17. Petitioner, however, contends that the challenged claims in the '236 patent are not entitled to a 2014 priority date, or any date earlier than April 21, 2021, which is the filing date of the '236 patent. Pet. 12.

In particular, Petitioner argues that each independent claim of the '236 patent requires two different sensors with two distinct purposes, a “load detection sensor” that detects the presence of a vehicle battery, and a “reverse polarity sensor” that detects the polarity connection of that battery. Pet. 12 (citing Ex. 1001, 5:16–27 (claim 1), 6:7–22 (claim 13), 6:65–7:13 (claim 18), 8:1–15 (claim 23)). According to Petitioner, however, the Specification of the '236 patent⁶ does not describe two separate sensors with the claimed functions. Pet. 12–13. Instead, the Specification “teaches one singular component,” the automatic detection module,⁷ that performs both functions. Pet. 12–13 (emphasis omitted) (citing Ex. 1001, 2:51–58).

⁶ As Petitioner contends, the '236 patent and all continuations in the '236 priority chain share the same specification and figures. Pet. 11. Therefore, we follow Petitioner’s convention of citing to the Specification of the challenged '236 patent for purposes of this analysis.

⁷ Petitioner states that the '236 patent also refers to the automatic detection module as the load detection module. Pet. 13 (citing Ex. 1001, 4:20–22).

Petitioner thus argues that “[t]here is nothing in the text of the specification or the figures that demonstrates the inventors were in possession of the device as claimed – one with two separate sensors serving two distinct purposes.” Pet. 14. As a result, Petitioner contends that there is no written description support in the disclosure as originally filed for the limitations in the claims of the ’236 patent, and, therefore, the ’236 patent is not entitled to the earlier 2014 priority date, or any date earlier than April 21, 2021, which is the filing date of the ’236 patent. Patent Owner does not challenge Petitioner’s arguments or evidence.

After considering the arguments and information of record, we agree with Petitioner that the ’236 patent is not entitled to the 2014 priority date of the original application, or any date earlier than April 21, 2021, which is the filing date of the ’236 patent. Whether the Specification complies with the written description requirement calls for a comparison of the scope of the claim with the scope of the description to determine whether the inventor has demonstrated possession of the claimed invention. *See Ariad*, 598 F.3d 1336 at 1353; *Power Oasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008).

The independent claims of the ’236 patent each require (1) a load detection sensor “configured to detect presence of a vehicle battery” and (2) a reverse polarity sensor “configured to detect polarity of a vehicle battery.” Ex. 1001, 5:16–27 (claim 1), 6:7–22 (claim 13), 6:65–7:13 (claim 18), 8:1–15 (claim 23). The Specification of the ’236 patent does not expressly disclose both a load detection sensor and reverse polarity sensor configured to perform the recited functions. Instead, the Specification identifies a single circuit, the “automatic detection module,” that “can automatically detect[]

whether the load is detected” and “whether the electrode is connected with the automobile storage battery reversely.” Ex. 1001, 2:51–54. We are persuaded by Petitioner’s arguments that the disclosure of a single circuit capable of performing two functions does not demonstrate the inventors had possession of an invention that requires two separate sensors configured to perform separate functions as recited in the claims. *See Ariad*, 598 F.3d 1336 at 1352 (“[A] description that merely renders the invention obvious does not satisfy the [written description] requirement.”); *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000) (holding that “the disclosure as originally filed does not have to provide *in haec verba* support for the claimed subject matter at issue,” but that “one skilled in the art, reading the original disclosure, must immediately discern the limitation at issue in the claims”); *cf. PIN/NIP, Inc. v. Platte Chem. Co.*, 304 F.3d 1235, 1248 (Fed. Cir. 2002) (finding a claim for a method involving sequential application of two chemicals was invalid for lack of adequate written description where the specification indicated that the invention was a method of applying a “composition” containing the two chemicals).

For all of the foregoing reasons, we agree with Petitioner that the Specification of the ’236 patent does not provide adequate written description support for distinct “load detection” and “reverse polarity” sensors, and, therefore, the challenged claims are not entitled to a priority date earlier than April 21, 2021, the filing date of the ’236 patent.

E. Claims 1, 2, and 5–12 – Anticipation by Nook-015

Petitioner contends Nook-015 anticipates claims 1, 2, and 5–12 of the ’236 patent. Pet. 25–33.

1. Nook-015 (Ex. 1004)

Nook-015 is titled “Portable Vehicle Battery Jump Start Apparatus with Safety Protection,” and issued on April 14, 2015 from an application filed on July 8, 2014.⁸ Nook-015 is directed to a handheld apparatus for jump starting a vehicle that aims to overcome problems with prior art jump-starting devices that arose “when either the jumper terminals or clamps of the cables were inadvertently brought into contact with each other while the other ends were connected to a charged battery,” or “when the positive and negative terminals were connected to the opposite polarity terminals in the vehicle to be jumped, thereby causing a short circuit resulting in sparking and potential damage to batteries and/or bodily injury.” Ex. 1004, code (57), 1:7–23.

One aspect of Nook-015’s invention is depicted in Figure 1, reproduced below.

⁸ In view of our determination that the challenged claims of the ’236 patent are not entitled to a priority date earlier than April 21, 2021, we agree with Petitioner that Nook-015 is prior art under at least 35 U.S.C. § 102(a). Pet. 17–18.

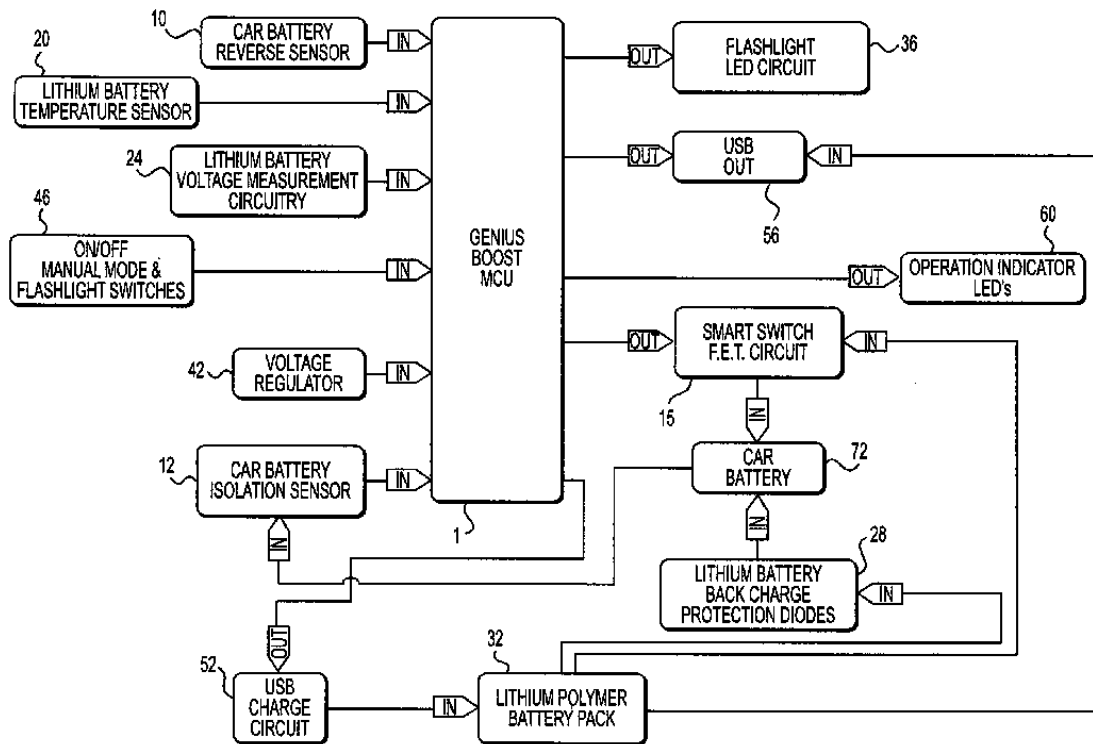


Figure 1 of Nook-015 is a functional diagram of Nook-015's handheld vehicle battery boost apparatus containing, *inter alia*, lithium polymer battery pack 32, car battery isolation sensor 12, voltage regulator 42, lithium battery voltage measurement circuitry 24, car battery reverse sensor 10, smart switch circuit 15, car battery 72, and microcontroller (MCU) 1. Ex. 1004, 3:16–37.

Nook-015 explains that vehicle battery isolation sensor 12 “detects whether or not a vehicle battery 72 is connected to the booster device,” and reverse polarity sensor 10 “monitors the polarity of the vehicle battery 72 when the handheld battery booster device is connected to the vehicle’s electric system.” Ex. 1004, 4:20–28. Nook-015 further explains that smart switch FET circuit 15 “electrically switches the handheld battery booster

lithium battery to the vehicle's electric system only when the vehicle battery is determined by the MCU 1 to be present (in response to a detection signal provided by isolation sensor 12) and connected with the correct polarity (in response to a detection signal provided by reverse sensor 10)." Ex. 1004, 4:32–38.

2. Analysis

a. Claim 1

Petitioner contends that Nook-015 “discloses and claims the *exact* elements and functionalities recited in claim 1.” Pet. 27. Petitioner presents a chart, reproduced below, demonstrating that the language in claim 1 of the '236 patent and the language in claim 1 of Nook-015 are identical, except that the '236 patent uses the term “load detection sensor” instead of the term “vehicle battery isolation sensor” used in Nook-015.

'236 Patent	<i>Nook-015</i> (Ex. 1004, 8:4–37)
[1pre] An apparatus for jump starting a vehicle engine, comprising:	1. Apparatus for jump starting a vehicle engine, comprising:
[1(a)] an internal power supply;	an internal power supply;
[1(b)] an output port having positive and negative polarity outputs;	an output port having positive and negative polarity outputs;
[1(c)] a load detection sensor connected in circuit with said positive and negative polarity outputs, configured to detect presence of a vehicle battery connected between said positive and negative polarity	a vehicle battery isolation sensor connected in circuit with said positive and negative polarity outputs, configured to detect presence of a vehicle battery connected between said positive and negative polarity

outputs;	outputs;
[1(d)] a reverse polarity sensor connected in circuit with said positive and negative polarity outputs, configured to detect polarity 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;	a reverse polarity sensor connected in circuit with said positive and negative polarity outputs, configured to detect polarity 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;
[1(e)] a power switch connected between said internal power supply and said output port; and	a power switch connected between said internal power supply and said output port; and
[1(f)] a microcontroller configured to receive input signals from said load detection sensor and said reverse polarity sensor, and to provide an output signal to said power switch, such that said power switch is turned on to cause said internal power supply to be connected to said output port in response to signals from said sensors indicating the presence of a vehicle	a microcontroller configured to receive input signals from said vehicle isolation sensor and said reverse polarity sensor, and to provide an output signal to said power switch, such that said power switch is turned on to cause said internal power supply to be connected to said output port in response to signals from said sensors indicating

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.	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.
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Pet. 25–27.

In addition to the overlapping language in claim 1 of Nook-015 and claim 1 of the '236 patent, Petitioner directs us to other portions of Nook-015 that purportedly disclose the limitations recited in claim 1. Pet. 28. For example, Petitioner directs us to Nook-015's lithium polymer battery pack 32, corresponding to the internal power supply recited in claim 1, and Nook-015's disclosure of an output port having positive and negative polarity output terminals able to receive a vehicle battery, as claimed.

Pet. 28 (citing Ex. 1004, 3:17–19, 3:67–4:2, 4:28–31, 5:35–37).

Petitioner further directs us to the “vehicle battery isolation sensor” and the “reverse polarity sensor” disclosed in Nook-015 corresponding, respectively, to the “load detection sensor” and “reverse polarity sensor” claim 1 recites. Pet. 28. Petitioner directs us to the portions of Nook-015

explaining that the “vehicle battery isolation sensor” in Nook-015 “detects whether or not a vehicle battery 72 is connected to the booster device,” and the “reverse polarity sensor” in Nook-015 “monitors the polarity of the vehicle battery 72 when the handheld battery booster device is connected to the vehicle’s electric system.” Pet. 28 (citing Ex. 1004, 3:19–26, 4:20–22, 4:26–31). Additionally, Nook-015 discloses that, based on a signal from the reverse polarity sensor, the booster device “prevents 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.” Pet. 28 (citing Ex. 1004, 4:20–26, 4:32–38).

Petitioner next directs us to the “smart switch FET circuit” and “programmable microcontroller unit (MCU) 1” in Nook-015, which correspond, respectively, to the power switch and microcontroller recited in claim 1. Pet. 28–29. Petitioner contends that these components in Nook-015 “operate in accordance with the claim language.” Pet. 28–29. In particular, Petitioner directs us to the disclosure in Nook-015 explaining that the smart switch FET circuit switches the lithium battery to the vehicle’s electric system “only when the vehicle battery is determined by the [microcontroller] MCU 1 to be present (in response to a detection signal provided by isolation sensor 12) and connected with the correct polarity (in response to a detection signal provided by reverse sensor 10).” Pet. 28–29 (alteration by Petitioner) (quoting Ex. 1004, 4:32–38). Petitioner also directs us to the disclosure in Nook-015 stating that “if the car 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.” Pet. 29 (quoting Ex. 1004, 5:50–54; citing Ex. 1003 ¶¶ 78–79).

Patent Owner does not dispute Petitioner’s arguments and evidence demonstrating that Nook-015 discloses the limitations in claim 1. After reviewing the undisputed evidence and arguments Petitioner presents in the Petition regarding claim 1, we agree, for the reasons stated by Petitioner and supported by Dr. Wood’s testimony, that Nook-015 discloses an internal power supply, output port, load detection sensor, reverse polarity sensor, power switch, and microcontroller, all connected and configured as claim 1 requires. Ex. 1004, 3:17–26, 3:67–4:2, 4:20–38, 5:35–37, 5:50–54, 8:4–37; Ex. 1003 ¶¶ 78–79; Pet. 25–29.

b. Claims 2 and 5–12

Claims 2 and 5–12 depend directly or indirectly from claim 1. Petitioner directs us to portions of Nook-015 that disclose the additional limitations in these claims. Pet. 29–33. Patent Owner does not dispute Petitioner’s arguments or evidence regarding these dependent claims. For the reasons stated by Petitioner and supported by Dr. Wood’s testimony, we agree that Nook-015 discloses the limitations recited in these claims, as discussed below.

Claim 2 depends from claim 1 and further recites “wherein the load detection sensor detects at least one attribute of the vehicle battery.” Ex. 1001, 5:45–46. Petitioner contends that Nook-015 discloses this limitation because its vehicle battery isolation sensor detects at least the presence and charge of the battery. Pet. 29. In particular, Petitioner directs us to Nook-015’s disclosure of a “vehicle battery isolation sensor” that “detects whether or not a vehicle battery 72 is connected to the booster

device, and prevents the lithium battery pack from being connected to the output terminals of the booster device unless there is a good (e.g., chargeable) battery connected to the output terminals.” Pet. 29 (quoting Ex. 1004, 4:26–31); Ex. 1003 ¶¶ 80–81.

Claim 5 depends from claim 1 and further recites “wherein the vehicle battery is isolated from the apparatus.” Ex. 1001, 5:51–52. Claim 6 also depends from claim 1, and recites “wherein the vehicle battery is isolated from the apparatus under one or more conditions.” Ex. 1001, 5:53–54. Petitioner contends that Nook-015 discloses sensors that “detect[] whether or not a vehicle battery 72 is connected to the booster device,” which demonstrates that Nook-015 describes situations or conditions where the vehicle battery is not connected, i.e., is isolated from, the jumpstarter device, as claims 5 and 6 require. Pet. 30 (quoting Ex. 1004, 4:20–28); Ex. 1003 ¶¶ 82–84.

Claim 7 depends from claim 1 and further recites “wherein the vehicle battery is not isolated from the apparatus.” Ex. 1001, 5:55–56. Petitioner directs us to Nook-015’s disclosure of sensors that “monitor[] the polarity of the vehicle battery 72 when the handheld battery booster device is connected to the vehicle’s electric system.” Pet. 30 (quoting Ex. 1004, 4:20–28). Based on this disclosure, we agree with Petitioner that Nook-015 describes situations where the battery is connected to, i.e., is not isolated from, the jumpstarter device, as claim 7 requires. Pet. 30; Ex. 1003 ¶ 85.

Claim 8 depends from claim 1 and further recites “wherein the internal power supply is a battery.” Ex. 1001, 5:57–58. As Petitioner explains, Nook-015 discloses that its “internal power supply is a

rechargeable lithium ion battery pack.” Pet. 30–31 (quoting Ex. 1004, 3:37–39); Ex. 1003 ¶ 86.

Claim 9 depends from claim 1 and further recites “wherein the load detection sensor detects whether the vehicle battery is correctly connected.” Ex. 1001, 5:59–61. For this limitation, Petitioner directs us to Nook-015’s disclosure that the vehicle battery isolation sensor “detects whether or not a vehicle battery 72 is connected to the booster device, and prevents the lithium battery pack from being connected to the output terminals of the booster device unless there is a good (e.g. chargeable) battery connected to the output terminals.” Pet. 31 (quoting Ex. 1004, 4:26–31); Ex. 1003 ¶¶ 87–88. Petitioner also directs us to Nook-015’s disclosure that the “vehicle battery isolation sensor [is] . . . configured to detect presence of a vehicle battery connected between said positive and negative polarity outputs.” Pet. 31 (quoting Ex. 1004, 8:9–12).

Claim 10 depends from claim 1 and further recites “wherein the power switch is one or more transistors.” Ex. 1001, 5:62–63. Petitioner directs us to Nook-015’s disclosure of a “smart switch FET circuit” that “electrically switches the handheld battery booster lithium battery to the vehicle’s electric system only when the vehicle battery is determined by the [microcontroller] to be present . . . and connected with the correct polarity.” Pet. 31–32 (quoting Ex. 1004, 4:32–37). Nook-015 further discloses the switch is comprised of a plurality of field effect transistors (FETs). Ex. 1004, 8:43–44; Pet. 31–32, Ex. 1003 ¶¶ 89–90.

Claim 11 depends from claim 10 and further recites “wherein the one or more transistors are MOSFETs.” Ex. 1001, 5:64–65. Petitioner directs us to the FETs shown in Figure 2B-2 of Nook-015, and Dr. Wood explains that

the arrows on the FET diagrams (Q15, Q18, Q19) indicate to a person of ordinary skill in the art that the FETs are MOSFETs. Pet. 32–33; Ex. 1003 ¶ 91. Dr. Wood also testifies that a person of ordinary skill in the art would have understood that IRF1404 in Figure 2B-2 of Nook-015 indicates a part number for a MOSFET, “since transistor part numbers beginning with the letters ‘IRF’ are and have been known in the electronics industry to denote MOSFET transistors manufactured by International Rectifier Corporation of El Segundo, California.” Ex. 1003 ¶ 91 (citing <https://www.mouser.com/c/?q=IRF1404>); Pet. 32. We credit Dr. Wood’s testimony as it is undisputed and supported by the evidence presented.

Claim 12 depends from claim 1 and further recites “wherein the internal power supply is a direct current power supply.” Ex. 1001, 5:66–67. As discussed above, Nook-015 discloses an internal “lithium ion battery pack,” which, according to Petitioner and Dr. Wood, a person of ordinary skill in the art would have understood is a direct current power supply. Pet. 33; Ex. 1003 ¶ 92; Ex. 1004, 3:37–39.

3. Conclusion

For all of the foregoing reasons, after reviewing the undisputed evidence and arguments Petitioner presents in the Petition, including the relevant portions of the supporting Wood Declaration, we determine Petitioner has demonstrated, by a preponderance of the evidence, that Nook-015 anticipates claims 1, 2, and 5–12.

F. Claims 3 and 4 – Obviousness in View of Nook-015 Alone or in Combination with Petruzzi.

Petitioner contends claims 3 and 4 are unpatentable as obvious in view of Nook-015 alone, or in combination with Petruzzi. Pet. 33–38.

1. Petruzzi (Ex. 1010)

Petruzzi is titled “Reverse Polarity Protection for N-Substrate High-Side Switches,” and issued January 26, 2016.⁹ Ex. 1010, codes (12), (45). Petruzzi is directed to “circuits providing a reverse polarity protection for semiconductor switches.” Ex. 1010, 1:6–9. Petruzzi explains that semiconductor switches are increasingly used in automotive applications, and “[p]articularly in battery powered systems (e.g., the electronic equipment of a car) a sufficient reverse polarity protection is a requirement.” Ex. 1010, 1:13–18. Petruzzi discloses the use of a voltage divider to indicate whether or not a battery is connected with the correct or reverse polarity. Ex. 1010, 5:16–27, 9:10–33, Figs. 6–7; Ex. 1003 ¶ 98.

2. Claim 3

Claim 3 depends from claim 2, which depends from claim 1. Ex. 1001, 5:45–48. As discussed above, claim 1 requires distinct load detection and reverse polarity sensors. *See* § II.D *supra*. Claim 2 recites “wherein the load detection sensor detects at least one attribute of the vehicle battery,” and claim 3 further recites “wherein the attribute is polarity.” Ex. 1001, 5:45–48. Claim 3 thus requires the load detection sensor to detect not only the presence of the battery (per claim 1), but also the polarity of the vehicle battery (per claim 3), independent of any polarity detection done by the reverse polarity sensor. Ex. 1001, 5:11–48; Pet. 34;

⁹ In view of our determination that the challenged claims of the ’236 patent are not entitled to a priority date earlier than April 21, 2021, we agree with Petitioner that Petruzzi is prior art under at least 35 U.S.C. § 102(a). Pet. 2–23.

Phillips, 415 F.3d at 1312 (holding that “the words of a claim ‘are generally given their ordinary and customary meaning’”).

Petitioner maintains that the vehicle battery isolation sensor in Nook-015 detects the presence of a battery, and therefore corresponds to the load detection sensor recited in claim 1. Pet. 34. Petitioner also maintains that Nook-015 discloses a separate reverse polarity sensor that independently monitors the polarity of the vehicle battery, as claim 1 requires. Pet. 34.

Petitioner next contends that it would have been obvious to a person of ordinary skill in the art to replace the vehicle battery isolation sensor in Nook-015 with “a voltage divider that could be configured to generate a signal corresponding to the presence of the vehicle battery *and its polarity*, as required by claim 3.” Pet. 35. Petitioner explains that it was well-known in the art that a voltage divider can provide a simple way to detect reverse polarity and argues that a person of ordinary skill in the art “would have been motivated to utilize this type of voltage divider as the load detection sensor in order to provide a secondary polarity detection method, in addition to the reverse polarity sensor already disclosed.” Pet. 35–36 (citing Ex. 1003 ¶ 98; Ex. 1010, 5:16–27, 9:10–33, Figs. 6–7). According to Petitioner,

Nook-015’s dual-sensor solution is already an advance over the prior art one-sensor solutions in that it provides increased safety by using redundant sensors for different readings to control the actuation of the power switch and “prevent sparking/short circuiting of the lithium battery pack.” See Ex. 1004 at 5:37–54. Configuring both sensors to be able to detect polarity would not only be obvious based on the prior art and a POSITA’s general knowledge, but is consistent with the redundancy measures the *Nook-015* patent sought to implement. Ex. 1003 ¶ 100.

Pet. 36–37.

Patent Owner does not dispute Petitioner’s arguments and evidence demonstrating that Nook-015 and Petruzzi disclose the limitations in claim 3, or that a person of ordinary skill in the art would have had a reason to use a voltage divider as a load detection sensor in view of the knowledge of a person of ordinary skill in the art and Petruzzi’s disclosures regarding voltage dividers. For the reasons stated by Petitioner and supported by Dr. Wood’s testimony, we determine Petitioner has shown by a preponderance of evidence that claim 3 is unpatentable under § 103 as obvious in view of Nook-015 in combination with Petruzzi.

3. *Claim 4*

Claim 4 depends from claim 3, and further recites “wherein the attribute is voltage.” Ex. 1001, 5:49–50. Petitioner contends that Nook-015 teaches its vehicle isolation sensor “detects whether or not a vehicle battery 72 is connected to the booster device, and prevents the lithium battery pack from being connected to the output terminals of the booster device ***unless there is a good (e.g. chargeable) battery connected to the output terminals.***” Pet. 37 (quoting Ex. 1004, 4:26–31) (emphasis added by Petitioner). According to Petitioner, a person of ordinary skill in the art would have understood that to determine if there is a “good (e.g. chargeable) battery” connected, the vehicle isolation sensor must be capable of detecting the voltage of the battery. Pet. 37 (citing Ex. 1003 ¶¶ 101–102). Petitioner also contends that the voltage divider in Petruzzi is capable of measuring the voltage across it, and therefore replacing the load detection sensor of Nook-015 with a voltage divider (as discussed above with respect to claim 3) would maintain the ability to provide a voltage reading. Pet. 37–38.

Patent Owner does not dispute Petitioner’s arguments and evidence regarding claim 4. For the reasons stated by Petitioner and supported by Dr. Wood’s testimony, we determine Petitioner has shown by a preponderance of evidence that claim 4 is unpatentable under § 103 as obvious in view of Nook-015 in combination with Petruzzi.

G. Claims 13, 14, 17–19, 22–24, and 27 – Anticipation by Nook-024

Petitioner contends Nook-024 anticipates claims 13, 14, 17–19, 22–24, and 27 of the ’236 patent. Pet. 38–48.

1. Nook-024 (Ex. 1005)

Nook-024 is titled “Portable Vehicle Battery Jump Start Apparatus with Safety Protection,” and issued on March 31, 2020 from an application filed on August 31, 2017.¹⁰ Nook-024 is a continuation of Nook-015, and includes the same specification and figures, discussed in detail above. *See* § II.E.1, *supra*.

2. Analysis

a. Claim 13

Petitioner contends that Nook-024 “discloses and claims the *exact* elements and functionalities recited in claim 13.” Pet. 41. Petitioner presents a chart, reproduced below, demonstrating that the language in claim 13 of the ’236 patent and the language in claim 1 of Nook-024 are identical, except that the ’236 patent uses the term “load detection sensor” instead of the term “vehicle battery isolation sensor” used in Nook-024.

¹⁰ In view of our determination that the challenged claims of the ’236 patent are not entitled to a priority date earlier than April 21, 2021, we agree with Petitioner that Nook-024 is prior art under at least 35 U.S.C. § 102(a). Pet. 22.

'236 Patent	<i>Nook-024 (Ex. 1005, 8:31–9:14)</i>
[13pre] An apparatus for jump starting a vehicle having a depleted or discharged vehicle battery with positive and negative polarity terminals, the apparatus comprising:	1. An apparatus for jump starting a vehicle having a depleted or discharged vehicle battery with positive and negative polarity terminals, the apparatus comprising:
[13(a)] a power supply;	a power supply;
[13(b)] a positive polarity vehicle battery terminal connector;	a positive polarity vehicle battery terminal connector;
[13(c)] a negative polarity vehicle battery terminal connector;	a negative polarity vehicle battery terminal connector
[13(d)] a load detection sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the load detection sensor configured to detect a presence of the vehicle battery when connected between the positive and negative polarity vehicle battery terminal connectors;	a vehicle battery isolation sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the vehicle battery isolation sensor configured to detect a presence of the vehicle battery when connected between the positive and negative polarity vehicle battery terminal connectors;
[13(e)] a reverse polarity sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the reverse	a reverse polarity sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the reverse polarity

polarity sensor configured to detect a polarity of the vehicle battery connected between the positive and negative polarity vehicle battery terminal connectors and to provide an output signal indicating that the positive and negative polarity terminals of the vehicle battery are properly connected to the positive and negative polarity vehicle battery connectors;	sensor configured to detect a polarity of the vehicle battery connected between the positive and negative polarity vehicle battery terminal connectors and to provide an output signal indicating that the positive and negative polarity terminals of the vehicle battery are properly connected to the positive and negative polarity vehicle battery connectors;
[13(f)] a power switch connected between the power supply and the positive and negative polarity vehicle battery terminal connectors; and	a power switch connected between the power supply and the positive and negative polarity vehicle battery terminal connectors; and
[13(g)(1)] a microcontroller configured to receive input signals from the load detection sensor and the reverse polarity sensor, the microcontroller is configured to provide an activating output signal to turn on the power switch to cause the power supply to be connected to the positive and negative polarity vehicle battery connectors in response to the microcontroller receiving input signals	a microcontroller configured to receive input signals from the vehicle isolation sensor and the reverse polarity sensor, the microcontroller is configured to provide an activating output signal to turn on the power switch to cause the power supply to be connected to the positive and negative polarity vehicle battery connectors in response to the microcontroller receiving input

simultaneously from the sensors indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors, and	signals simultaneously from the sensors indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors, and
[13(g)(2)] the microcontroller is configured to provide a deactivating output signal to turn off the power switch to cause the power supply to be disconnected from the positive and negative polarity vehicle battery connectors in response to the microcontroller receiving input signals from the sensors indicating the absence of the vehicle battery connected to the positive and negative polarity vehicle battery connectors and/or improper polarity connection of the positive and negative polarity terminals of the vehicle battery to the positive and negative polarity vehicle	the microcontroller is configured to provide a deactivating output signal to turn off the power switch to cause the power supply to be disconnected from the positive and negative polarity vehicle battery connectors in response to the microcontroller receiving input signals from the sensors indicating the absence of the vehicle battery connected to the positive and negative polarity vehicle battery connectors and/or improper polarity connection of the positive and negative polarity terminals of the vehicle battery to the positive and negative polarity vehicle battery

battery connectors.	connectors.
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Pet. 38–41. In addition to the overlapping language in claim 1 of Nook-024 and claim 13 of the '236 patent, Petitioner directs us to other portions of Nook-024 that disclose the limitations recited in claim 13. Pet. 41–42 (citing Ex. 1005, 3:26–40, 4:25–26, 4:35–37, 4:45–63, 5:61–63, 6:9–13); Ex. 1003 ¶¶ 105–107.

Patent Owner does not dispute Petitioner's arguments and evidence demonstrating that Nook-024 discloses the limitations in claim 13. For the reasons stated by Petitioner and supported by Dr. Wood's testimony, we agree that Nook-024 discloses a power supply, positive polarity vehicle battery terminal connector, negative polarity vehicle battery terminal connector, load detection sensor, reverse polarity sensor, power switch, and microcontroller, all connected and configured as claim 13 requires. Ex. 1005, 3:26–40, 4:25–26, 4:35–37, 4:45–63, 5:61–63, 6:9–13, 8:31–9:14; Ex. 1003 ¶¶ 105–107.

b. Claim 18

Petitioner contends that Nook-024 discloses the limitations in independent claim 18, and presents a chart, reproduced below, demonstrating that the language in claim 18 of the '236 patent and the language in claim 29 of Nook-024 are identical, except that the '236 patent uses the term “load detection sensor” instead of the term “vehicle battery isolation sensor” used in Nook-024. Pet. 42–45.

'236 Patent	Nook-024 (Ex. 1005, 10:52–11:30)
[18pre] An apparatus for jump starting a vehicle having a depleted or	29. An apparatus for jump starting a vehicle having a depleted or

discharged vehicle battery with positive and negative polarity terminals, the apparatus comprising:	discharged vehicle battery with positive and negative polarity terminals, the apparatus comprising:
[18(a)] a power supply;	a power supply;
[18(b)] a positive polarity vehicle battery terminal connector;	a positive polarity vehicle battery terminal connector;
[18(c)] a negative polarity vehicle battery terminal connector;	a negative polarity vehicle battery terminal connector
[18(d)] a load detection sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the load detection sensor configured to detect a presence of the vehicle battery when connected between the positive and negative polarity vehicle battery terminal connectors;	a vehicle battery isolation sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the vehicle battery isolation sensor configured to detect a presence of the vehicle battery when connected between the positive and negative polarity vehicle battery terminal connectors;
[18(e)] a reverse polarity sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the reverse polarity sensor configured to detect a polarity of the vehicle battery connected between the positive and	a reverse polarity sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the reverse polarity sensor configured to detect a polarity of the vehicle battery connected between the positive and negative

negative polarity vehicle battery terminal connectors and to provide an output signal indicating that the positive and negative polarity terminals of the vehicle battery are properly connected to the positive and negative polarity vehicle battery connectors;	polarity vehicle battery terminal connectors and to provide an output signal indicating that the positive and negative polarity terminals of the vehicle battery are properly connected to the positive and negative polarity vehicle battery connectors;
[18(f)] a power switch connected between the power supply and the positive and negative polarity vehicle battery terminal connectors; and	a power switch connected between the power supply and the positive and negative polarity vehicle battery terminal connectors; and
[18(g)] a microcontroller configured to receive input signals from the load detection sensor and the reverse polarity sensor, the microcontroller configured to control operation of the power switch,	a microcontroller configured to receive input signals from the vehicle isolation sensor and the reverse polarity sensor, the microcontroller configured to control operation of the power switch,
[18(h)] wherein the microcontroller is configured to turn on the power switch when receiving input signals from the load detection sensor and reverse polarity sensor indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and	wherein the microcontroller is configured to turn on the power switch when receiving input signals from the vehicle isolation sensor and reverse polarity sensor indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery

proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors, and	connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors, and
[18(i)] wherein the microcontroller is configured to turn off the power switch when receiving input signals from the sensors indicating the absence of the vehicle battery connected to the positive and negative polarity vehicle battery connectors and/or improper polarity connection of the positive and negative polarity terminals of the vehicle battery to the positive and negative polarity vehicle battery connectors.	wherein the microcontroller is configured to turn off the power switch when receiving input signals from the sensors indicating the absence of the vehicle battery connected to the positive and negative polarity vehicle battery connectors and/or improper polarity connection of the positive and negative polarity terminals of the vehicle battery to the positive and negative polarity vehicle battery connectors.

Pet. 43–45. Petitioner also directs us to the discussion of the disclosure of Nook-024 with regard to claim 13 of the '236 patent. Pet. 45.

Patent Owner does not dispute Petitioner's arguments and evidence demonstrating that Nook-024 discloses the limitations in claim 18. For the reasons stated by Petitioner and supported by Dr. Wood's testimony, we agree that Nook-024 discloses a power supply, positive polarity vehicle battery terminal connector, negative polarity vehicle battery terminal

connector, load detection sensor, reverse polarity sensor, power switch, and microcontroller, all connected and configured as claim 18 requires.

Ex. 1005, 3:26–40, 4:25–26, 4:35–37, 4:45–63, 5:61–63, 6:9–13, 8:31–9:14, 10:52–11:30; Ex. 1003 ¶¶ 108–109.

c. Claim 23

Petitioner contends that Nook-024 discloses the limitations in independent claim 23 and presents a chart, reproduced below, demonstrating that the language in claim 23 of the '236 patent and the language in claim 30 of Nook-024 are identical, except that the '236 patent uses the term “load detection sensor” instead of the term “vehicle battery isolation sensor” used in Nook-024. Pet. 45–48.

'236 Patent	<i>Nook-024</i> (Ex. 1005, 11:31–12:39)
[23pre] An apparatus for jump starting a vehicle having a depleted or discharged vehicle battery with positive and negative polarity terminals, the apparatus comprising:	30. An apparatus for jump starting a vehicle having a depleted or discharged vehicle battery with positive and negative polarity terminals, the apparatus comprising:
[23(a)] a power supply;	a power supply;
[23(b)] a positive polarity vehicle battery terminal connector;	a positive polarity vehicle battery terminal connector;
[23(c)] a negative polarity vehicle battery terminal connector;	a negative polarity vehicle battery terminal connector
[23(d)] a load detection sensor connected in circuit with the positive	a vehicle battery isolation sensor connected in circuit with the positive

and negative polarity vehicle battery terminal connectors, the load detection sensor configured to detect a presence of the vehicle battery when connected between the positive and negative polarity vehicle battery terminal connectors;	and negative polarity vehicle battery terminal connectors, the vehicle battery isolation sensor configured to detect a presence of the vehicle battery when connected between the positive and negative polarity vehicle battery terminal connectors;
[23(e)] a reverse polarity sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the reverse polarity sensor configured to detect a polarity of the vehicle battery connected between the positive and negative polarity vehicle battery terminal connectors and to provide an output signal indicating that the positive and negative polarity terminals of the vehicle battery are properly connected to the positive and negative polarity vehicle battery connectors;	a reverse polarity sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the reverse polarity sensor configured to detect a polarity of the vehicle battery connected between the positive and negative polarity vehicle battery terminal connectors and to provide an output signal indicating that the positive and negative polarity terminals of the vehicle battery are properly connected to the positive and negative polarity vehicle battery connectors;
[23(f)] a power switch connected between the power supply and the positive and negative polarity vehicle battery terminal connectors; and	a power switch connected between the power supply and the positive and negative polarity vehicle battery terminal connectors; and

[23(g)] a microcontroller configured to receive input signals from the load detection sensor and the reverse polarity sensor, the microcontroller configured to turn on the power switch to cause the power supply to be connected to the positive and negative polarity vehicle battery connectors in response to the microcontroller receiving input signals simultaneously from the sensors indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors, and the microcontroller is configured to turn off the power switch to prevent the power supply from being connected to the positive and negative polarity vehicle battery connectors in response to the microcontroller not receiving the input signals simultaneously from	a microcontroller configured to receive input signals from the vehicle isolation sensor and the reverse polarity sensor, the microcontroller is configured to turn on the power switch to cause the power supply to be connected to the positive and negative polarity vehicle battery connectors in response to the microcontroller receiving input signals simultaneously from the sensors indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors, and the microcontroller is configured to turn off the power switch to prevent the power supply from being connected to the positive and negative polarity vehicle battery connectors in response to the microcontroller not receiving the
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the sensors indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors.	input signals simultaneously from the sensors indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors.
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Pet. 45–48.¹¹ Petitioner also directs us to the discussion of the disclosure of Nook-024 with regard to claim 13 of the '236 patent. Pet. 48.

Patent Owner does not dispute Petitioner's arguments and evidence demonstrating that Nook-024 discloses the limitations in claim 23. For the reasons stated by Petitioner and supported by Dr. Wood's testimony, we agree that Nook-024 discloses a power supply, positive polarity vehicle battery terminal connector, negative polarity vehicle battery terminal connector, load detection sensor, reverse polarity sensor, power switch, and microcontroller, all connected and configured as claim 23 requires.

Ex. 1005, 3:26–40, 4:25–26, 4:35–37, 4:45–63, 5:61–63, 6:9–13, 8:31–9:14, 11:31–12:39; Ex. 1003 ¶¶ 110–111.

¹¹ Petitioner mistakenly labeled limitations [23(a)] through [23(g)] as [18(a)] through [18(g)] in this table of the Petition. We consider this to be a harmless error as the table includes the limitations recited in claim 23 of the '236 patent.

c. Claims 14, 17, 19, 22, 24, and 27

Claims 14 and 17 depend from independent claim 13, claims 19 and 22 depend from independent claim 18, and claims 24 and 27 depend from independent claim 23. Petitioner contends these claims recite limitations identical to those in claims 2 and 5, and that Nook-024 anticipates claims 14, 17, 19, 22, 24, and 27 for the same reasons Nook-015 anticipates claims 2 and 5. Pet. 49. Patent Owner does not dispute Petitioner's arguments or evidence regarding these dependent claims.

For the reasons stated by Petitioner and supported by Dr. Wood's testimony, we agree that Nook-024 discloses the limitations recited in claims 14, 17, 19, 22, 24, and 27.

3. Conclusion

For all of the foregoing reasons, after reviewing the undisputed evidence and arguments Petitioner presents in the Petition, including the relevant portions of the supporting Wood Declaration, we determine Petitioner has demonstrated, by a preponderance of the evidence, that Nook-024 anticipates claims 13, 14, 17–19, 22–24, and 27.

H. Claims 15, 16, 20, 21, 25, and 26 – Obviousness in View of Nook-024 Alone or in Combination with Petruzzi.

Claims 15 and 16 ultimately depend from independent claim 13, claims 20 and 21 ultimately depend from independent claim 18, and claims 25 and 26 ultimately depend from independent claim 23. Ex. 1001, 6:53–8:48. Claims 15, 20, and 25 each recite “wherein the attribute is polarity,” which is the same limitation recited in claim 3. Ex. 1001, 5:47–48, 6:53–54, 7:41–42, 8:45–46. Claims 16, 21, and 26 each recite “wherein the attribute

is voltage,” which is the same limitation recited in claim 4. Ex. 1001, 5:49–50, 6:55–56, 7:43–44, 8:47–48. Petitioner contends that claims 15, 16, 20, 21, 25, and 26 are unpatentable as obvious in view of Nook-024 and Petruzzi for the same reasons claims 3 and 4 are unpatentable as obvious in view of Nook-015 and Petruzzi. Pet. 49–50. Patent Owner does not dispute Petitioner’s arguments or evidence regarding these dependent claims.

After reviewing the undisputed evidence and arguments Petitioner presents in the Petition regarding claims 3, 4, 15, 16, 20, 21, 25, and 26, including the relevant portions of the supporting Wood Declaration, we determine that Petitioner has shown by a preponderance of the evidence that claims 15, 16, 20, 21, 25, and 26 are unpatentable as obvious in view of Nook-024 and Petruzzi.

III. CONCLUSION

Based on the evidence presented with the Petition, Petitioner has shown by a preponderance of the evidence that:

- (1) Claims 1, 2, and 5–12 are unpatentable under 35 U.S.C. § 102 as anticipated by Nook-015;
- (2) Claims 3 and 4 are unpatentable under 35 U.S.C. § 103 as obvious in view of Nook-015 and Petruzzi;
- (3) Claims 13, 14, 17–19, 22–24, and 27 are unpatentable under 35 U.S.C. § 102 as anticipated by Nook-024; and
- (4) Claims 15, 16, 20, 21, 25, and 26 are unpatentable under 35 U.S.C. § 103 as obvious in view of Nook-024 and Petruzzi.¹²

¹² Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner’s attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 2, 5–12	102	Nook-015	1, 2, 5–12	
3, 4	103	Nook-015, Petruzzi	3, 4	
13, 14, 17–19, 22–24, 27	102	Nook-024	13, 14, 17–19, 22–24, 27	
15, 16, 20, 21, 25, 26	103	Nook-024, Petruzzi	15, 16, 20, 21, 25, 26	
Overall Outcome			1–27	

IV. ORDER

Accordingly, it is

ORDERED that claims 1–27 in the '236 patent are determined to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

IPR2022-01417
Patent 11,104,236 B2

For PETITIONER:

Joseph M. Sauer
Matthew W. Johnson
David B. Cochran
Marlee R Hartenstein
JONES DAY
jmsauer@jonesday.com
mwjohnson@jonesday.com
dcochran@jonesday.com
mhartenstein@jonesday.com

For PATENT OWNER:

Robert R. Brunelli
Jason H. Vick
Alex Ruge
SHERIDAN ROSS P.C.
rbrunelli@sheridanross.com
jvick@sheridanross.com
aruge@sheridanross.com