**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | |
|---|---|
| In re *Ex Parte* Reexamination of: | |
| U. S. Patent No. 11,342,777 | Control No.: *To be assigned* |
| Issue Date: May 24, 2022 | Group Art Unit: *To be assigned* |
| Inventors: Afshin Partovi, *et al.* | Examiner: *To be assigned* |
| Appl. No. 16/199,904 | Confirmation No.: *To be assigned* |
| Filing Date: Nov. 26, 2018 | |
| For: POWERING AND/OR CHARGING WITH MORE THAN ONE PROTOCOL | |

Mail Stop *Ex Parte* Reexam
Attn: Central Reexamination Unit
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

## **REQUEST FOR *EX PARTE* REEXAMINATION OF U.S. PATENT NO. 11,342,777**

Reexamination is requested under 35 U.S.C. § 302 and 37 C.F.R. § 1.510 for claims 1 and 15 of U.S. Patent No. 11,342,777 B1 (the ’777 patent), which issued on May 24, 2022 to assignee Mojo Mobility, Inc.

The *ex parte* reexamination fee of $12,600 is paid herewith by deposit account authorization. The Commissioner is hereby authorized to charge any additional fees which may be required regarding this request, or credit any overpayment, to Deposit Account No. 50-2613. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-2613.

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|---|---|
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## I. Introduction

An *ex parte* reexamination is requested on claims 1 and 15 of U.S. Patent No. 11,342,777, which issued on May 24, 2012 to Partovi ("the '770 patent," Ex. PAT-A), for which the U.S. Patent and Trademark Office ("Office") files identify Mojo Mobility Inc. ("Mojo" or "Patent Owner") as the assignee. In accordance with 37 C.F.R. § 1.510(b)(6), Requester Samsung Electronics Co., Ltd. ("Requester") hereby certifies that the statutory estoppel provisions of 35 U.S.C. § 315(e)(1) and 35 U.S.C. § 325(e)(1) do not prohibit it from filing this *ex parte* reexamination request.

This request raises substantial new questions of patentability based on prior art that the Office did not have before it or did not fully consider during the prosecution of the '777 patent, and which discloses or suggests the features recited in the challenged claims. Requester respectfully urges that this Request be granted and that reexamination be conducted with "special dispatch" pursuant to 35 U.S.C. § 305.

In accordance with 37 C.F.R. § 1.20(c), the fee for *ex parte* reexamination (non-streamlined) is submitted herewith. If this fee is missing or defective, please charge the fee as well as any additional fees that may be required to Deposit Account No. 50-2613.

## II. Related Proceedings

On October 7, 2022, Patent Owner filed suit against Requester asserting, *inter alia*, infringement of the '777 patent (and also U.S Patent Nos. 7,948,208, 9,577,440, 11,292,349, 11,316,371, 11,201,500, and 11,462,942) in *Mojo Mobility Inc. v. Samsung Electronics Co., Ltd.*, No 2-22-CV-00398 (E.D. Tex.).

Requester filed *inter partes* review petitions against the '777 patent on June 29, 2023. IPR2023-01101, Paper 1; IPR2023-01102, Paper 1. The Patent Trial and Appeal Board ("the PTAB") denied *inter partes* review.

This request, however, does not raise "the same or substantially the same prior art or arguments" previously presented, including in IPR2023-01101 and IPR2023-01102. 35 U.S.C. § 325(d). This request is based on prior art that the Office did not have before it or did not fully consider during the prosecution of the '777 patent, and that the PTAB did not have before it in IPR2023-01101 and IPR2023-01102, and which discloses or suggests the features recited in the challenged claims, especially under the broadest reasonable interpretation standard applicable to this request. And the references used in this request are substantially different than those used in the aforementioned *inter partes* reviews.

## III. Identification of Claims and Citation of Prior Art Presented

Requester respectfully requests reexamination of claim 1 of the ’777 patent in view of the following prior art references.

| | |
|---|---|
| Ex. PA-1 | U.S. Patent Application Publication No. 2009/0096413 to Partovi *et al.* (“*Partovi*”) |
| Ex. PA-2 | U.S. Patent No. 8,369,905 (“*Sogabe*”) |

A copy of each of the above-listed references is attached to this request pursuant to 37 C.F.R. § 1.510(b)(3). A copy of the ’777 patent is also attached to this request as Exhibit PAT-A pursuant to 37 C.F.R. § 1.510(b)(4).

## IV. Overview of the ’777 Patent

### A. Specification and Drawings of the ’777 Patent

The ’777 patent is titled “Powering and/or charging with more than one protocol.” The named inventor is Afshin Partovi. It issued from United States Patent Application No. 16/199,904, which was filed on November 26, 2018. The ’777 patent is a continuation-in-part of U.S. patent application No. 14/929,315, filed on October 31, 2015, now U.S. Patent No. 10,141,770, which is a continuation-in-part of application No. 13/352,096, filed on January 17, 2012, now U.S. Patent No. 9,178,369. The ’777 patent claims priority to provisional application Nos. 61/433,883, filed on January 18, 2011, 61/478,020, filed on April 21, 2011, and 61/546,316, filed on October 12, 2011. Mojo asserts that claims 1 and 15 of the ’777 patent have a January 18, 2011 priority date. *See* Ex. LIT-1 at 7. The ’777 patent issued on May 24, 2022.

The ’777 patent is directed to “a base for wirelessly charging and/or wirelessly powering in which multiple inductive charging protocols are used, with one of the protocols using uni-directional messaging and another of the protocols using bi-directional messaging.” Ex. PAT-A at Abstract.

Figure 1 excerpted below shows a diagram of a wireless charging system with some functionality relating to the alleged invention of the ’777 patent.

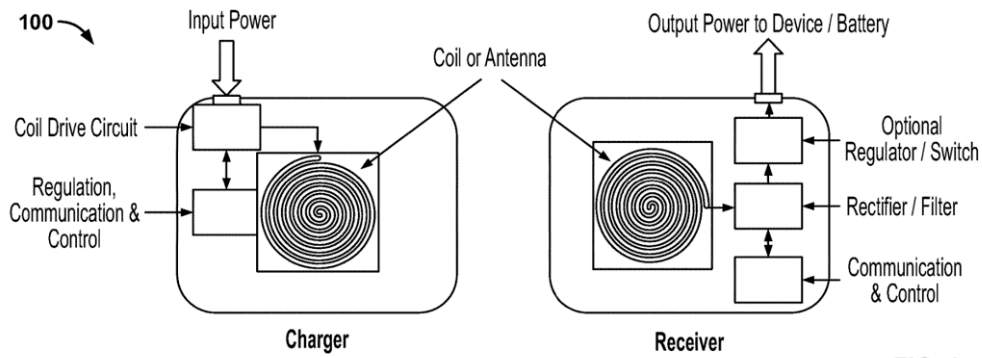

FIG. 1

*Id.* at Figure 1.

The ’777 patent explains the wireless charging system:

> As shown in FIG. 1, in accordance with an embodiment, a wireless charger or power system 100 comprises a first charger or transmitter part, and a second receiver part. The charger or transmitter can generate a repetitive power signal pattern (such as a sinusoid or square wave from 10's of Hz to several MHz or even higher, but typically in the 100 kHz to several MHz range) with its coil drive circuit and a coil or antenna for transmission of the power. The charger or transmitter typically also includes a communication and regulation/control system that detects a receiver and/or turns the applied power on or off and/or modify the amount of applied power by mechanisms such as changing the amplitude, frequency or duty cycle, etc. or a change in the resonant condition by varying the impedance (capacitance or inductance) of the charger or a combination thereof of the applied power signal to the coil or antenna.

*Id.* at 9:14-29.

Figure 40 of the ’777 patent excerpted below shows an embodiment of the alleged invention of the ’777 patent:

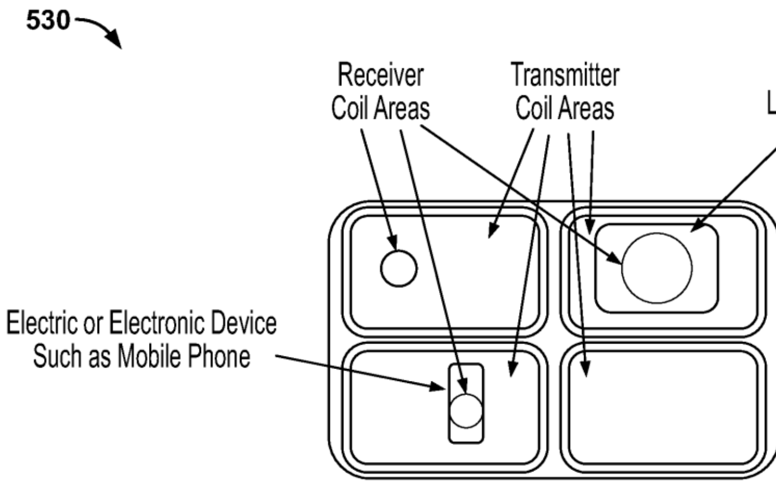


**FIG. 40**

*Id.* at Figure 40.

The ’777 patent describes Figure 40 as follows:

> FIG. 40 shows a geometry 530 where multiple transmitter coils cover different areas of a multi-charger/power supply. Within each section, devices with different power rating and/or coil size and/or using the same or different protocols may receive the appropriate voltage and power required. Loosely coupled systems or tightly coupled position free systems within each section can be used to achieve positioning freedom. Although support of multiple protocols or power or voltage levels would require that any system employed in each section be flexible and adaptable in these regards.

*Id.* at 57:55-65.

The inventors of the ’777 patent were involved with problems related to freedom of position, multi-protocol support, and multi-power-level support. (*See, e.g.*, *id.* at 1:46-2:3; *see also* Ex. PA-DEC at ¶¶66-72.)

### B. Prosecution History of the ’777 Patent

During prosecution of the ’777 patent, the applicant was rejected multiple times and continually amended the claims. (*See, e.g.,* Ex. PAT-B at 238 (1st Office Action dated 4/2/2019), 229 (Response to 1st Office Action), 217 (2nd Office Action dated 9/18/2019), 212 (Response to 2nd Office Action), 188 (3rd Office Action dated 1/22/2020), 177 (Response to 3rd Office Action), 162 (4th Office Action dated 10/14/2020), 149 (Response to 4th Office Action), 130 (5th Office Action dated 4/27/2021), 91 (Response to 5th Office Action).) During most of prosecution, the claims required "provid[ing] power to each of a plurality of receivers simultaneously." Ex. PAT-B (Response to 3rd Office Action) at 178. The applicant even asserted that "all claims are directed to technology in which all charging function occurs simultaneously and not sequentially or in round robin method." Ex. PAT-B (Response to 4th Office Action) at 155. Then, the applicant substantially amended the claims in the current form (with correction), which led to the allowance, even though all that was needed for allowance was a terminal disclaimer. *Id*., 133 (5th Office Action dated 4/27/2021), 111 (Response to 5th Office Action), 73 (Notice of Allowance). However, as explained throughout this report, the features identified by the examiner were well-known in the art at the time of the invention.

### C. Level of Ordinary Skill

A person of ordinary skill in the art ("POSITA") around the time of the purported invention would have had at least a master's degree in electrical engineering, or a similar discipline, and at least two years of experience in the relevant field, e.g., wireless power transfer. More education can supplement practical experience and vice versa. (Ex. PA-DEC, ¶¶20-21.)

## V. Claim Construction

"During patent examination, the pending claims must be 'given their broadest reasonable interpretation consistent with the specification.'" MPEP § 2111; *see also* MPEP § 2258. Limitations in the specification are not read into the claims. MPEP § 2258. The standard of claim interpretation in reexamination is different than that used by the courts in patent litigation.[1] Therefore, any claim interpretations submitted or implied herein for the purpose of this reexamination do not necessarily correspond to the appropriate construction under the legal standards mandated in litigation. MPEP § 2686.04.11; *see also In re Zletz*, 893 F.2d 319, 322, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). For purposes of this request, Requester believes that no special constructions of the challenged claims, other than the term identified below, are needed over the asserted prior art.

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1 Requester reserves all rights and defenses available including, without limitation, defenses as to invalidity, unenforceability, and non-infringement regarding the '777 patent. Further, because the claim interpretation standard used by courts in patent litigation is different from the appropriate standard for this reexamination, any claim constructions submitted or implied herein for the purpose of this reexamination are not binding upon Requester in any litigation related to the '777 patent. Specifically, any interpretation or construction of the claims presented herein or in Dr. Baker's declaration for reexamination, either implicitly or explicitly, should not be viewed as constituting, in whole or in part, the Requester's own interpretation or construction of such claims.

Requester believes no constructions are needed under the broadest reasonable interpretation. Nonetheless, the claims would be unpatentable under any reasonable construction of the terms given how closely the prior art maps to the claims. This is particularly true given that the broadest reasonable interpretation standard governs this request.

## VI. Statement of Substantial New Questions of Patentability

The following combinations of prior art disclose or suggest all of the features of claim 1 of the ’777 patent.

**SNQ1**: *Partovi* and *Sogabe* raise a substantial new question of patentability (SNQ1) with respect to claims 1 and 15 of the ’777 patent.

The above combination was not applied in a rejection by the Patent Office prosecution. Nor were they presented in IPR2023-01101 and IPR2023-01102, which involved different prior art combinations. While *Sogabe* was applied as a primary reference in the IPRs, it is not presented as a primary reference in the instant request. *Instead*, as explained in detail below, *Partovi* is relied upon for almost all limitations. Thus, “the request is not based on the same or substantially the same prior art or arguments presented in the prior petition.” Control No. 90/015,130, Order Granting Request for Ex Parte Reexamination (November 17, 2022) at 10-11.

For the reasons discussed below and in the accompanying declaration of Dr. Baker (Ex. PA-DEC), *Partovi* and *Sogabe* raise a substantial new question of patentability (SNQ1) with respect to claims 1 and 15 of the ’777 patent.

### A. SNQ1: *Partovi* in View of *Sogabe* Discloses or Suggests Claims 1 and 15

Even assuming *arguendo* that claims 1 and 15 of the ’777 patent are entitled to the January 18, 2011 date Mojo contends as the effective filing date, *Partovi* and *Sogabe* are prior art.

#### 1. Overview of *Partovi*

*Partovi* was filed on May 7, 2008 and published on April 16, 2009, and thus qualifies as prior art at least under pre-AIA 35 U.S.C. § 102(b).

*Partovi* discloses a system for “powering or charging electrical, electronic, battery-operated, mobile, rechargeable batteries.” (Ex. PA-1, ¶[0091].) The system includes “two parts.” (*Id.*) “The first part is a pad or similar base unit that contains a primary, which creates an alternating magnetic field by means of applying an alternating current to a winding, coil, or any type of current carrying wire.” (*Id.*) “[T]he pad can also contain multiple coils or sections to charge or power various devices or to allow charging or powering of devices or batteries placed anywhere on the pad." (*Id.*) *Partovi* discloses many examples of such a charging pad. For example, "FIG. 3 shows a charging pad using multiple coils" whereas "FIG. 4 shows a charging pad using multiple overlapping coil layers." (*Id.*, ¶¶[0121]-[0122].) Further examples of the coil arrangement in the charging pad are set forth with reference to Figures 36-38. (*Id.*, ¶¶[0051]-[0053].)

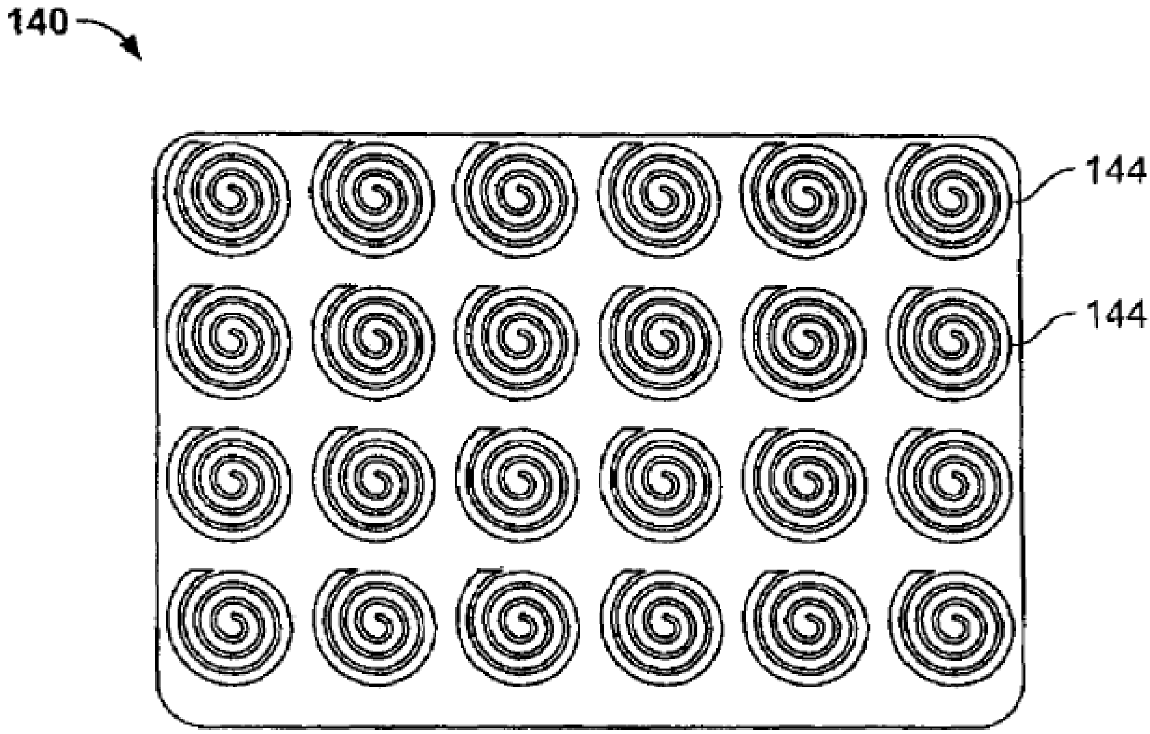


FIG. 3

(*Id.*, FIG. 3.)

"The second part of the system is a receiver that comprises a means for receiving the energy from the alternating magnetic field from the pad and transferring it to a mobile battery, or other device. The receiver can comprise coils, windings, or any wire that can sense a changing magnetic field, and rectify it to produce a direct current (DC) voltage, which is then used to charge or power the device or battery." (*Id.*, ¶[0091].) The "receiver can also contain circuitry to sense and determine the status of the electronic device or battery to be charged, the battery inside a device, or a variety of other parameters and to communicate this information to the pad." (*Id.*, ¶[0092].)

A specific example of the circuitry associated with the charging pad and the receiver is set forth with reference to "FIG. 34," which "shows the main components of a more advanced wireless power/charging system." (*Id*., ¶[0285].) As shown in Figure 34, the charger provides power to a receiver, which is integrated into a mobile device or electronic device battery. (*Id*., ¶[0285].) The receiver shown in Figure 34 has a receiver coil L2, a battery, and a microcontroller MCU2.

**2. Overview of *Sogabe***

*Sogabe* was filed 7/15/2009 and thus qualifies as prior art at least under pre-AIA 35 U.S.C. § 102(e). *Sogabe* discloses examples of a system including a charging electronic apparatus, such as a charger/cradle 500, that inductively powers/charges an electronic apparatus, such a phone 510 (or other type of electronic apparatus with a load/battery). (Ex. PA-2, 1:43-5:7, 5:59-6:38, FIGS. 1A-1C.)

The charger/cradle includes a power transmission device 10 and the cell phone (or other device) includes a power receiving device 40 coupled to a load/battery 90/94. (*Id.*, 5:16-19, 5:60-65, 6:39-55.) Figures 2 and 9 illustrate examples of power transmission device 10 and power receiving device 40. (*Id.*, FIGs. 2, 9; *see also id.*, 5:33-35, 22:7-24:17 (describing additional component details of an exemplary system including power transmission device 10 and power receiving device 40).)

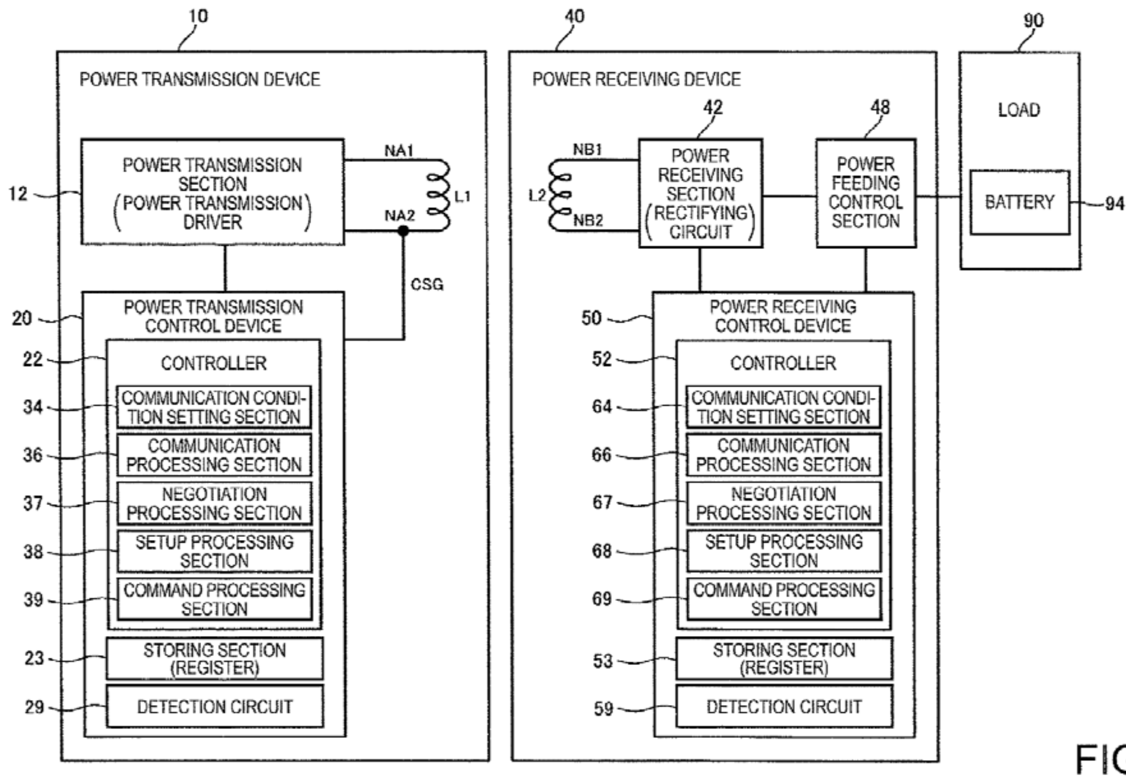
10
POWER TRANSMISSION DEVICE
12
POWER TRANSMISSION SECTION (POWER TRANSMISSION DRIVER)
NA1
NA2
L1
CSG
20
POWER TRANSMISSION CONTROL DEVICE
22
CONTROLLER
34
COMMUNICATION CONDITION SETTING SECTION
36
COMMUNICATION PROCESSING SECTION
37
NEGOTIATION PROCESSING SECTION
38
SETUP PROCESSING SECTION
39
COMMAND PROCESSING SECTION
23
STORING SECTION (REGISTER)
29
DETECTION CIRCUIT
40
POWER RECEIVING DEVICE
42
48
NB1
L2
NB2
POWER RECEIVING SECTION (RECTIFYING CIRCUIT)
POWER FEEDING CONTROL SECTION
50
POWER RECEIVING CONTROL DEVICE
52
CONTROLLER
64
COMMUNICATION CONDITION SETTING SECTION
66
COMMUNICATION PROCESSING SECTION
67
NEGOTIATION PROCESSING SECTION
68
SETUP PROCESSING SECTION
69
COMMAND PROCESSING SECTION
53
STORING SECTION (REGISTER)
59
DETECTION CIRCUIT
90
LOAD
BATTERY
94

FIG. 2

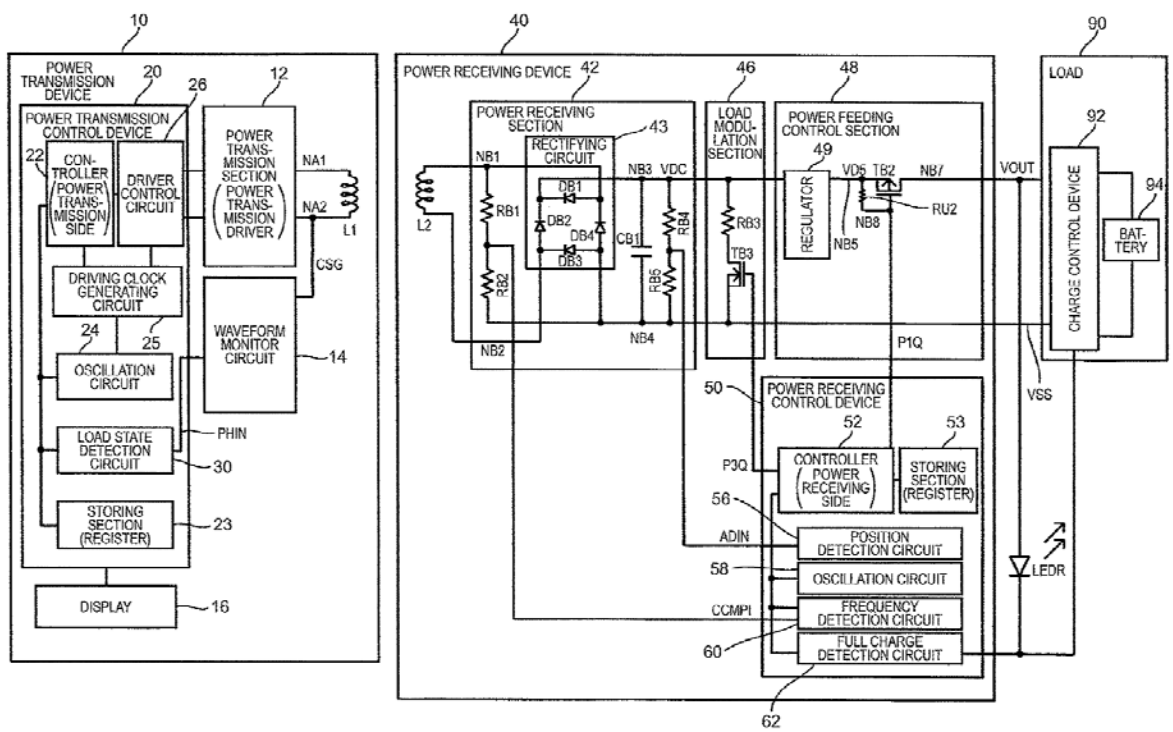
10
POWER TRANSMISSION DEVICE
20
26
12
POWER TRANSMISSION CONTROL DEVICE
22
CONTROLLER (POWER TRANSMISSION SIDE)
DRIVER CONTROL CIRCUIT
POWER TRANSMISSION SECTION (POWER TRANSMISSION DRIVER)
NA1
NA2
L1
CSG
DRIVING CLOCK GENERATING CIRCUIT
24
25
OSCILLATION CIRCUIT
WAVEFORM MONITOR CIRCUIT
14
LOAD STATE DETECTION CIRCUIT
PHIN
30
STORING SECTION (REGISTER)
23
DISPLAY
16
40
POWER RECEIVING DEVICE
42
POWER RECEIVING SECTION
43
RECTIFYING CIRCUIT
NB1
L2
RB1
RB2
NB2
DB1
DB2
DB3
DB4
NB3
VDC
CB1
RB4
RB5
NB4
46
LOAD MODULATION SECTION
RB3
TB3
48
POWER FEEDING CONTROL SECTION
49
REGULATOR
VD5
TB2
NB7
NB8
NB5
RU2
P1Q
VOUT
VSS
50
POWER RECEIVING CONTROL DEVICE
52
53
CONTROLLER (POWER RECEIVING SIDE)
STORING SECTION (REGISTER)
P3Q
56
ADIN
POSITION DETECTION CIRCUIT
58
OSCILLATION CIRCUIT
CCMPI
FREQUENCY DETECTION CIRCUIT
60
FULL CHARGE DETECTION CIRCUIT
62
LEDR
90
LOAD
92
CHARGE CONTROL DEVICE
94
BATTERY

FIG. 9

**3. Claim 1**

**a. A base system for inductive charging of an electronic device comprising an inductive charging receiver and a battery electrically coupled to the inductive charging receiver, the base system comprising:**

To the extent the preamble is limiting, *Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶83-84.) For example, *Partovi*, discloses a charger ("**base system**") and a receiver ("**inductive charging receiver**") coupled to a battery ("**battery electrically coupled to the inductive charging receiver**"). (*See* Ex. PA-1, ¶[0285], FIG. 34.) *Partovi*'s receiver is integrated into or on a mobile or **electronic device** or a rechargeable **battery**. (*Id.*)

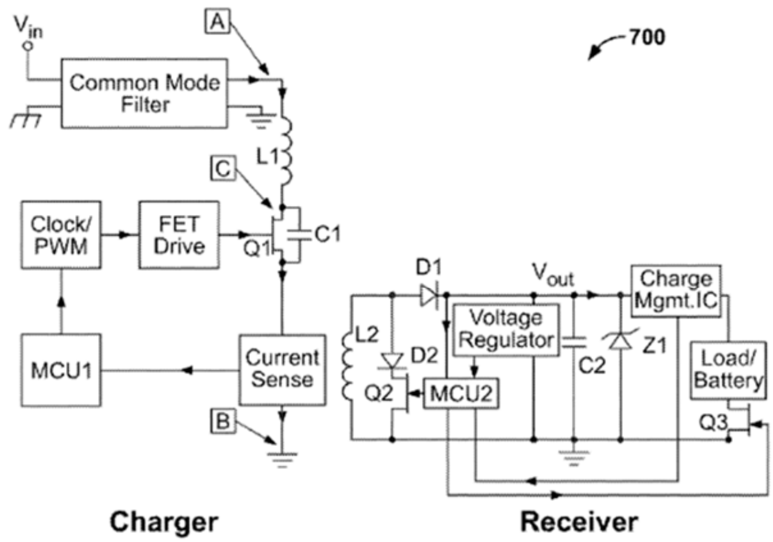


FIG. 34

(*Id.*, FIG. 34.)

The system of Figure 34 involves "**inductive charging**." For example, the microcontroller MCU1 enables the FET driver to drive the primary coil L1 in the charger "to energize the receiver." (Ex. PA-1, ¶[0298].) The FET driver drives the coil by switching the primary coil through the FET Q1. (*Id.*, ¶[0290].) When the coil is switched, an AC voltage is generated across the primary coil, which results in an AC magnetic field. (*Id.*, ¶[0117].) This AC magnetic field in turn generates a voltage in the receiver coil L2 in the receiver that is rectified and smoothed to generate a charging current that charges the battery. (*Id.*, ¶¶[0117][2], [0262] ("As the primary charger or power supply sends power to the secondary receiver, the circuit in the receiver turns on. The power

[2] Paragraph 117 merely describes the basic principles of inductive charging applicable to the various inductive charging systems disclosed in *Partovi*.

received is rectified and filtered by rectifier D1 and Capacitor C2 respectively. . . . The output of the rectified stage is input to a device or Charge Management IC for the case of a battery charger configuration. This Charge Management IC is integrated into most Original Equipment Manufacturer (OEM) mobile devices that operate by rechargeable batteries or can be integrated into or on a rechargeable battery to directly charge the battery when the battery is in proximity to the charger."), [0295] (switching the transistor Q1, which is in series with primary coil L1, results in L1 emitting power to the receiver).[3])

**b. an inductive charging coil;**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶85.) *Partovi*'s primary coil L1 is an "**inductive charging coil**" because it creates an alternating magnetic field to inductively transfer power to the receiver. (*See supra* Section VI.A.3.a.)

**c. a coil drive circuit electrically coupled to the inductive charging coil,**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶86.) For instance, *Partovi*'s charger comprises a FET driver ("**coil drive circuit**") that switches the primary coil L1 ("**electrically coupled to the inductive charging coil**"). (*See supra* Section VI.A.3.a.)

**d. wherein the coil drive circuit provides power to the inductive charging coil by switching a voltage input to the inductive charging coil at an operating frequency;**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶87-88; *see supra* Section VI.A.3.a.) For example, the microcontroller MCU1 enables the FET driver to drive the primary coil L1 in the charger "to energize the receiver." (Ex. PA-1, ¶[0298].) The FET driver drives the coil by switching the primary coil through the FET Q1. (*Id.*, ¶[0290].) This "**provides power to**" the primary coil L1 ("**inductive charging coil**"). (*Id.*, ¶[0247] ("the current through the primary coil stores energy in this coil and … [t]he energy stored in the coil is directly proportional to the inductance of the coil and values of several hundred Henry are typical for 10's or 100's of Watts of power supply power.").)

[3] Figures 34 and 28 of *Partovi* have identical components. Therefore, the description of Figure 28 is applicable to Figure 34 as the structures shown in the figures are identical. In fact, Figure 28 shows a basic wireless charging system, whereas Figure 34 is an enhancement of the system shown in Figure 28. (Ex. PA-1, ¶¶[0270, [0285].) Thus, the description of Figure 28 is applicable to Figure 34.

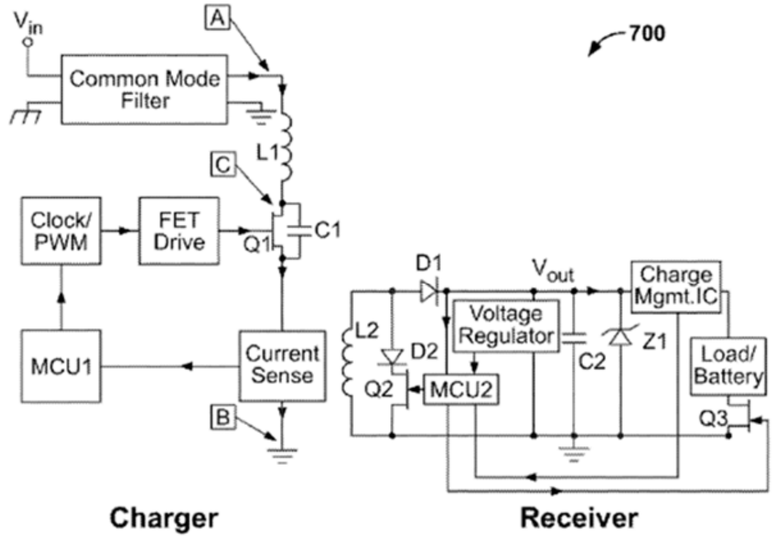


FIG. 34

(*Id.*, FIG. 34.)

Switching the primary coil through the FET Q1 means that the FET drive circuit switches the voltage across the primary coil L1 at an operating frequency ("**switching a voltage input to the inductive charging coil at an operating frequency**"). (*Id.*, ¶¶[0117] ("the charger 112 comprises a power source 118, and <u>a switch T 126 [] that is switched at an appropriate frequency</u> to generate an AC voltage across the primary coil Lp 116 and generate an AC magnetic field"); [0246] ("<u>the input voltage is switched rapidly</u> by a transistor such as a FET and the energy is transferred across a transformer to a load. In accordance with an embodiment, by adjusting the duty cycle of the switching circuit, regulation of transferred power is achieved"); [0259] ("Micro Controller Unit (MCU) <u>varies the frequency or the duty cycle of the FET driver</u> to achieve optimum operation and controlled output voltage with a changing load")) (emphases added).)

**e. a current detection circuit electrically coupled to the inductive charging coil; and**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶89.) For instance, *Partovi* discloses a current sense circuit ("**current detection circuit**") coupled to the primary coil L1 ("**coupled to the inductive charging coil**") via switch Q1. (*See* Ex. PA-1, FIG. 34, ¶[0295] ("This receiver modulation can be detected as a current modulation in the current through the L1 by the . . . power supply current sensor in FIG. 34."); *id.*, ¶[0261] ("Micro Control Unit (MCU1) [] receives signals from a Current Sensor in series with the coil."). ¶[0262] ("However, this modulation of the impedance of the secondary stage affects the current through the primary coil stage and can be easily detected by the Current Sense circuit in the primary.”).)

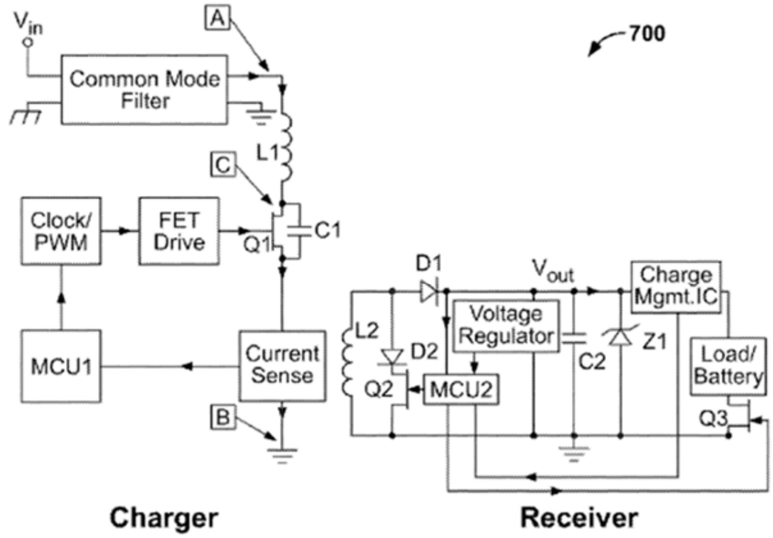


FIG. 34

(*Id.*, FIG. 34.)

**f. a microcontroller, wherein the microcontroller is configured for: operating in a first mode of operation using a first protocol, wherein the first protocol is an inductive charging communication-and-control protocol that comprises uni-directional messaging,**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶90-93.) *Partovi* discloses a microcontroller MCU1 coupled to the primary coil L1. (*See* Ex. PA-1, ¶[0285], FIG. 34.) MCU1 operates in two modes. (*Id.*, ¶¶[0295]-[0297].)

In the first mode, there is a “handshake and verification between the charger . . . and the receiver.” (*Id.*, ¶[0297].) In this first mode, the MCU1 periodically starts the FET driver, which switches Q1 resulting in power transmission to the receiver. (*Id.*, ¶[0295].) “[T]he emitted power . . . will power the receiver circuit.” (*Id.*) Then, microcontroller (MCU2) in the receiver “executes a predetermined program that modulates the current being drawn in the receiver in a predetermined code (which can be encrypted). This receiver modulation can be detected as a current modulation in the current through the L1 by the charger or power supply current sensor in FIG. 34.” (*Id.*) MCU1 is therefore configured to operate “**in a first mode of operation using a first protocol**,” where the “**first protocol**” corresponds to the sequence of events, including the MCU1 driving the

FET driver to power the receiver, which in turn sends a predetermined code to the charger. (Ex. PA-DEC, ¶91.)

The protocol noted above involves "**inductive charging**" and "**communication-and-control**." For example, the primary coil L1 inductively emits power that powers the receiver circuit. Thus, there is "**inductive charging**." Furthermore, the receiver executes a predetermined program to cause a current modulation in the current of the primary coil L1. That is, the receiver sends a uni-directional message (e.g., the "predetermined code") during the "handshake and verification" phase. (Ex. PA-1, ¶¶[0295], [0307].) During the hand shake, the mobile device "can [also] indicate its power/voltage requirements to the . . . charger or power supply." (Ex. PA-1, ¶¶[0124], [0307].) The messaging is uni-directional during the above handshake and verification mode because *Partovi* states that "[a]fter the initial handshake and verification, the MCU1 and current sense chips in the charger or power supply and MCU2 can provide bi-directional communication between the charger or power supply and the receiver for optimum charging or supply of power." (*Id.*, ¶[0296] (emphasis added).) This uni-directional message allows the charger to confirm that the receiver is an "appropriate receiver" (e.g., not a "counterfeit or non-approved" receiver) and to continue powering it. (*Id.*, ¶[0297].) Except for a power transfer from the primary coil L1, there is no communication being sent from the charger to the receiver in this mode; thus, the first mode comprise uni-directional messaging. (Ex. PA-DEC, ¶92.) This first protocol noted above is also a "**communication-and-control**" protocol because of communication from the receiver to the charger and the ensuing control by the charger (e.g., the charger continuing to power the receiver).

*Partovi* discloses a "first protocol" in an additional way. Specifically, *Partovi* discloses that RFID may be used to transmit the first communication from the receiver to the charger, where the microcontroller MCU2 acts as an "RFID transponder chip" "that upon power-up modulates the current in the receiver that can then be detected as current modulation in the primary." (Ex. PA-1, ¶[0192]; *see also id.*, ¶[0142] ("the receiver in the battery or mobile device also includes a means for providing information regarding battery manufacturer, required voltage, capacity; current, charge status, serial number, temperature, etc. to the charger. In a simplified embodiment, only the manufacturer, required voltage, and/or serial number is transmitted. This information is used by the charger or power supply to adjust the primary to provide the correct charge or power conditions. . . . As described above, the information exchange between the charger and the receiver can be through an RF link or an optical transmitter/detector, RFID techniques, Near-Field Communication (NFC), Felica, Bluetooth, WiFi, or some other method of information transfer. . . . The communication link can also use the same coil or wires as antenna for data transfer or use a separate antenna."); *id.*, ¶[0107] ("In one embodiment, the coils in the mobile device charger/power supply that are used for powering or charging the mobile device, or another set of coils in the same PCB layer or in a separate layer, can be used for data transfer between the mobile device charger/power supply and the mobile device to be charged or powered or the battery directly. Techniques employed in radio and network communication, such as radio frequency identification (RFID), Bluetooth, WiFi, Wireless USB, or others can be used. In one embodiment a chip connected to an antenna (for example, the receiver coil . . .) . . . can be used to provide information about, for example, the presence of the mobile device or battery, its authenticity (for example its manufacturer code) and the devices' charging/power requirements (such as its required voltage, battery capacity, and charge algorithm profile).) RFID is a "first protocol."

**g. wherein the first mode of operation comprises: receiving, using the current detection circuit, a first communication from the inductive charging receiver of the electronic device, wherein the first communication is based on the first protocol; and**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶94-95.) As discussed above in Section VI.A.3.f (claim limitation [1.f]), *Partovi* discloses that the MCU2 in the receiver circuit executes "a predetermined program that modulates the current being drawn in the receiver in a predetermined code (which can be encrypted). This receiver modulation can be detected as a current modulation in the current through the L1 by the charger or power supply current sensor in FIG. 34." (Ex. PA-1, ¶[0295], FIG. 34.) This communication from the receiver allows the charger to ensure that the receiver is genuine/approved to receive power transfer. (*Id.*, ¶[0297]; *see also id.*, ¶¶[0328]-[0329] ("If a receiver coil is nearby, it begins drawing power from the charger or power supply coil. This can be sensed as a higher than normal current draw in the current sense circuit of the charger or power supply. Additionally, the charger or power supply and receiver coil can exchange a code to confirm that a valid device or battery with appropriate circuitry is nearby and verified.").) *Partovi* thus discloses "**receiving, using the current detection circuit**" (the current sensor in the charger is the "**current detection circuit**") "**a first communication from the inductive charging receiver of the electronic device**." *Partovi* provides another example of the "**first communication**" as an indication by the receiver of "its power/voltage requirements."

(*Id.*, ¶[0124] ("the mobile device or battery, during its hand shake and verification process can indicate its power/voltage requirements to the mobile device or battery charger or power supply.").) (Ex. PA-DEC, ¶94.)

Furthermore, "**the first communication is based on the first protocol**" because it is part of the sequence of events, including the MCU1 driving the FET driver to power the receiver, which in turn sends a predetermined code to the charger. (*See supra* Section VI.A.3.f.) The first communication is also based on the "first protocol" because RFID communication is used to send the first communication. (*Id.*)

**h. [wherein the first mode of operation comprises:] regulating power delivered to the battery of the electronic device in response to the received first communication; and**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶96-97.) *Partovi* discloses that once the charger receives the power/voltage requirements of the mobile device or battery ("**first communication**") and verifies the authenticity of the mobile device or device during the handshake process, the MCU1 controls the primary coil L1 to create the appropriate voltage/current in the receiver to deliver power to the battery ("**in response to the received first communication regulating power delivered to the battery of the electronic device**"). (Ex. PA-1, ¶[0298] ("Once the information is read and verified, the MCU1 can enable the FET driver to start driving the coil on the pad and to energize the receiver."), ¶[0237] ("The MCU receives input from another sensor mechanism that will provide information that it can then use to decide whether a device is nearby, what voltage the device requires, and/or to authenticate the device to be charged. <u>The communicated feedback from the receiver to primary can be used by the primary to, for example, adjust the frequency, or to otherwise alter the output voltage to that receiver, using the frequency/output characteristics described above</u>.") (emphasis added), ¶[0129] ("In one embodiment, the receiver or the mobile device can . . . inform the charger or power supply about the voltage/current characteristics of the device or battery. <u>The primary of the charger or power supply . . . can be driven to create the appropriate voltage/current in the receiver</u>. For example, the duty cycle of the switch in that circuit can be programmed with a microprocessor to be changed to provide the appropriate levels in the receiver.") (emphasis added).) Energizing the receiver will deliver power to the battery. (Ex. PA-1, claim 1 ("wherein the secondary coil receives energy inductively from the primary coil and uses it to charge or power the portable device or battery"), ¶[0262] (explaining that the power received from the charger is rectified to charge the battery).)

It should be noted that the initial charging of the battery after the handshake and verification is part of the "**first mode**." The '777 patent does not demarcate any boundaries for what constitutes a first or a second mode. (Ex. PA-Dec, ¶97.)

**i. [wherein the microcontroller is configured for:] operating in a second mode of operation using a second protocol, wherein the second protocol is an inductive charging communication-and-control protocol that defines bi-directional messaging,**

*Partovi* alone or in combination with *Sogabe* discloses or suggests this limitation. (Ex. PA-DEC, ¶¶98-103.) *Partovi* discloses that after the initial handshake and verification, the system enters a second mode in which the MCU1 ("**microcontroller**") and current sense chips in the charger and MCU2 can provide "**bi-directional"** communication between the charger or power supply and the receiver for optimum charging or supply of power. (Ex. PA-1, ¶[0296] ("After the initial handshake and verification, the MCU1 and current sense chips in the charger or power supply and MCU2 can provide bi-directional communication between the charger or power supply and the receiver for optimum charging or supply of power. The system can also regulate the power and voltage received at the Charge Control Circuit to insure overvoltage conditions do not occur.").) In this mode, the charger inductively powers the battery in the receiver and controls the charging of the battery in a closed-loop manner based on communications received from the receiver. (*Id*., ¶¶[0262]-[0266] ("In another implementation, MCU2 sends one of 2 values corresponding to a voltage high or low condition. If the voltage is within range, MCU2 does not communicate with the primary. When a voltage high signal is received, MCU1, takes a pre-determined step towards higher frequency to lower the output power and the process is repeated until output voltage is within required range. A voltage low signal has the opposite effect."); ¶¶[0129]-[0131] ("Furthermore, the induced voltage/current in the mobile device can be sensed and communicated to the charger to form a closed-loop, and the duty cycle, frequency, and/or voltage of the switch can be adjusted to achieve the desired voltage/current in the mobile device.").)

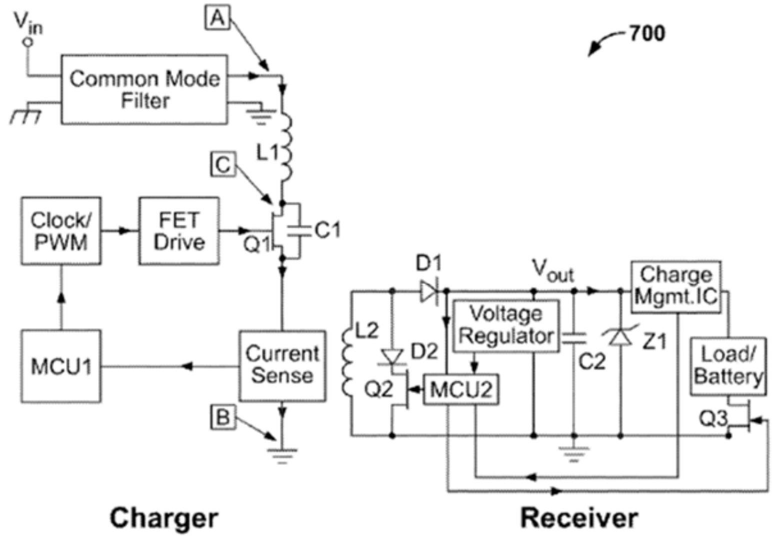

FIG. 34

(*Id.*, FIG. 34.)

Thus, MCU1 operates in a "**second mode**" in which there is bi-directional communications between the charger and the receiver, and in this mode there is both inductive charging and communication-and-control, as discussed above. The communication is bi-directional because the receiver sends data (e.g., charging status, voltage-high/low signal) to the charger, as discussed above, while the charger also sends data to the receiver. (Ex. PA-1, ¶[0268] ("In accordance with an embodiment, this bi-directional data transfer can also be used for actual data communication between a device and a charger or power supply. For example, the charger or power supply can be powered by the USB outlet of a laptop and simultaneously receive data from the laptop to be transferred to a mobile device. When a mobile device or battery is on the charger or power supply, it can be charged or powered, and its data can also be synchronized simultaneously through this channel.").)

This "**second mode**" involves a "**second protocol**" because, for example, there is bi-directional communication and a sequence of events (e.g., data transfer from charger to receiver along with power transfer with the power adjusted based on charging status of the battery).

*Partovi* teaches that the second mode is based on a "**second protocol**" in an additional way. *Partovi* discloses that the data communication between the charger and the receiver can be accomplished via the "Bluetooth" protocol. (Ex. PA-1, ¶¶[0107], [0142] ("As described above, the information exchange between the charger and the receiver can be through an RF link or an optical transmitter/detector, RFID techniques, Near-Field Communication (NFC), Felica, Bluetooth, WiFi, or some other method of information transfer.").) A POSITA would have been motivated to use the "Bluetooth" protocol for data transfer because Bluetooth was a well-known communication method for fast data transfer. (Ex. PA-Dec, ¶101, *see also* Ex. PA-29, [0116]-[0118], ("Once the devices are within the distance boundary, the devices can be connected automatically. BLUETOOTH also provides a fast and secure transmission of voice and data even when the devices do not have a line of sight.").) For example, *Partovi* explains that in this second mode, the charger may transfer data to the mobile device that the charger has obtained over USB from a laptop. (Ex. PA-1, ¶[0268].) Such data could include, for example, video or audio files and Bluetooth was well-known for communicating such data between devices. (Ex. PA-Dec, ¶101.)

*Sogabe* provides additional motivation to utilize a different protocol in the two modes. *Sogabe* discloses examples of a system including a charging electronic apparatus, such as a charger/cradle 500, that inductively powers/charges an electronic apparatus, such a phone 510 (or other type of electronic apparatus with a load/battery). (Ex. PA-2, 1:43-5:7, 5:59-6:38, FIGS. 1A-1C.) *Sogabe* is therefore like *Partovi* in that it discloses inductive charging.

*Sogabe* discloses "communication is performed by a first communication method before the start of normal power transmission while communication is performed by a second communication method after the start of normal power transmission." (*Id.*, 12:14-20.) *Sogabe* also discloses the second communication method may be done using "frequency modulation." (*Id.*, 12:20-25, ("For example, information communication is performed by a communication method using the RF-ID tag before the start of normal power transmission while communication is performed by another communication method using load modulation or frequency modulation after the start of normal power transmission.").) *Sogabe* discloses "[w]ith the communication methods different before and after the start of normal power transmission, communication can be performed, by an optimum communication method in each period of before and after the start of normal power transmission, also in power transmission systems with multiple power specifications." (*Id.*, 12:31-37.) Therefore, a person of ordinary skill in the art would have been motivated to combine the teachings of *Partovi* and *Sogabe* to allow the charger of *Partovi* to use an optimal communication method before and after power transmission begins. For example, *Sogabe* provides the motivation to use RFID in *Partovi*'s handshake and verification mode, and to use Bluetooth as the communication protocol during the normal charging mode when data transfer takes place from the charger to the receiver. A POSITA would have a reasonable expectation of success in combining the teachings of *Partovi* and *Sogabe* as discussed above because *Partovi* already discloses using multiple communication methods for data exchange between the charger and the receiver. (Ex. PA-DEC, ¶103.)

**j. wherein the second mode of operation comprises: receiving, using the current detection circuit, a second communication from the inductive charging receiver of the electronic device, wherein the second communication is based on the second protocol;**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶104-105.) *Partovi* discloses that in the charging mode, the receiver circuit indicates the voltage/current in the receiver to the MCU1, which accordingly controls the power emitted by the primary coil L1. (Ex. PA-1, ¶¶[0129]-[0131] ("Furthermore, the induced voltage/current in the mobile device can be sensed and communicated to the charger to form a closed-loop, and the duty cycle, frequency, and/or voltage of the switch can be adjusted to achieve the desired voltage/current in the mobile device").) For example, "[i]n one implementation, the receiver sends a digital code corresponding to the output voltage and MCU1 compares this to the earlier output voltage value and makes a determination about which direction and by how many steps to move the frequency. The frequency is then changed accordingly." (*Id.*, ¶[0265].) "In another implementation, MCU2 sends one of 2 values corresponding to a voltage high or low condition. If the voltage is within range, MCU2 does not communicate with the primary. When a voltage high signal is received, MCU1, takes a pre-determined step towards higher frequency to lower the output power and the process is repeated until output voltage is within required range." (*Id.*) *Partovi* thus discloses "**a second communication from the inductive charging receiver of the electronic device, wherein the second communication is based on the second protocol**." The "**second communication is based on the second protocol**" as it is received during the charging mode. Furthermore, the second communication is based on the second protocol because, as discussed previously, it is received using Bluetooth.

Moreover, this second communication is received by MCU1 through the current sense circuit ("**receiving, using the current detection circuit**"). (*Id.*, ¶[0296] ("After the initial handshake and verification, the MCU1 and current sense chips in the charger or power supply and MCU2 can provide bi-directional communication between the charger or power supply and the receiver for optimum charging or supply of power. The system can also regulate the power and voltage received at the Charge Control Circuit to insure overvoltage conditions do not occur.") (emphasis added), ¶[0262] ("The Charge Management IC is in communication with the MCU**2** which also monitors the output voltage (Vout) and tries to maintain this Vout within a pre-programmed range. This is achieved by MCU**2** sending a digital signal to Q**2** to modulate the switch. This modulation is prior to the rectifier stage and is at high frequency so the rectified and smoothed Vout is not affected. However, this modulation of the impedance of the secondary stage affects the current through the primary coil stage and can be easily detected by the Current Sense circuit in the primary."), ¶[0261] ("The communication between the charger and the receiver 630 is achieved through the same coil as the power transfer.").)

**k. [wherein the second mode of operation comprises:] transmitting, by modulating the operating frequency with the coil drive circuit, a frequency-modulated third communication to the inductive charging receiver of the electronic device, wherein the frequency-modulated third communication is based on the second protocol; and**

*Partovi* alone or in view of *Sogabe* discloses or suggests this limitation. (Ex. PA-Dec, ¶¶106-111.)

First, *Partovi* alone discloses this limitation. *Partovi* discloses that the charger communicates data ("**third communication**") to the mobile device during charging (i.e., during the second mode of operation "**based on the second protocol"**). (Ex. PA-1, ¶[0268] ("In accordance with an embodiment, this bi-directional data transfer can also be used for actual data communication between a device and a charger or power supply. For example, the charger or power supply can be powered by the USB outlet of a laptop and simultaneously receive data from the laptop to be transferred to a mobile device. When a mobile device or battery is on the charger or power supply, it can be charged or powered, and its data can also be synchronized simultaneously through this channel.").) Indeed, *Partovi* contemplates "bi-directional communication between the charger . . . and the receiver" in the charging mode (i.e., after the initial handshake and verification is completed). (*Id.*, ¶[0296].) And this data transfer from the charger to the mobile device is accomplished through the primary coil, whose operating frequency is controlled by the FET driver ("**coil drive circuit**"). (*Id.*, ¶[0142] ("The communication link can also use the same coil or wires as antenna for data transfer or use a separate antenna."), ¶[0261] ("The communication between the charger and the receiver 630 is achieved through the same coil as the power transfer."), ¶[0306] ("Each coil drive circuit can periodically start driving the coil at an appropriate frequency . . .") ; *supra* Section VI.A.3.d.) *Partovi* therefore discloses "**wherein the second mode of operation [further] comprises: . . . transmitting . . . third communication to the inductive charging receiver of the electronic device, wherein . . . third communication is based on the second protocol**."

*Partovi* further discloses that the data communication between the charger and the receiver can be accomplished via the "Bluetooth" protocol. (Ex. PA-1, ¶¶[0107], [0142] ("As described above, the information exchange between the charger and the receiver can be through an RF link or an optical transmitter/detector, RFID techniques, Near-Field Communication (NFC), Felica, Bluetooth, WiFi, or some other method of information transfer.").) A POSITA understood that standard Bluetooth utilizes "frequency modulation." (Ex. PA-28, ¶[0045] ("Standard Bluetooth uses frequency modulation . . . .").) Therefore, *Partovi* discloses that the "**third communication**" is "**frequency-modulated**" and "**based on the second protocol**." As discussed above, the frequency of the primary coil is controlled by the FET driver ("**coil drive circuit**") and therefore, the "**third communication**" is transmitted "**by modulating the operating frequency with the coil drive circuit**."

To the extent Patent Owner contends that *Partovi* does not disclose that the third communication is frequency modulated, *Sogabe* discloses such a feature.

*Sogabe* discloses examples of a system including a charging electronic apparatus, such as a charger/cradle 500, that inductively powers/charges an electronic apparatus, such as a phone 510 (or other type of electronic apparatus with a load/battery). (Ex. PA-2, 1:43-5:7, 5:59-6:38, FIGS. 1A-1C.) *Sogabe* also discloses the system has a first and second mode of operation and having different communication methods for each mode of operation. For example, *Sogabe* discloses "data communication from the <u>power transmission side to the power receiving side is realized by the frequency modulation</u> while <u>data communication from the power receiving side to the power transmission side is realized by the load modulation</u>." (*Id.*, 24:18-23 (emphasis added).) In particular, *Sogabe* discloses that "data communication from the power transmission side to the power receiving side is realized by a frequency modulation." (*Id.*, 23:55-59; *see also id.*, 8:59-64, 9:47-56, 10:18-27, 12:20-25, 24:18-23.) The frequency modulation occurs by the power transmission device changing the frequency <u>of the output power</u> to communicate data. (*Id.*, 9:51-56, 10:18-27, 23:60-24:3, FIG. 10A.) Moreover, frequency modulation is used to transmit signals in the normal power transmission mode in accordance with communication conditions specifying frequency modulation communication that can be set during the setup stage. (*Id.*, 8:58-62, 9:38-56, 10:6-27, 23:60-24:3, 24:18-23.)

A POSITA would have been motivated to combine the teachings of *Partovi* and *Sogabe* such that *Partovi*'s data transfer through the primary coil involves frequency modulation. For example, *Sogabe* discloses "communication is performed by a first communication method before the start of normal power transmission while communication is performed by a second communication method after the start of normal power transmission." (*Id.*, 12:14-20.) *Sogabe* also discloses the second communication method may be done using "frequency modulation." (*Id.*, 12:20-25, ("For example, information communication is performed by a communication method using the RF-ID tag before the start of normal power transmission while communication is performed by another communication method using load modulation or frequency modulation after the start of normal power transmission."), 23:55-59 ("In FIGS. 10A and 10B, data communication from the power transmission side to the power receiving side is realized by the frequency modulation while data communication from the power receiving side to the power transmission side is realized by the load modulation. However, another modulation method or other methods may be employed.") *Sogabe* discloses "[w]ith the communication methods different before and after the start of normal power transmission, communication can be performed, by an optimum communication method in each period of before and after the start of normal power transmission, also in power transmission systems with multiple power specifications." (*Id.*, 12:31-37.) Therefore, a person of ordinary skill in the art would have been motivated to combine the teachings of *Partovi* and *Sogabe* to allow the charger of *Partovi* to use an optimal communication method before and after power transmission begins. Moreover, a POSITA would have been motivated to do so because frequency modulation is a well-known technique for transferring data wirelessly. (Ex. PA-DEC, ¶111.) To create the frequency modulation through the primary coil, the frequency at which the primary coil is switched by the FET driver ("**coil drive circuit**") would need to be modulated. (*Id.*) A POSITA would have a reasonable expectation of success in combining the teachings of *Partovi* and *Sogabe* as discussed above because *Partovi* already discloses using multiple communication methods for data exchange between the charger and the receiver and a POSITA knew how to transmit frequency-modulated signals through an antenna such as the primary coil. (*Id.*) Thus, *Partovi* in view of *Sogabe*, discloses or suggests "**modulating the operating frequency with the coil drive circuit**" to transmit a "**frequency-modulated third communication**."

**l. [wherein the second mode of operation comprises:] regulating power delivered to the battery of the electronic device in response to the received second communication;**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶112.) *Partovi* discloses that in the charging mode, the receiver circuit indicates the voltage/current in the receiver to the MCU1, which accordingly controls the power emitted by the primary coil L1. (Ex. PA-1, ¶¶[0129]-[0131] ("Furthermore, the induced voltage/current in the mobile device can be sensed and communicated to the charger to form a closed-loop, and the duty cycle, frequency, and/or voltage of the switch can be adjusted to achieve the desired voltage/current in the mobile device").) For example, "[i]n one implementation, the receiver sends a digital code corresponding to the output voltage and MCU1 compares this to the earlier output voltage value and makes a determination about which direction and by how many steps to move the frequency. The frequency is then changed accordingly." (*Id.*, ¶[0265].) "In another implementation, MCU2 sends one of 2 values corresponding to a voltage high or low condition. If the voltage is within range, MCU2 does not communicate with the primary. When a voltage high signal is received, MCU1, takes a pre-determined step towards higher frequency to lower the output power and the process is repeated until output voltage is within required range." (*Id.*) *Partovi* thus discloses "**regulating power delivered to the battery of the electronic device in response to the received second communication**."

**m. wherein the first mode of operation is associated with a first power level and the second mode of operation is associated with a second power level, and wherein and the first power level and the second power level are different.**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶113-114.) For instance, *Partovi* discloses during the first mode of operation (i.e., the handshake and verification mode), the charger is in a low-power state. (Ex. PA-1, ¶¶[0109]-[0101], [0295] ("[t]o enable a more secure verification, in accordance with an embodiment the MCU1 can periodically start the FET driver. If current is being drawn, MCU1 may activate the Q1 in a predetermined state (for example, this may be a low power state). This can provide a first level indication that a receiver may be nearby. If there is a genuine receiver nearby (versus, say, a metallic object, electronic device, or a non-approved receiver), the emitted power from L1 will power the receiver circuit.") (emphasis added),

[0327] ("MCU1 gives a command to the FET driver to begin switching the coil. The duty cycle may be set very low to generate a low voltage in any potential nearby receiver coil.").)

Once the mobile device has been authenticated, the charger operates at a different power level to provide the necessary power to the receiver in the charging mode commensurate with the charging requirements of the mobile device or battery. (*Id.*, ¶[0296] ("[a]fter the initial handshake and verification, the MCU1 and current sense chips in the charger or power supply and MCU2 can provide bi-directional communication between the charger or power supply and the receiver for optimum charging or supply of power"); *supra* Section VI.A.3.l.)

**4. Claim 15**

**a. An electronic device capable of receiving power inductively, the electronic device comprising:**

To the extent the preamble is limiting, *Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶115-116.) For example, *Partovi*, discloses a charger and a receiver coupled to a battery. (Ex. PA-1, ¶[0285], FIG. 34.) *Partovi*'s receiver is integrated into or on a mobile device ("**electronic device**"). (*Id.*)

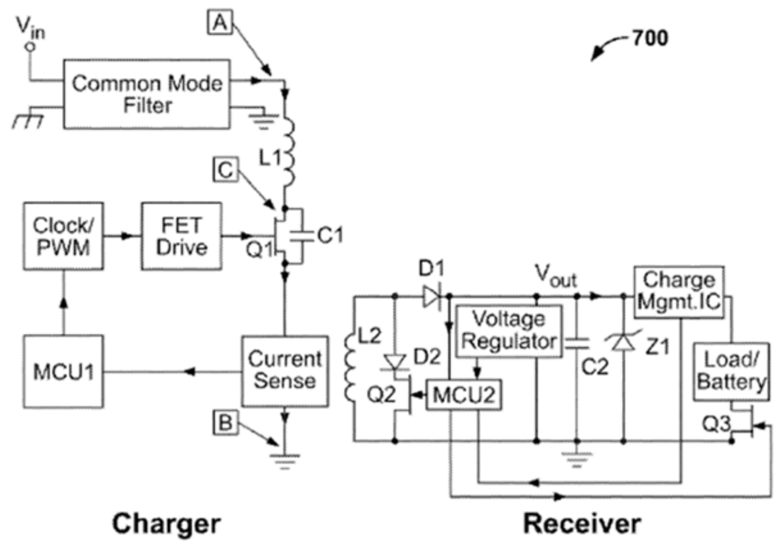


FIG. 34

(*Id.*, FIG. 34.)

The system of Figure 34 involves the mobile device "**receiving power inductively**" from the charger. For example, the microcontroller MCU1 enables the FET driver to drive the primary coil L1 in the charger "to energize the receiver." (Ex. PA-1, ¶[0298].) The FET driver drives the coil by switching the primary coil through the FET Q1. (*Id.*, ¶[0290].) When the primary coil L1 is switched, an AC voltage is generated across the primary coil, which results in an AC magnetic field. (*Id.*, ¶[0117].) This AC magnetic field in turn generates a voltage in the receiver coil L2 in the receiver that is rectified and smoothed to generate a charging current that charges the battery. (*Id.*, ¶¶[0117][4], [0262] ("As the primary charger or power supply sends power to the secondary receiver, the circuit in the receiver turns on. The power received is rectified and filtered by rectifier D1 and Capacitor C2 respectively. . . . The output of the rectified stage is input to a device or Charge Management IC for the case of a battery charger configuration. This Charge Management IC is integrated into most Original Equipment Manufacturer (OEM) mobile devices that operate by rechargeable batteries or can be integrated into or on a rechargeable battery to directly charge the battery when the battery is in proximity to the charger."), [0295] (switching the transistor Q1, which is in series with primary coil L1, results in L1 emitting power to the receiver).[5])

**b. an inductive charging receiver coil;**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶117.) *Partovi*'s receiver coil L2 is an "**inductive charging receiver oil**" because it receives an alternating magnetic field, which is converted to a voltage in the receiver coil L2 that is rectified and smoothed to generate a charging current that charges the battery. (*See supra* Section VI.A.4.a.)

**c. a communication transmitter circuit electrically coupled to the inductive charging receiver coil for communicating through the coil;**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶118-119.) *Partovi* discloses a receiver circuit coupled to the inductive receiver coil L2, as shown in Figure 34 (reproduced below). The receiver circuit includes, among other things, a microcontroller MCU2 that communicates data to the charger <u>via the coil L2</u> by modulating switch Q2. (Ex. PA-1, ¶[0295] ("MCU2 [which is a] microcontroller that upon power-up, executes a predetermined program that modulates the current being drawn in the receiver in a predetermined code (which can be encrypted). This receiver modulation can be detected as a current modulation in the current through the L1 by the charger

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[4] Paragraph 117 merely describes the basic principles of inductive charging applicable to the various inductive charging systems disclosed in Partovi.

[5] Figures 34 and 28 of *Partovi* have identical components. Therefore, the description of Figure 28 is applicable to Figure 34 as the structures shown in the figures are identical. In fact, Figure 28 shows a basic wireless charging system, whereas Figure 34 is an enhancement of the system shown in Figure 28. (Ex. PA-1, ¶¶[0270], [0285].) Thus, the description of Figure 28 is applicable to Figure 34.

or power supply current sensor in FIG. 34."), [0296] ("the MCU1 and current sense chips in the charger or power supply and MCU2 can provide bi-directional communication between the charger or power supply and the receiver for optimum charging or supply of power"), [0261]-[0262] ("The communication between the charger and the receiver [] is achieved through the same coil as the power transfer. However, these functions can be separated. . . . . [T] he secondary (receiver) contains circuitry that enables this part to modulate the load as seen by the primary. In accordance with an embodiment this is achieved through modulation of switch Q2 by an MCU2 in the receiver."), [0262] ("MCU2 [sends] a digital signal to Q2 to modulate the switch. . . . However, this modulation of the impedance of the secondary stage affects the current through the primary coil stage and can be easily detected by the Current Sense circuit in the primary").

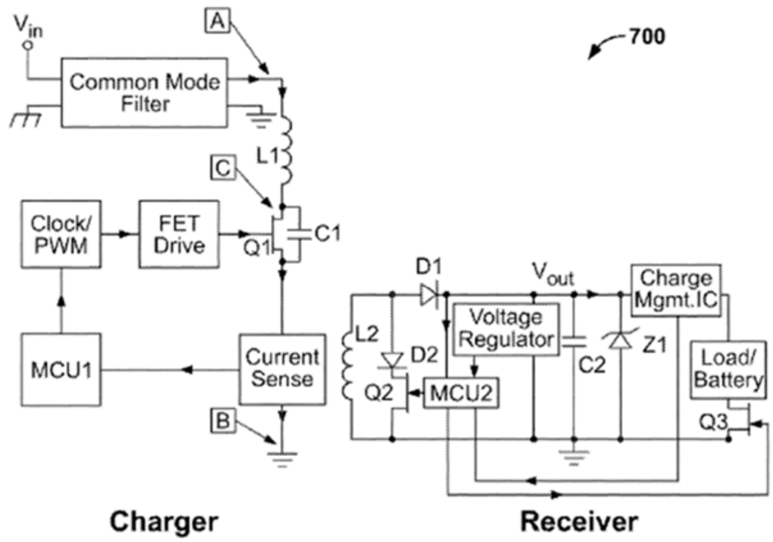

FIG. 34

(*Id.*, FIG. 34.)

Thus, *Partovi* discloses "**a communication transmitter circuit**" (e.g., the receiver circuit connected to the coil L2, or microcontroller MCU2, or MCU2 in combination with Q2) "**electrically coupled to the inductive charging receiver coil for communicating through the coil**." To be sure, there is no "communication transmitter circuit" identified in the '777 patent specification. Those words are only found in the claims. Claim 16, however, recites that "**the communication transmitter circuit and the receiver circuit** in the electronic device **are** configured to be **activated by a ping signal**." (Ex. PAT-A, claim 16 (emphases added).) In the '777 patent, the receiver is disclosed as being activated by a ping voltage. (*Id.*, 20:29-34.) Thus, under the broadest reasonable interpretation in view of the specification, the entire receiver circuit (excluding the receiver coil) can be a "**communication transmitter circuit**."

**d. a communication receiver circuit electrically coupled to the inductive charging receiver coil for communicating through the coil; and**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶120.) *Partovi* discloses MCU1 in the charger and MCU2 in the receiver can provide bi-directional communication between the charger or power supply and the receiver for optimum charging or supply of power. (Ex. PA-1, ¶[0296] ("After the initial handshake and verification, the MCU1 and current sense chips in the charger or power supply and MCU2 can provide bi-directional communication between the charger or power supply and the receiver for optimum charging or supply of power. The system can also regulate the power and voltage received at the Charge Control Circuit to insure overvoltage conditions do not occur.").) Furthermore, this communication between the charger and the receiver device is accomplished through the receiver coil L2 ("**inductive charging receiver coil**"). (*Id*., ¶[0142] ("The communication link can also use the same coil or wires as antenna for data transfer or use a separate antenna."), ¶[0261] ("The communication between the charger and the receiver 630 is achieved through the same coil as the power transfer.").) *Partovi* thus discloses "**a communication receiver circuit**" (e.g., the receiver circuit or the microcontroller MCU2) "**electrically coupled to the inductive charging receiver coil for communicating through the coil**." To be sure, there is no "communication receiver circuit" identified in the '777 patent specification. Those words are only found in the claims. Claim 16, however, recites that "**the communication transmitter circuit and the receiver circuit** in the electronic device **are** configured to be **activated by a ping signal**." (Ex. PAT-A, claim 16 (emphases added).) In the '777 patent, the receiver is disclosed as being activated by a ping voltage. (*Id*., 20:29-34.) Thus, under the broadest reasonable interpretation in view of the specification, the entire receiver circuit can be a "**communication receiver circuit**."

**e. a microcontroller, wherein the microcontroller is configured for: operating in a first mode of operation using a first protocol, wherein the first protocol is an inductive charging communication-and-control protocol that comprises uni-directional messaging,**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶121-124.) The receiver includes a microcontroller MCU2. (Ex. PA-1, FIG. 34.)

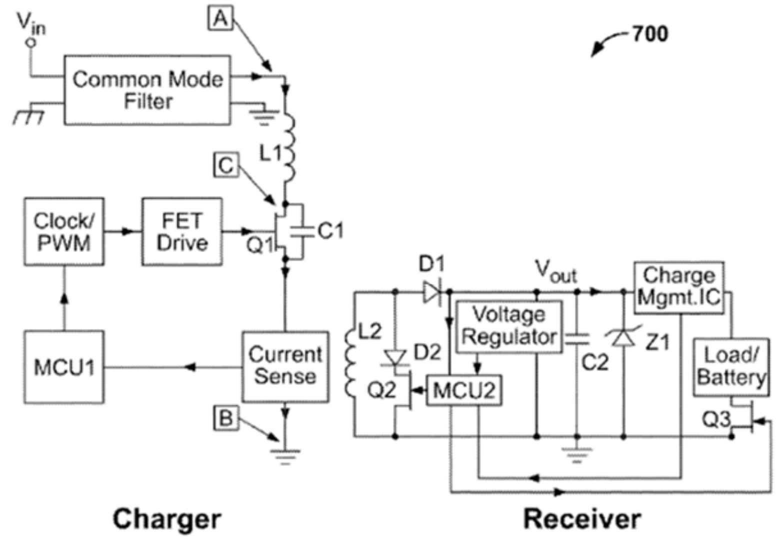


FIG. 34

(*Id.*, FIG. 34.)

In *Partovi*, MCU2 operates in two modes. (*Id.*, ¶¶[0295]-[0297].) In the first mode, there is a "handshake and verification between the charger . . . and the receiver." (*Id.*, ¶[0297].) In this first mode, the MCU1 in the charger periodically starts the FET driver, which switches Q1 resulting in power emitted to the receiver. (*Id.*, ¶[0295].) "[T]he emitted power . . . will power the receiver circuit." (*Id.*) The received power will power-up MCU2, which "executes a predetermined program that modulates the current being drawn in the receiver in a predetermined code (which can be encrypted). This receiver modulation can be detected as a current modulation in the current through the L1 by the charger or power supply current sensor in FIG. 34." (*Id.*) MCU2 is therefore configured to operate "**in a first mode of operation using a first protocol**," where the "first protocol" corresponds to the sequence of events, including the MCU1 driving the FET driver to power the receiver, which in turn sends a predetermined code to the charger through MCU2. (Ex. PA-DEC, ¶122.)

*Partovi* discloses a "first protocol" in an <u>additional</u> way. Specifically, *Partovi* discloses that RFID may be used to transmit the first communication from the receiver to the charger, where the microcontroller MCU2 acts as an "RFID transponder chip" "that upon power-up modulates the current in the receiver that can then be detected as current modulation in the primary." (Ex. PA-1, ¶[0192]; *see also id.*, ¶[0142] ("the receiver in the battery or mobile device also includes a means for providing information regarding battery manufacturer, required voltage, capacity; current, charge status, serial number, temperature, etc. to the charger. In a simplified embodiment, only the manufacturer, required voltage, and/or serial number is transmitted. This information is used by the charger or power supply to adjust the primary to provide the correct charge or power conditions. . . . As described above, the information exchange between the charger and the receiver can be through an RF link or an optical transmitter/detector, RFID techniques, Near-Field Communication (NFC), Felica, Bluetooth, WiFi, or some other method of information transfer. . . . The communication link can also use the same coil or wires as antenna for data transfer or use a separate antenna."); *id*., ¶[0107] ("In one embodiment, the coils in the mobile device charger/power supply that are used for powering or charging the mobile device, or another set of coils in the same PCB layer or in a separate layer, can be used for data transfer between the mobile device charger/power supply and the mobile device to be charged or powered or the battery directly. Techniques employed in radio and network communication, such as radio frequency identification (RFID), Bluetooth, WiFi, Wireless USB, or others can be used. In one embodiment a chip connected to an antenna (for example, the receiver coil . . .) . . . can be used to provide information about, for example, the presence of the mobile device or battery, its authenticity (for example its manufacturer code) and the devices' charging/power requirements (such as its required voltage, battery capacity, and charge algorithm profile).) RFID is a "**first protocol**."

The protocol noted above involves "**inductive charging**" and "**communication-and-control**." (*See supra* Section VI.A.3.f.) For example, the primary coil L1 inductively emits power that powers the receiver circuit. Thus, there is "**inductive charging**." Furthermore, the receiver (and specifically, MCU2) executes a predetermined program to cause a current modulation in the current of the primary coil L1. That is, the receiver sends a uni-directional message during the "handshake and verification" phase. For example, during the hand shake, the mobile device can "can indicate its power/voltage requirements to the . . . charger or power supply." (Ex. PA-1, ¶[0124].) The messaging is uni-directional during the above handshake mode because *Partovi* states that "[a]fter the initial handshake and verification, the MCU1 and current sense chips in the charger or power supply and MCU2 can provide bi-directional communication between the charger or power supply and the receiver for optimum charging or supply of power." (*Id*., ¶[0296] (emphasis added).) This uni-directional message allows the charger to confirm that the receiver is an "appropriate receiver" (e.g., not a "counterfeit or non-approved" receiver) and to continue powering it. (*Id*., ¶[0297].) Except for a power transfer from the primary coil L1, there is no other communication being sent from the charger to the receiver in this mode comprising uni-directional messaging. (Ex. PA-DEC, ¶124.) Therefore, the protocol noted above is also a "**communication-and-control**" protocol.

**f. wherein the first mode of operation comprises: sending, using the communication transmitter circuit, a first communication to an inductive charger, wherein the first communication identifies the first protocol; and receiving power using the inductive charging receiver coil;**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶125-128.) As discussed above in Section VI.A.4.e (claim limitation [15.e]), *Partovi* discloses that the MCU2 in the receiver circuit executes "a predetermined program that modulates the current being drawn in the receiver in a predetermined code (which can be encrypted). This receiver modulation can be detected as a current modulation in the current through the L1 by the charger or power supply current sensor in FIG. 34." (Ex. PA-1, ¶[0295], FIG. 34.) This communication from the receiver allows the charger to ensure that the receiver is genuine/approved to receive power transfer. (*Id.*, ¶[0297]; *see also id.*, ¶¶[0328]-[0329] ("If a receiver coil is nearby, it begins drawing power from the charger or power supply coil. This can be sensed as a higher than normal current draw in the current sense circuit of the charger or power supply. Additionally, the charger or power supply and receiver coil can exchange a code to confirm that a valid device or battery with appropriate circuitry is nearby and verified.").) *Partovi* thus discloses "**sending, using the communication transmitter circuit, a first communication to an inductive charger**." *Partovi* provides another example of the "**first communication**" as an indication by the receiver of "its power/voltage requirements." (*Id.*, ¶[0124] ("the mobile device or battery, during its hand shake and verification process can indicate its power/voltage requirements to the mobile device or battery charger or power supply.").) (Ex. PA-DEC, ¶125.)

*Partovi* further discloses that "**the first communication identifies the first protocol**." For example, during the initial handshake and verification process, a predetermined code is transmitted by the receiver to validate the mobile device or battery. (Ex. PA-1, ¶¶[0295]-[0299], [0328-[0329].) This communication identifies the first protocol (e.g., the handshake process). To the extent Patent Owner disagrees, then the '777 patent cannot disclose claim 15 because there is no transmission of the specific identifier of the underlying protocol from the receiver to the charger in the '777 patent. The '777 patent discloses changing the operating frequency of the charger to determine the protocol used by the receiver. (Ex. PAT-A, 62:57-63:34.) There is no disclosure of a transmission of an "**identifier**" of the protocol as part of a "**first communication**."

*Partovi* discloses that once the charger receives the power/voltage requirements of the mobile device or battery during the handshake process, the MCU1 controls the primary coil L1 to create the appropriate voltage/current in the receiver ("**receiving power using the inductive charging receiver coil**"). (Ex. PA-1, ¶[0237] ("The MCU receives input from another sensor mechanism that will provide information that it can then use to decide whether a device is nearby, what voltage the device requires, and/or to authenticate the device to be charged. <u>The communicated feedback from the receiver to primary can be used by the primary to, for example, adjust the frequency, or to otherwise alter the output voltage to that receiver, using the frequency/output characteristics described above</u>.") (emphasis added), ¶[0129] ("In one embodiment, the receiver or the mobile device can . . . inform the charger or power supply about the voltage/current characteristics of the device or battery. <u>The primary of the charger or power supply . . . can be driven to create the appropriate voltage/current in the receiver</u>. For example, the duty cycle of the switch in that circuit can be programmed with a microprocessor to be changed to provide the appropriate levels in the receiver.") (emphasis added).) The receiver receives power through the receiver coil L2. (*Supra* Section VI.A.4.a.) This is further confirmed by *Partovi*'s claim 1, which recites that "a receiver unit, including a receiver coil . . . is coupled to or incorporated into a portable device or battery, wherein the secondary coil receives energy inductively from the primary coil and uses it to charge or power the portable device or battery.").)

As discussed above in Section VI.A.3.h, this received power is part of the "first mode." Specifically, the initial charging of the battery after the handshake and verification is part of the "first mode." The '777 patent does not demarcate any boundaries for what constitutes a first or a second mode.

#### g. [wherein the microcontroller is configured for]: operating in a second mode of operation using a second protocol, wherein the second protocol is an inductive charging communication-and-control protocol that defines bi-directional messaging,

*Partovi* alone or in combination with *Sogabe* discloses or suggests this limitation for at least the reasons set forth in Section VI.A.3.i. (Ex. PA-DEC, ¶¶129-131.) *Partovi* discloses that <u>after</u> the initial handshake and verification, the system enters a second mode in which the MCU2 ("**microcontroller**") and MCU1 can provide "**bi-directional"** communication between the charger or power supply and the receiver for optimum charging or supply of power. (Ex. PA-1, ¶[0296] ("After the initial handshake and verification, the MCU1 and current sense chips in the charger or power supply and MCU2 can provide bi-directional communication between the charger or power supply and the receiver for optimum charging or supply of power. The system can also regulate the power and voltage received at the Charge Control Circuit to insure overvoltage conditions do not occur.").) In this mode, the charger inductively powers the battery in the receiver and controls the charging of the battery in a closed-loop manner based on communications received from the receiver. (*Id.*, ¶¶[0262]-[0266]; ¶¶[0129]-[0131] ("Furthermore, the induced voltage/current in the mobile device can be sensed and communicated to the charger to form a closed-loop, and the duty cycle, frequency, and/or voltage of the switch can be adjusted to achieve the desired voltage/current in the mobile device.").)

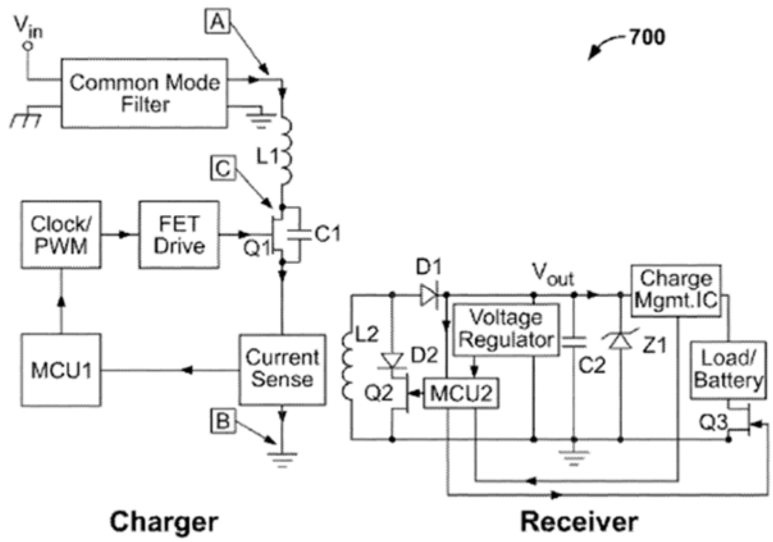

FIG. 34

(*Id.*, FIG. 34.)

Thus, MCU2 operates in a "**second mode**" post the handshake and verification process, and in this mode there is both inductive charging and communication-and-control, as discussed above. (*See also* Section VI.A.3.i.) Furthermore, the second mode uses a "second protocol" as explained above in Section VI.A.3.i.

**h. wherein the second mode of operation comprises: sending, using the communication transmitter circuit, a second communication to the inductive charger, wherein the second communication identifies the second protocol; receiving power using the inductive charging receiver coil; and**

*Partovi* discloses this limitation. (Ex. PA-DEC, ¶¶132-134.) *Partovi* discloses that in the <u>charging mode</u>, MCU2 in the receiver circuit indicates the voltage/current in the receiver to the MCU1, which accordingly controls the power emitted by the primary coil L1. (Ex. PA-1, ¶¶[0129]-[0131] ("Furthermore, the induced voltage/current in the mobile device can be sensed and communicated to the charger to form a closed-loop, and the duty cycle, frequency, and/or voltage of the switch can be adjusted to achieve the desired voltage/current in the mobile device").) For example, "[i]n one implementation, the receiver sends a digital code corresponding to the output voltage and MCU1 compares this to the earlier output voltage value and makes a determination about which direction and by how many steps to move the frequency. The frequency is then changed accordingly." (*Id.*, ¶[0265].) "In another implementation, MCU2 sends one of 2 values corresponding to a voltage high or low condition. If the voltage is within range, MCU2 does not communicate with the primary. When a voltage high signal is received, MCU1, takes a pre-determined step towards higher frequency to lower the output power and the process is repeated until output voltage is within required range." (*Id.*) *Partovi* thus discloses "**wherein the second mode of operation comprises: sending . . . a second communication to the inductive charger.**"

*Partovi* further discloses that "**the second communication identifies the second protocol**." For example, the second communication identifies the second protocol because it allows the charger to determine how much power to transmit to the receiver. To the extent Patent Owner disagrees, then the '777 patent cannot disclose claim 15 because there is no transmission of the specific identifier of the underlying protocol from the receiver to the charger in the '777 patent. The '777 patent discloses changing the operating frequency of the charger to determine the protocol used by the receiver. (Ex. PAT-A, 62:57-63:34.) There is no disclosure of a transmission of an "**identifier**" of the protocol as part of a "**second communication**."

*Partovi* also discloses "**receiving power using the inductive charging receiver coil**." *Partovi* discloses that in the charging mode, the receiver circuit indicates the voltage/current in the receiver to the MCU1, which accordingly controls the power emitted by the primary coil L1 to the receiver. (Ex. PA-1, ¶¶[0129]-[0131] ("Furthermore, the induced voltage/current in the mobile device can be sensed and communicated to the charger to form a closed-loop, and the duty cycle, frequency, and/or voltage of the switch can be adjusted to achieve the desired voltage/current in the mobile device").) For example, "[i]n one implementation, the receiver sends a digital code corresponding to the output voltage and MCU1 compares this to the earlier output voltage value and makes a determination about which direction and by how many steps to move the frequency. The frequency is then changed accordingly." (*Id.*, ¶[0265].) "In another implementation, MCU2 sends one of 2 values corresponding to a voltage high or low condition. If the voltage is within range, MCU2 does not communicate with the primary. When a voltage high signal is received, MCU1, takes a pre-determined step towards higher frequency to lower the output power and the process is repeated until output voltage is within required range." (*Id.*) The receiver receives power through the receiver coil L2. (*Supra* Section VI.A.4.a.) This is further confirmed by *Partovi*'s claim 1, which recites that "a receiver unit, including a receiver coil . . . is coupled to or incorporated into a portable device or battery, <u>wherein the secondary coil receives energy inductively from the primary coil and uses it to charge or power the portable device or battery</u>.") (emphasis added).)

**i. [wherein the second mode of operation comprises:] receiving, using the receiver circuit, a frequency-modulated third communication from the inductive charger based on the second protocol; and**

*Partovi* alone or in view of *Sogabe* discloses or suggests this limitation for reasons similar to those discussed above in Section VI.A.3.k (analysis for limitation [1.k]). (Ex. PA-DEC, ¶135.) For example, as discussed above in Section VI.A.3.k (analysis for limitation [1.k]), *Partovi* discloses that the receiver circuit receives a third communication using Bluetooth (which constitutes "frequency modulation"). *Sogabe* also discloses data transfer using frequency modulation, and it would have been obvious to combine *Partovi* with *Sogabe*. (*Supra* Section VI.A.3.k.)

**j. wherein first mode of operation is associated with a first power level and the second mode of operation is associated with a second power level, and wherein the first power level and the second power level are different.**

*Partovi* discloses this limitation as set forth above in Section VI.A.3.m (limitation [1.m]). (Ex. PA-DEC, ¶136.)

## VII. Detailed Explanation of the Pertinence and Manner of Applying the Prior Art to the Claims

### A. Bases for Proposed Rejections of the Claims

The following is a quotation of pre-AIA 35 U.S.C. § 102 that forms the basis for all of the identified prior art:

> A person shall be entitled to a patent unless . . .
>
> (e) the invention was described in — (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language . . . .

The following is a quotation of pre-AIA 35 U.S.C. § 103(a) that forms the basis of all of the following obviousness rejections:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negative by the manner in which the invention was made.

The question under 35 U.S.C. § 103 is whether the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention. In *KSR International Co. v. Teleflex Inc*., 550 U.S. 398 (2007), the Court mandated that an obviousness analysis allow for "common sense" and "ordinary creativity," while at the same time not requiring "precise teachings directed to the specific subject matter of the challenged claim[s]." *KSR*, 550 U.S. at 418, 420-421. According to the Court, "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 416. In particular, the Court emphasized "the need for caution in granting a patent based on the combination of elements found in the prior art." *Id.* at 401. The Court also stated that "when a patent simply arranges old elements with each performing the same function it had been known to perform and yields no more than one would expect from such an arrangement, the combination is obvious." *Id.* at 417.

The Office has provided further guidance regarding the application of *KSR* to obviousness questions before the Office.

> If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

MPEP § 2141(I) (quoting *KSR* at 417.)

The MPEP identifies many exemplary rationales from *KSR* that may support a conclusion of obviousness. Some examples that may apply to this reexamination include:

- Combining prior art elements according to known methods to yield predictable results;
- Simple substitution of one known element for another to obtain predictable results;
- Use of a known technique to improve similar devices in the same way;
- Applying a known technique to improve devices in the same way;
- Choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success ("obvious to try")

MPEP § 2141(III).

In addition, the Office has published *Post-KSR* Examination Guideline Updates. *See* Fed. Reg. Vol. 75, 53464 (the "Guideline Updates"). The Guideline Updates discuss developments after *KSR* and provide teaching points from recent Federal Circuit decisions on obviousness. Some examples are listed below:

> A claimed invention is likely to be obvious if it is a combination of known prior art elements that would reasonably have been expected to maintain their respective properties or functions after they have been combined.

*Id.* at 53646.

> A combination of known elements would have been prima facie obvious if an ordinary skilled artisan would have recognized an apparent reason to combine those elements and would have known how to do so.

*Id.* at 53648.

> Common sense may be used to support a legal conclusion of obviousness so long as it is explained with sufficient reasoning.

*Id.*

### B. Proposed Rejections

Pursuant to 37 C.F.R. § 1.510(b)(2), Requester identifies claims 1 and 15 as the claims for which reexamination is requested. The proposed rejections below, in conjunction with the analysis in Sections IV-VI above and the attached declaration of Dr. Baker (Ex. PA-DEC), provide a detailed explanation of the pertinence and manner of applying the prior art to claims 1 and 15.

#### 1. Proposed Rejection #1

Claims 1 and 15 are obvious over *Partovi* in view of *Sogabe* under 35 U.S.C. § 103, as shown by the discussion above in Section VI.A and the declaration of Dr. Baker provided in Exhibit PA-DEC.

## VIII. Conclusion

For the reasons set forth above, the Requester has established at least one substantial new question of patentability with respect to claims 1 and 15 of the ’777 patent. The analysis provided in this Request and in the declaration of Dr. Baker (Ex. PA-DEC) demonstrates the invalidity of claims 1 and 15 in view of prior art that was not substantively considered by the Patent Office. Therefore, it is requested that this request for reexamination be granted and claims 1 and 15 be cancelled.

As identified in the attached Certificate of Service and in accordance with 37 C.F.R. §§ 1.33(c) and 1.510(b)(5), a copy of this Request has been served, in its entirety, to the address of the attorney of record.

Respectfully submitted,

PAUL HASTINGS LLP

Dated: June 28, 2024

By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)