

Filed on behalf of: InductEV, Inc.

Entered: March 28, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INDUCTEV, INC.,
Petitioner,

v.

WITRICITY CORPORATION,
Patent Owner.

Case IPR2024-00105
Patent 10,027,184

**PETITIONER'S REPLY TO
PATENT OWNER'S PRELIMINARY RESPONSE**

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Ex.	Description
1001	U.S. Patent No. 10,027,184 B2 (“’184 patent”)
1002	File History for U.S. Patent No. 10,027,184 B2 (“’184 FH”)
1003	Declaration of Mark Allen in Support of Petition for <i>Inter Partes</i> Review (“Allen Decl.”)
1004	Curriculum Vitae of Mark Allen (“Allen CV”)
1005	U.S. Patent Application Publication No. 2010/0084918 A1 (“Fells”)
1006	U.S. Patent Application Publication No. 2009/0299918 A1 (“Cook”)
1007	U.S. Patent No. 6,075,433 (“Ono”)
1008	Chwei-Sen Wang, <i>Design Considerations for Inductively Coupled Power Transfer Systems</i> (2004) (Ph.D. dissertation, University of Auckland) (“Wang Thesis”)
1009	RESERVED
1010	Declaration of Ingrid Hsieh-Yee in Support of Petition for <i>Inter Partes</i> Review (“Hsieh-Yee Decl.”)
1011	U.S. Patent No. 8,749,334 B2 (“Boys”)
1012	U.S. Patent No. 9,774,086 B2 (“Cook-086”)
1013	U.S. Patent Application Publication No. 2010/0109445 A1 (“Kurs”)
1014	U.S. Patent No. 7,656,244 B2 (“McCorquodale”)
1015	U.S. Patent No. 7,978,017 B2 (“Pernia”)
1016	U.K. Patent Application No. GB2414121 A (“Stevens”)
1017	Exhibit 6 to Complaint: Claim Chart, <i>WiTricity Corp. v. InductEV, Inc.</i> , No. 2:23-cv-01099-CMR (E.D. Pa. Mar. 21, 2023), ECF No. 1-8 (“Complaint Chart”)
1018	D. Ferrazzin, et al., <i>Hall Effect Sensor-Based Linear Transducer</i> , Proceedings of the 1999 IEEE, Int’l Workshop on Robot and Human Interaction (IEEE, Sept. 1999), 219-224 (“Ferrazzin”)
1019	A.W. Green & J.T. Boys, <i>10kHz Inductively Coupled Power Transfer – Concept and Control</i> , Power Electronics and Variable-Speed Drives, Conf. Pub. No. 399 (IEE, Oct. 26-28, 1994), 694-699 (“Green”)

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1020	Aiguo Patrick Hu, <i>Selected Resonant Converters for IPT Power Supplies</i> (Oct. 2001) (Ph.D. dissertation, University of Auckland) (“Hu”)
1021	Byung-Song Lee & Kyung-Hee Han, <i>Modeling and Analysis of IPT System Used for PRT</i> , Proceedings of the Eighth International Conference on Electrical Machines and Systems – ICEMS 2005, vol. 1 (ICEMS, Sept. 27-29, 2005), 839-842 (“Lee”)
1022	James E. Lenz, <i>A Review of Magnetic Sensors</i> , Proceedings of the IEEE, vol. 78, no. 6 (June 1990), 973-989 (“Lenz”)
1023	Excerpts from <i>McGraw-Hill Dictionary of Scientific and Technical Terms</i> (6th ed. 2003)
1024	Excerpts from James W. Nilsson & Susan A. Riedel, <i>Electrical Circuits</i> (8th ed. 2008) (“Nilsson”)
1025	Chwei-Sen Wang, et al., <i>Investigating an LCL Load Resonant Inverter for Inductive Power Transfer Applications</i> , IEEE Transactions on Power Electronics, vol. 19, no. 4 (IEEE, July 2004), 995-1002 (“Wang-IEEE”)
1026	Excerpts from <i>Wiley Electrical and Electronics Engineering Dictionary</i> (2004)
1027	William H. Wilkinson, <i>Integrated Hall Effect Sensor</i> , Journal of the Microelectric Engineering Conference, vol. 3, iss. 1, art. 37 (1989), 215-220 (“Wilkinson”)
1028	Larry Dickerman & Jessica Harrison, <i>A New Car, A New Grid</i> , IEEE Power & Energy Mag. (Mar./Apr. 2010), 55-61 (“Dickerman”)
1029	U.S. Patent Application Publication No. 2010/0277121 A1 (“Hall”)
1030	RESERVED
1031	SAE International, <i>SAE Electric Vehicle and Plug in Hybrid Electric Vehicle Conductive Charge Coupler</i> , J1772 (rev. Jan. 2010) (“SAE Standards”)
1032	Excerpt from Frederick Emmons Terman, <i>Electronic and Radio Engineering</i> (4th ed. 1955) (“Terman”)

Ex.	Description
1033	Claire Weiller, <i>Plug-in Hybrid Electric Vehicle Impacts on Hourly Electricity Demand in the United States</i> , Energy Policy 39 (2011), 3766-3778 (“Weiller”)
1034	Email from Board to Counsel Authorizing Unopposed Request for Reply in IPR2024-00105, IPR2024-00140 (Mar. 14, 2024)

Pursuant to the Board's authorizing email (Ex. 1034), Petitioner respectfully submits this reply to Patent Owner's Preliminary Response (POPR) to confirm that discretionary denial is not warranted here. Grounds 1-4 are based on references (Fells & Cook) that were submitted during prosecution in an IDS with over 900 other references, but were never discussed by Patent Owner (PO) or the Examiner. The Examiner materially erred in overlooking their teachings and issuing the '184 patent, as demonstrated in the Petition. PO does not dispute the merits of any Ground, so trial should be instituted. Institution is further warranted for Grounds 3 and 4, which include references (Ono and Wang) that were not presented to the Office.

I. Grounds 1-4: The Examiner Erred by Overlooking Fells and Cook

Grounds 1-4 do not warrant discretionary denial. Although Fells and Cook are on the face of the '184 patent, neither reference was discussed during prosecution. As the Examiner noted, "Applicants have cited over 900 references, and have not pointed out that any reference(s) is/are more relevant than any others." 184 FH, 147. Because "the record of the Office's previous consideration of the art is not well developed or silent," and the art renders the claims obvious for the reasons explained in the Petition, the Examiner erred at Step 2 by "misapprehend[ing] or overlook[ing] specific teachings of the relevant prior art." *Adv. Bionics, LLC v. MED-EL Elek. Geräte GmbH*, IPR2019-01469, Paper 6 (Feb. 13, 2020) at 8-9 n. 9.

PO does not dispute the Petition's merits, arguing instead that the Examiner's

“mere silence regarding references . . . does not show material error by the Examiner.” POPR 12. PO is wrong, and this same argument was recently rejected by the Board when instituting trial on another of PO’s patents. *InductEV, Inc. v. WiTricity Corp.*, IPR2023-01182, Paper 9 at 6-8 (Feb. 20, 2024). There, as here, “[e]ven if the Board were to assume that the Examiner considered [Fells] and [Cook],” the Petition “demonstrates that the Examiner overlooked teachings that are relevant to” the limitations identified by the Examiner as allowable. *Id.* at 6-7.

The Examiner allowed claim 1 because the prior art of record purportedly did not disclose “a foreign object debris detection system comprising: at least one magnetic field sensor; and at least one readout circuit configured to measure one or more electrical parameters of the at least one magnetic field sensor, wherein the at least one magnetic field sensor is positioned within the magnetic field of the wireless energy transfer system.” Ex. 1002, 247. But the Petition shows that Fells rendered obvious this foreign object debris detection system: a system that determines “whether there is a foreign object present” (Fells [0191]) in a wireless energy transfer system by measuring a change in voltage or inductance of a magnetic field sensor, such as a “Hall Effect sensor” or “an inductive proximity sensor,” positioned within the magnetic field. Fells [0289]-[0290], Figure 40; Pet. 13-23.

Claim 16 was allowed based on the requirements of “performing a health and/or status check of the wireless energy transfer source;” and “verifying that no

foreign object debris has moved onto or over the source resonator, prior to positioning the vehicle over the source resonator.” Ex. 1002, 247. That was error because Fells teaches both of these limitations, including a variety of checks and calibrations that constitute the health and/or status check (Fells [0196]), and further discloses “look[ing] to see . . . whether there are foreign objects present” prior to positioning the vehicle over the source resonator. Fells [0191], [0194]; Pet. 40-46.

PO argues that even if Fells and Cook disclosed the above elements that were the basis for allowing the '184 patent (which PO does not dispute), that does “not demonstrate material error” because the Examiner allowed the claims based on the “claimed features *in combination*.” POPR 13. But the Petition also establishes—and PO also does not dispute—that Fells alone (Ground 1) or with Cook (Ground 2), taught or rendered obvious each and every claim element in combination. Pet. 8-30, 40-51. Further, there is no basis for PO's contention that the Examiner “found the claims nonobvious over the prior art . . . in *any* proper combination” (POPR 13) considering the 900+ references submitted to the Office. *See Biontech SE v. Moderna TX Inc.*, IPR2023-01358, Paper 19 at 16 (Mar. 19, 2024) (instituting IPR where reference was one of hundreds in an IDS but not discussed).

In addition to the foregoing, the Examiner's error is demonstrated by Petitioner's new evidence in Dr. Allen's declaration. *See generally* Ex. 1003. PO's arguments to the contrary have no merit. POPR 14-15. PO ignores *Becton, Dickinson*

factor (f) which considers additional evidence and facts presented in the petition that warrant reconsideration of the prior art. *Advanced Bionics* at 9 n. 10.

II. Grounds 3 and 4: PO cannot show either step is satisfied.

For Grounds 3 and 4, which rely on additional references Ono and Wang, discretionary denial is also not warranted at *Advanced Bionics* Step 1 because neither the same nor substantially the same art or arguments were presented to the Office. Specifically, the Petition relies on Ono in Ground 3 and Wang in Ground 4, and neither reference was previously before the Office. PO does not dispute this, instead arguing Ono is substantially the same as Fells, and Wang is substantially the same as Cook, because the Petition provides alternative arguments from those references for disclosure of the “same feature[s]” of the claims. E.g., POPR 11 (“Petitioner is relying on Cook and Wang for the same feature, [and] it follows that Wang is substantially the same as” Cook.). PO is wrong.

No case supports PO's novel proposition that references relied on for the same claim element necessary means they are “substantially the same” at *Advanced Bionics* step 1. Nor does PO provide any comparison between Cook and Wang, or Ono and Fells—nor any other evidence—to support its conclusory assertions. That is because the references are not substantially the same, nor are the Petition's arguments regarding them. Ground 3 relies on Ono as teaching claim 12's “enclosure housing,” to the extent PO contends that Fells does not teach the enclosure. Pet. 61-

63. Whereas Fells depicted a disclosure using dotted lines in its figures, Ono discusses a “primary enclosure” encompassing a primary coil and a detector coil. Pet. 61 (citing Ono, 4:3-47). For Ground 4, the Petition relies on Wang against claim 13, which requires more than 3.3 kW of power. Pet. 64-66. The Petition notes that “neither Fells nor Cook quantifies the power provided by their systems” and the Petition relies on Wang’s disclosure of a 30 kW charger. Pet. 68. Institution is therefore warranted, because Ono and Wang were “never before been considered by the Office” and they are “not cumulative” of other art. *Oticon Med. AB v. Cochlear Ltd.*, IPR2019-00975, Paper 15 at 10, 15-16 (Oct. 16, 2019) (precedential).

Regardless, even if the Board assumed Ono and Wang were substantially the same as Fells and Cook at Step 1, PO cannot show that Step 2 is satisfied. As discussed above, Fells and Cook were not discussed during prosecution and only appear in an IDS with 900+ references, and the Examiner erred by overlooking Fells’ undisputed disclosures of the limitations that were the basis for allowing the ’184 Patent’s claims. *See InductEV, Inc. v. WiTricity Corp.*, IPR2023-01182, Paper 9 at 5-8 (Feb. 20, 2024) (declining to exercise discretion under 325(d) where prior art was not discussed during prosecution and Petition’s merits were not disputed).

For the above reasons, the Board should not exercise its discretion to deny institution under § 325(d). And because the Petition’s merits on patentability are un rebutted, trial should be instituted.

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I certify that on this 28th day of March, 2024, a true and correct copy of the foregoing **Petitioner's Reply to Patent Owner's Preliminary Response and Exhibit 1034** were served by electronic mail on Patent Owner's lead and backup counsel at the following email addresses:

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