UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ADC SOLUTIONS AUTO LLC
Petitioner

v.

THE NOCO COMPANY
Patent Owner

Patent No. 11,447,023
Issue Date: September 20, 2022

Title: PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION AND JUMPER CABLE DEVICE THEREOF

Inter Partes Review No. IPR2024-00577

PETITIONER'S AUTHORIZED RESPONSE TO DIRECTOR REVIEW REQUEST

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I. INTRODUCTION

Petitioner ADC Solutions Auto LLC ("ADC" or "Petitioner") submits this Authorized Response opposing Patent Owner The NOCO Company's ("NOCO" or "Patent Owner") Request for Director Review ("Request") of the Final Written Decision ("FWD") finding all challenged claims of U.S. Pat. No. 11,447,023 ("the '023 Patent," EX1001) unpatentable. As demonstrated below, the Board's decision was well-reasoned, supported by substantial evidence, and properly addressed all issues raised by the parties.

Patent Owner's Request disregards the Board's thorough and impartial analysis, which meticulously addressed the arguments and evidence presented by both parties concerning the "core issue disputed between the parties at trial." From the beginning, the Petition unambiguously identified this "core issue"—that "the USB charging feature is the lynchpin of the invalidity inquiry" (Pet., p. 5)—and the Board consistently focused on this point, never substituting its own reasoning for that of the parties. The Board's FWD is based on a detailed and well-reasoned evaluation of the record, and its repeated findings in favor of Petitioner are supported by substantial evidence. Patent Owner's mere disagreement with these findings does not constitute a legitimate basis for Director review and its request should be denied.

II. REBUTTAL BACKGROUND

To provide proper context for this Response, it is important to clarify several

key aspects of the record and the Board's FWD that Patent Owner has mischaracterized in its Request. The '023 Patent is directed to portable jump starters that include two conventional safety features: (1) reverse polarity detection; and (2) battery presence detection. Pet., p. 4. These safety features, however, are taught by prior art patent to Richardson, as found by the Board in this IPR and in IPR2020-00944 relating to the parent to the '023 Patent. The claims of the '023 Patent also include limitations directed to USB charging of the internal batteries of the claimed portable jump starters. While Patent Owner characterizes these features as "USB charging innovations," as noted by the Board, the specification of the '023 Patent teaches that these features were anything but innovative, and instead used "standard" USB technology:

> USB charge circuit 52 converts power from "*any* USB charger power source, charge voltage and current" to the power that charges lithium battery pack 32. *Id.* at 5:15–17. In a specific example of Figure 2C, USB charge circuit 52 converts power of "a *standard* USB charger" to the charging power. *Id.* at 7:21–23. The input of charge circuit 52 is a "*standard* micro-USB connector 48 allowing *standard* cables to be used." *Id.* at 7:23–25. "The 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.* at 7:25–28.

FWD, pp. 7-8 (emphasis added).

The Petition presented two grounds of invalidity: Ground 1 based on the portable jump starter of Richardson in combination with the USB input charging technology of Zhao, and Ground 2 based on the portable jump starter of Yu in combination with the USB input charging technology of Paparrizos. Pet., pp. 8, 30-32, 59-61. While Patent Owner repeats its argument that the Petition "was not able to identify … a device having a comparable battery capacity" to a portable jump starter that is charged via USB technology (Request, p. 2), this argument was soundly rejected by the Board because Zhao and Paparrizos expressly disclose using USB and boost conversion technology to charge devices with high voltage and large capacity batteries. *See* FWD, pp. 29-30, 40-41.

The Petition presented substantial evidence of motivation to combine the USB and boost conversion technology of Zhao and Paparrizos with the jump starters of Richardson and Yu, respectively. Specifically, Petitioner argued a PHOSITA would have been motivated to modify the design of Richardson's or Yu's jump starters to either: (1) replace the existing charge circuitry of Richardson or Yu with Zhao's or Paparrizos's USB step-up charging systems; or (2) add the USB step-up charging systems of Zhao or Paparrizos to Richardson's or Yu's jump starters as an additional and alternative pathway for charging the jump starter's internal batteries. FWD, pp. 17-18, 36 (citing Pet., pp. 45, 65). The Petition explained the benefits of each proposed modification:

> For example, although option 1 may result in longer charging times, it allows the supplier to avoid the need to supply a proprietary charger or other type of AC "power brick" that would be less ubiquitous or less standardized than a USB charger. *Id.* On the other hand, while option 2 would result in a slight increase in cost for including an additional input connector and DC-DC conversion circuitry in Richardson's jump starter, *the desirable benefits would include increased flexibility so that the jump starter batteries could be charged via a traditional AC power brick when available, but alternatively by a USB charger if the AC power brick is lost, damaged, or the user is otherwise in a location where only USB power is readily available*.

Pet., p. 45; *see also* FWD, pp. 17-18 (emphasis added).

The Petition further explained the well-known benefits of USB input charging at the time of the claimed invention, including "(1) reducing the need for suppliers to ship product with proprietary chargers (thus reducing cost of goods and avoiding electronic waste), (2) providing device users with the desired result of reducing their need to possess or carry multiple proprietary chargers and cables for their battery-powered devices (*e.g.* the goal of universal compatibility), (3) ease of use, and (4) durability." Pet., p. 46; *see also* FWD, p. 18. Petitioner's arguments were supported by substantial evidence, including the express teachings of Zhao and Paparrizos, expert testimony from Dr. MacCarley, and prior art USB specifications, U.S. and foreign patents and patent publications, and industry publications. Pet., pp. 46-49

(citing EX1003, EX1006, EX1009, EX1016, EX1017, EX1018, EX1019, EX1020, EX1021, EX1022, EX1023, EX1026, EX1027, EX1029); *see also* FWD, p. 18.

Patent Owner's arguments in response were primarily focused on: (1) Zhao and Paparrizos do not teach USB charging of "high capacity" batteries; and (2) charging times using USB technology would have been unreasonably long, without providing a single example of an allegedly "unreasonable" charging time or identifying any factors a PHOSITA would consider in making such a determination. PO Resp., pp. 20-30, 39-41. As discussed above, with respect to the first argument, the Board agreed with Petitioner that Zhao and Paparrizos expressly teach charging high-voltage and large-capacity batteries (i.e., the battery voltages and capacities taught by Richardson and Yu). FWD, pp. 29-30, 40-41. As for the second argument, Petitioner responded by providing exemplary charging times applying various currents, voltages, and battery capacities that demonstrated a PHOSITA would not consider the charging times unreasonable. Reply, pp. 5-7. Petitioner also explained that the '023 Patent does not claim or teach any improvements to USB charging and that Patent Owner's "argument singularly focus[es] on one potential disadvantage of USB charging to the exclusion of numerous benefits set forth in the Petition (e.g., convenience, universal compatibility, ease of use, durability, etc. (Petition, pp. 45-47)." Reply, pp. 7, 15; *see also id*. at 8-18.

After undertaking a comprehensive analysis of the parties' arguments and

evidence in a 50-page decision, the Board ultimately agreed with Petitioner that it would have been obvious to modify the jump starters of Richardson and Yu to include the USB charging technology of Zhao and Paparrizos, respectively. Specifically, it found:

> We agree with Petitioner that the skilled artisan would have had reason to combine the teachings of Richardson and Zhao to achieve the subject matter of claim 1. For example, Petitioner contends that a person of ordinary skill in the art would have modified Richardson's system to include the USB input circuit of Zhao "to ***avoid the need to supply a proprietary charger*** or other type of AC 'power brick' that would be less ubiquitous or less standardized," ***increase flexibility and convenience*****, and** ***cater to consumer demand for USB technology***. Pet. 45-46 (Citing Ex. 1003 ¶¶ 88-89). Petitioner further alleges that the addition of ***a USB input circuit would provide for an alternative where traditional charging methods are lost, damaged, or otherwise unavailable***. *Id.* at 45 (citing Ex. 1003, ¶ 88). Thus, Petitioner has provided sufficient reasoning with rational underpinnings to explain why a person of ordinary skill in the art would have modified the teachings of the applied references. *See KSR*, 550 U.S. at 418.

FWD, pp. 21-22 (emphasis added).

After consideration of the Petition's evidence in support of Ground 1, the Board devoted over ten (10) pages to its analysis of Patent Owner's arguments, ultimately finding none of them persuasive enough to rebut the preponderance of

evidence presented by the Petition demonstrating the obviousness of the '023 Patent claims in view of Richardson and Zhao. FWD, pp. 16-30. The Board also noted Patent Owner's unsupported charging time argument, but found that it was irrelevant to at least the second proposed modification of adding USB as an additional and alternative charging pathway. *Id*. at 23, n.11 ("But, whether Petitioner's calculations are accurate or not, Petitioner's proposed alternative modification does not remove the faster charging path and instead adds the convenience and flexibility of a secondary charging method where the primary and faster charging path is unavailable. Ex. 1044 ¶ 12."). The Board further noted that "the '023 patent is silent as to any requisite charging capacities and, as Petitioner aptly notes, Patent Owner 'cannot demand a greater level of detail from the prior art than is taught by the '023 patent.'" FWD, p. 24 (quoting *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1570 (Fed. Cir. 1997)).

With respect to Ground 2, the Board considered Petitioner's arguments regarding why a PHOSITA would be motivated to modify Yu's jump starter to include the USB charging and boost conversion technology of Paparrizos. FWD, pp. 34-37. Like Ground 1, the Petition set forth ample evidence that a PHOSITA would have been motivated to modify Yu to either: (1) replace its existing barrel charger with USB; or (2) add USB as additional charging circuitry to enable an alternative means to charge Yu's internal batteries. FWD, p. 36 (citing Pet., p. 65). In addition

to Paparrizos's express teachings—i.e., "[t]he USB specification has become very popular and consumers have become used to being able to charge their USB devices from universal USB power sources. Consumers are used to USB, mini-USB, and micro-USB connectors being present in portable electronics and their use for battery charging from a USB power source"—the Petition relied on the same evidence demonstrating the advantages and desirability of USB as presented in Ground 1, while accounting for some minor differences between the prior art asserted in each Ground. Pet., p. 47 (citing EX1009, 1:18-26); *id.* at 45-50, 65-69; *see also* FWD, p. 43. The Board then considered and rejected each of Patent Owner's rebuttal arguments in ten pages of analysis. FWD, pp. 38-47.

Ultimately, after careful consideration of the record, the Board did not agree with any of Patent Owner's arguments. Indeed, Patent Owner does not dispute that the Board fairly considered its arguments and evidence. Instead, it distorts the Board's findings and homes in on a single sentence, taken out of context, to contrive a basis for review that does not exist.

III. ARGUMENT

Patent Owner's Request for Director Review rests on two primary arguments, both of which lack merit. First, NOCO alleges the Board abused its discretion under 37 C.F.R. § 42.75 by failing to address the "core issue disputed by the parties." This argument mischaracterizes the Board's analysis by isolating a single sentence from

the FWD while ignoring the Board's comprehensive 50-page analysis that thoroughly addressed all arguments and evidence presented by both parties. Second, NOCO claims the Board rendered an inconsistent decision compared to a prior IPR. This argument fails to acknowledge the fundamental differences between the proceedings—including different patents, different petitioners, different prior art references, and entirely different evidentiary records.

A. The Board Squarely Addressed the Disputes Between the Parties

Patent Owner's argument is premised on a mischaracterization of a single phrase in a 50-page decision. Specifically, NOCO claims "the FWD deviated from the Petition and fabricated a strawman argument where a PHOSITA, '***when faced with no alternative***,' would have 'balance[d] the trade-offs and consider[ed] charging slowly, ***or not at all***.'" Request, p. 6 (emphasis in original) (citing FWD, p. 23). In making this finding, the Board was directly addressing Petitioner's argument that a PHOSITA would have been motivated to "add Zhao's step-up charging system and connect the output to Richardson's jump starter batteries as an additional and alternative pathway for charging the jump starter batteries." Pet., p. 45. This modification would provide the benefit of "increased flexibility so that the jump starter batteries could be charged via a traditional AC power brick when available, but alternatively by a USB charger if the AC power brick is lost, damaged, or the user is otherwise in a location where only USB power is readily available." *Id*.

More specifically, after the Board stated its agreement with Petitioner's argument and evidence that "the addition of a USB input circuit would provide for an alternative where traditional charging methods are ***lost, damaged, or otherwise unavailable***, it then considered Patent Owner's argument in more detail. FWD, pp. 21-22 (citing Pet., p. 45) (emphasis added). The Board "acknowledge[d], but [was] not convinced by, Patent Owner's arguments that the nature of Richardson requires the ability to charge a high capacity battery and rapid recharging and therefore would not have led a person of ordinary skill in the art to include Zhao's USB charging circuit in Richardson." FWD, p. 22. It proceeded to address Patent Owner's specific arguments, including "the crux of Patent Owner's argument … that because of Richardson's goal of charging high capacity batteries a USB charger would require significant charging time." FWD, p. 23. In rejecting that argument, the Board found that "nowhere does Patent Owner allege that a USB charger would not work given sufficient time. … [a]nd when faced with no alternative, the person of ordinary skill in the art must balance the trade-offs and consider chargingly slowly, or not at all." *Id.* (citing *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006); *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349, n.8 (Fed. Cir. 2000)).

The Board did not deviate from the arguments and disputes brought by the parties but directly addressed Petitioner's rationale for adding a USB input circuit to provide "an alternative where traditional charging methods are lost, damaged, or

otherwise unavailable." FWD, p. 22 (citing Pet., p. 45); *see also* FWD, p. 28 ("But Petitioner proposes its 'additional and alternative pathway' in the event Richardson's power source is unavailable and only USB power is available (Pet. 45) and therefore, does not render the 'additional and alternative pathway' unnecessary.").

Patent Owner further argues the "analysis is not a selection between including a secondary USB charger versus including no secondary charger at all, but rather between including USB or other traditional charging techniques that were known to be appropriate for jump starters." Request, p. 6. This is the first time NOCO has made this argument, as evidenced by its lack of citation to the record of where it purportedly made this argument during trial. And at no point did NOCO identify other charging options a PHOSITA would have allegedly considered. Indeed, while NOCO now argues one of these other options would be a "barrel charger port," it neglects to mention that is what the prior art references already showed, and both parties' experts acknowledged barrel chargers were the standard power input at the time of the invention. *See* Pet, p. 45; Reply, p. 12; EX2011, ¶ 23; EX1044, ¶ 13.

In other words, the Petition proposed a modification to add USB charging as an alternative to a traditional barrel charger. Patent Owner is, in fact, criticizing the Board for failing to address an argument that was never made during trial. In any event, "[T]he question is whether there is something in the prior art as a whole to suggest the *desirability*, and thus the obviousness, of making the combination," not

whether there is something in the prior art as a whole to suggest that the combination is the *most desirable* combination available." *In re Fulton*, 391 F.3d 1195 (Fed. Cir. 2004) (emphasis in original) (quoting *In re Beattie*, 974 F.2d 1309, 1311 (Fed. Cir. 1992)).

With respect to Ground 2, NOCO criticizes the Board for not addressing its argument that increased charging times associated with USB would have allegedly prevented a PHOSITA from modifying the jump starter of Yu in view of Paparrizos, This argument is also without merit. Patent Owner's charging time argument was the same for both Grounds (PO Resp., pp. 20-24; Sur-Reply, pp. 2-11), and the Board's rejection of this argument applied to both Grounds, i.e., "Petitioner's proposed alternative modification does not remove the faster charging path and instead adds the convenience and flexibility of a secondary charging method where the primary rand faster charging path is unavailable" (FWD, p. 23, n.11).

B. The Board's Final Written Decision is Not Inconsistent with IPR2020-00944

Patent Owner's comparison of this IPR to IPR2020-00944 omits critical distinctions between the proceedings. While NOCO notes that the earlier IPR involved a related patent where "the petitioner based its grounds, in part, on Richardson and provided analogous reasoning for the motivation to combine"

(Request, p. 10), NOCO fails to acknowledge the stark differences in the evidentiary record.

In IPR2020-00944, the petitioner's entire motivation to combine argument consisted of a single conclusory statement that "[a] POSITA would be motivated to provide such a USB charging port to provide the added convenience to users of using another commonly used power input for charging the jump start device." EX1014, p. 92. This argument was supported only by nearly identical, conclusory testimony from that petitioner's expert—nothing more. In contrast, the Petition here presented far more evidence, including, for example, Zhao and Paparrizos, expert testimony from Dr. MacCarley, and prior art USB specifications, U.S. and foreign patents and patent publications, and industry publications. Pet., pp. 46-49 (citing EX1003, EX1006, EX1009, EX1016, EX1017, EX1018, EX1019, EX1020, EX1021. EX1022, EX1023, EX1026, EX1027, EX1029); *see also* FWD, p. 18. The Board rejected the very same arguments Patent Owner makes now, finding "the record in IPR2020-00944, unlike the present record, was lacking evidence in support of petitioner's proposed modification." FWD, p. 41, n.12 (citing EX1014, pp. 92-94).

Patent Owner further neglects to mention that IPR2020-00944 involved different parties, different patents, different USB prior art, and ultimately entirely different records. In fact, as noted by Petitioner in its Reply, the prior art relied on to provide the USB charging limitations in IPR2020-00944 did not even teach USB

input charging, only USB output charging to charge other devices, not the internal batteries of the jump starter. Reply, p. 2 (citing EX1014, pp. 91-92). *See United Servs. Auto. Ass'n v. PNC Bank N.A.*, No. 2023-2124, 2025 WL 370141 (Fed. Cir. Feb. 3, 2025) (affirming FWD's finding of all claims unpatentable and agreeing with Board's denial of patent owner's request for rehearing based on allegedly inconsistent IPR decisions of the same patents because the asserted prior art, arguments, and evidence were different).

It is "unsurprising that different records may lead to different findings and conclusions." *See Novartis AG v. Noven Pharms. Inc.*, 853 F.3d 1289, 1294 (Fed. Cir. 2017). Thus, the fact that the Board may have reached different findings and conclusions based on different prior art and a different record does not establish that the Board's findings in this IPR and IPR2020-00944 are inconsistent.

IV. CONCLUSION

For the reasons detailed above, NOCO's Request for Director Review lacks merit and should be denied. The Board's Final Written Decision reflects a thorough, well-reasoned analysis of the complete evidentiary record, properly addresses all disputed issues between the parties, and reaches conclusions that are fully supported by substantial evidence. NOCO's disagreement with the Board's findings does not constitute a legitimate basis for Director review.

Respectfully submitted,

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