

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THE NOCO COMPANY, INC.,
Petitioner,

v.

PILOT, INC.,
Patent Owner.

IPR2021-01235
Patent 10,328,806 B2

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

HEANEY, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background*

The Noco Company, Inc. (“Petitioner”) filed a petition for an *inter partes* review (Paper 1 (“Pet.”)) challenging claims 1–19 of U.S. Patent No. 10,046,653 B2 (Ex. 1001 (“the ’806 patent”)). Pilot Inc. (“Patent Owner”) did not file a Preliminary Response.

On January 14, 2022, we instituted an *inter partes* review of claims 1–19. Paper 6 (“Institution Decision” or “Inst. Dec.”). After institution, Patent Owner did not file a response to the Petition. Petitioner filed a Reply in Support of Petition (Paper 8, “Reply”). Patent Owner did not file a sur-reply.

On September 2, 2022, Petitioner filed a Statement Regarding Oral Argument (Paper 9). Petitioner stated that it did not believe oral argument was necessary, in view of the lack of response to the Petition by Patent Owner. *Id.*

We have jurisdiction under 35 U.S.C. § 6. We issue this Final Written Decision pursuant to 35 U.S.C. § 318(a). Based on the record before us, we conclude that Petitioner has shown, by a preponderance of the evidence, that claims 1–19 of the ’806 patent are unpatentable.

B. *Order to Show Cause*

In view of Patent Owner’s failure to file substantive papers in this proceeding, on October 18, 2022, we issued an Order to Show Cause why adverse judgment should not be entered against Patent Owner (Paper 11). Patent Owner’s Response to the Order to Show Cause (Paper 12, “Response”) stated that it “does not request adverse judgment against itself.” Response 3. Patent Owner instead requested that we issue a Final Written

Decision. *Id.* Patent Owner further included the following statement concerning the merits of the Petition:

The Petition in this case suffers from the same issues as the Petition in IPR2021-00777 concerning related Patent 10,046,653 B2. Specifically, Petitioner fails to present competent evidence of unpatentability, including failing to present viable reasons to combine the prior art references to support its obviousness grounds. Because the Petition fails to meet the Petitioner's burden and because the claims at issue require a "boost device" not needed or used in combination with contemporary MOSFET devices, Patent Owner elected not to file a complete response.

Id. Petitioner filed a Reply to Patent Owner's Response to Show Cause Order (Paper 13), in which Petitioner stated

[T]he Board would be justified in interpreting Patent Owner's inaction as a request for adverse judgment via abandonment consistent with 37 C.F.R. § 42.73(b)(4). A finding of abandonment is further confirmed by Patent Owner's statement that the claims at issue are not practiced in contemporary devices.

Paper 13, 1.

Having considered the parties' arguments as to whether adverse judgment should be entered against Patent Owner, we determine not to enter adverse judgment based on an abandonment of the contest by Patent Owner under 37 C.F.R. § 42.73(b)(4). In light of Patent Owner's statement regarding the merits of the Petition and its unequivocal statement that it is not seeking adverse judgment (*see* Response 3), we do not construe Patent Owner's actions as an abandonment of the contest. *See Apple Inc. v. Zipit Wireless, Inc.*, IPR2021-01124, Paper 14 (Dec. 21, 2022) (vacating entry of adverse judgment upon determination it was not sufficiently clear that Patent Owner intended to abandon the contest) (precedential).

Although we have considered Patent Owner's Response to the Order to Show Cause for the purpose of our determination whether to enter adverse judgment, Patent Owner's statement in the Response regarding the merits of the Petition is conclusory and untimely with regard to our evaluation of the merits of the Petition. *See* Paper 7 (Scheduling Order) 8, 11 (setting April 8, 2022 as the deadline for Patent Owner's response to the Petition). Accordingly, for the purpose of evaluating the merits of Petitioner's challenges in the Petition, we decline to consider Patent Owner's statement.

C. Related Matters

Petitioner identifies the following litigations involving the '806 patent: (1) *Pilot, Inc. v. The NOCO Company, Inc.*, No. 2:20-cv-01452 (D. Ariz.); (2) *Pilot, Inc. v. GOOLOO Technology LLC and Shenzhen GOOLOO E-Commerce Co., Ltd.*, No. 2:19-cv-09485 (C.D. Cal.); (3) *Pilot, Inc. v. Aukey Technology Co., Ltd. and Shenzhen Aukey E-Business Co., Ltd.*, No. 2:19-cv-09486 (C.D. Cal.); (4) *Pilot, Inc. vs. Schumacher Electric Corporation*, No. 3:19-cv-01676-N (N.D. Tex.); and (5) *Pilot, Inc. v. Baccus Global, LLC*, No. 9:21-cv-81009 (S.D. Fla.). Pet. 1–2. Petitioner states action (1) is stayed and a count asserting infringement of the '806 patent was dismissed without prejudice, actions (2)–(4) were dismissed without prejudice, and action (5) is pending. *Id.*

Patent Owner identifies two additional actions involving the '806 patent: (1) *Pilot, Inc. v. Battery-Biz, Inc.*, No. 2:20-cv-10207 (C.D. Cal.); and (2) *Pilot, Inc. v. The Duracell Company*, 1:20-cv-004054 (N.D. Ill.). Paper 4, 1. Patent Owner states both actions were dismissed without prejudice. *Id.* As discussed above, Patent Owner also identifies IPR2021-00777 as concerning related Patent 10,046,653 B2. Response 3.

D. The '806 Patent

The '806 patent, titled “Automobile Charger,” is directed to “a novel automobile charger with a safe power supply charging quickly.” Ex. 1001, codes (45), (54), 1:18–19. The '806 patent explains that prior-art automobile charging devices, i.e., devices for jump starting vehicles, suffered from various problems, including an inability to automatically detect whether a load (e.g., an automobile storage battery) is connected, whether an automobile engine or storage battery has a reverse current, and whether the battery state is suitable for heavy power generation. Ex. 1001, 1:24–29. The '806 patent aims to solve these problems, and depicts one solution in Figure 1, reproduced below.

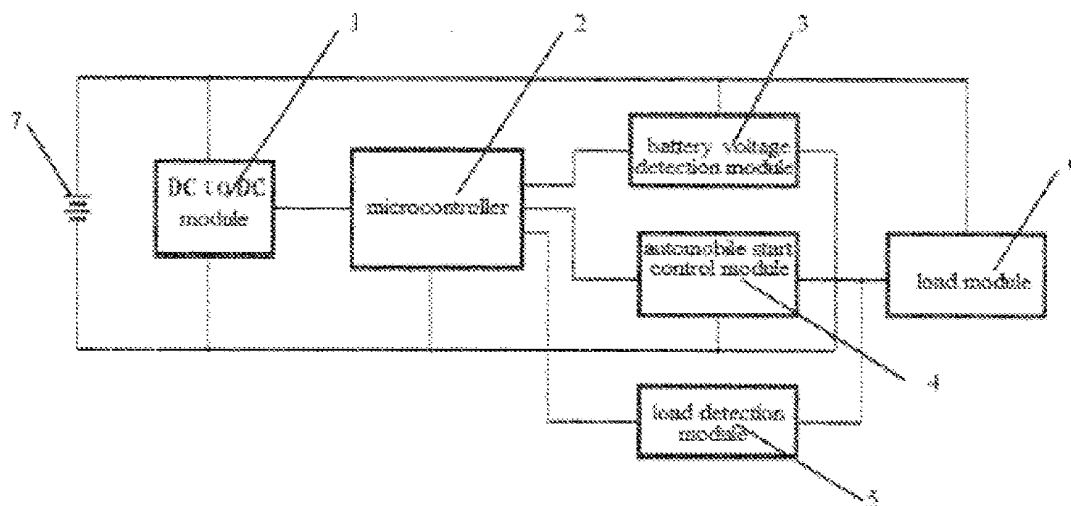


Figure 1 is a block diagram showing an embodiment of the automobile charger, including DC-to-DC module 1, microcontroller 2, voltage detection module 3, automobile start control module 4 (an electronic switch), load detection module 5, load module 6 (comprising the automobile battery and engine), and direct-current power supply 7 (the jump starter

battery). *Id.* at 2:24, 2:59–62, 3:26–28.

The '806 patent explains that the DC-to-DC module provides “the stable voltage for the microcontroller which collects relevant data” and the microcontroller “determines whether the automobile storage battery is connected with the automobile engine through the load detection module.” Ex. 1001, 4:11–16, 4:20–22. The positive pole of the direct current power supply is connected with one lead of the DC-to-DC module, one end of the battery voltage detection module and one end of the load module; the negative pole of the direct-current power supply is connected with the other end of the DC-to-DC module, one end of the microcontroller, one end of the automobile start control module and the other end of the battery voltage detection module. *Id.* at 3:9–17. When the load is correctly connected, the automobile start control module is automatically activated, and the battery starts to supply power to the load module. *Id.* at 4:16–18. If the load is not connected, or positive and negative polarities are reversed, the automobile start control module is automatically deactivated, and the battery stops supplying power to the load module. *Id.* at 4:20–29.

The '806 patent further explains that the automobile start control module conducts the power supply for the load module through the microcontroller (Ex.1001, 2:1–4), which collects relevant data to conduct the corresponding control (*id.* at 1:66–67). In a standby mode, the microcontroller closes all outputs when the voltage of the direct current power supply is lower than that of the state being able to supply power and then recovers when it is higher than that of the state being able to supply power. *Id.* at 2:17–22.

The '806 patent states that its automobile charger provides benefits over prior art devices, including, *inter alia*, (1) controlling the supply power for the load, which “can offer more protection for the product, or reduce the product size and material cost,” (2) providing low voltage protection to prevent damage caused by over-discharging the battery, (3) preventing improper operations by the user, such as reversed polarity, which can cause damage to the automobile or direct current power supply, and (4) employing voltage backflow protection for an abnormal load, wherein the automobile start line is closed to protect the battery when an abnormal voltage is detected. Ex. 1001, 2:7–40.

E. Illustrative Claim

Petitioner challenges claims 1–19 of the '806 patent. Pet. 1. Claims 1 and 16 are independent claims. Ex. 1001, claims 1–19 (5:8–6:51). Claims 2–15 depend from claim 1. *Id.* Claims 17–19 depend from claim 16. *Id.* Claim 1, reproduced below, recites a “charging device” as follows.

1. A charging device, comprising:
 - a battery connected to a voltage regulator, the battery supplying a charging current;
 - a battery voltage detector, connected to a microcontroller, to detect a voltage of an automobile battery when the charging device is connected to an automobile;
 - a load detector, connected to the microcontroller, to detect when the charging device is connected to the automobile battery;
 - the microcontroller generating, when the charging device is connected to the automobile battery, an output signal based on a detected voltage of the automotive battery;
 - switching circuitry including a plurality of MOSFETs to selectively connect a negative terminal of the battery to the

automobile battery when the microcontroller generates the output signal; and

a boost device for boosting a gate voltage of the plurality of MOSFETs.

Id. at 5:8–25.

F. Instituted Grounds of Unpatentability

We instituted *inter partes* review on the following grounds of unpatentability, which are all the grounds presented in the Petition. Pet. 14.

Ground No.	Challenged Claim(s)	35 U.S.C. ¹	Reference(s)/Basis
1	16–19	§ 102	Baxter ²
2	1, 2, 4–6, 9–14	§ 103	Baxter, Krieger ³
3	16	§ 102	Richardson ⁴
4	1–7, 9–15, 17–19	§ 103	Richardson, Krieger
5	8	§ 103	Richardson, Krieger, George ⁵

Petitioner relies on a declaration from Alex Z. Kattamis, Ph.D. Ex. 1008.

II. ANALYSIS

A. Legal Standards

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. Because the ’806 Patent issued from an application filed after March 16, 2013, we apply the AIA versions of the statutory bases for unpatentability.

² US 2010/0173182 A1 to Baxter et al., published July 8, 2010 (Ex. 1003).

³ US 7,345,450 B2 to Krieger et al., issued Mar. 18, 2008 (Ex. 1004).

⁴ US 2009/0174362 A1 to Richardson et al., published July 9, 2009 (Ex. 1005).

⁵ US 6,803,743 B2 to George et al., issued Oct. 12, 2004 (Ex. 1006).

unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review).

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

Whether a reference anticipates is assessed from the perspective of one of ordinary skill in the art. *See Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003) (“[T]he dispositive question regarding anticipation [i]s whether one skilled in the art would reasonably understand or infer from the [prior art reference’s] teaching’ that every claim element was disclosed in that single reference.” (alterations in original))

(quoting *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991))). Additionally, “[u]nder the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates.” *MEHL/Biophile Int’l Corp. v. Milgraum*, 192 F.3d 1362, 1365 (Fed. Cir. 1999) (citation omitted); *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349–50 (Fed. Cir. 2002).

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

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

ordinary skill in the art would employ.” *KSR*, 550 U.S. at 418; *accord In re Translogic Tech., Inc.*, 504 F.3d 1249, 1259 (Fed. Cir. 2007).

B. Level of Ordinary Skill in the Art

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of workers active in the field.” *Envtl. Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696–97 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.*

Petitioner argues a person of ordinary skill in the art at the time of the invention “would have had an undergraduate degree in electrical engineering (or equivalent subject) together with two or three years of experience in automotive electrical systems industry.” Pet. 12 (citing Ex. 1008 ¶ 13).

In light of the record before us, we adopt Petitioner’s proposal regarding the level of ordinary skill in the art. Based on our review of the ’806 patent and the prior art of record, we determine that the definition offered by Petitioner comports with the qualifications a person would have needed to understand and implement the teachings of the ’806 patent and the prior art.

C. Claim Construction

In an *inter partes* review, we construe claim terms according to the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2022). Under *Phillips*, claim

terms are afforded “their ordinary and customary meaning.” *Phillips*, 415 F.3d at 1312. “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Id.* at 1313. “Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.*

Petitioner argues that “most of the terms can be given their ordinary meaning, or in any event the ordinary meaning they would have to a person of ordinary skill in the art ... of automobile chargers and jump starters.” Pet. 15 (citing Ex. 1008 ¶ 31). Petitioner further argues that the term “recharging level” which appears in dependent claims 7 and 8 should be interpreted to mean “the level of the first battery after it is connected to the load.” *Id.* (citing Ex. 1008 ¶ 33).

1. “*recharging level*”

Petitioner argues that the term “recharging level” in claims 7 and 8 refers to the voltage level of the jump starter battery (i.e., the “first battery” in claims 7 and 8) after a jump start operation has begun. Pet. 15. In support of its argument, Petitioner and Dr. Kattamis direct us to a portion of the Specification discussing the automobile engine generating “abnormal voltage to recharge the direct current power supply after the automobile starts.” *Id.*; Ex. 1008 ¶ 33 (citing Ex. 1001, 4:43–50). In view of this, Petitioner contends the term “recharging level” should be interpreted to mean “the level of the first battery after it is connected to the load.” Pet. 15.

Having considered Petitioner’s undisputed argument, we note that claims 7 and 8 recite a “recharging voltage level” rather than a “recharging

level,” as Petitioner argues. Ex. 1001, 5:53, 58. We determine that Petitioner’s omission of “voltage” is immaterial, and further that Petitioner’s construction is consistent with the plain language of the claim and supported by the Specification. Ex. 1001, 4:43–50. In view of this, we construe the term “recharging level” to mean “the level of the first battery after it is connected to the load.”

We determine that we do not need to expressly construe any other terms for purposes of this Decision. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”)).

D. Claims 1–7, 9–15, and 17–19: Obviousness Based on Richardson and Krieger

Petitioner argues that claims 1–7, 9–15, and 17–19 are obvious over Richardson and Krieger. Pet. 43–62.

1. Richardson (Ex. 1005)

Richardson is titled “Method and Apparatus for Providing Supplemental Power to an Engine.” Ex. 1005, code (54). Richardson describes “a portable power source for a motor vehicle” that “provide[s] supplemental power to start internal combustion and turbine engines.”

Id. ¶ 1. Generally speaking:

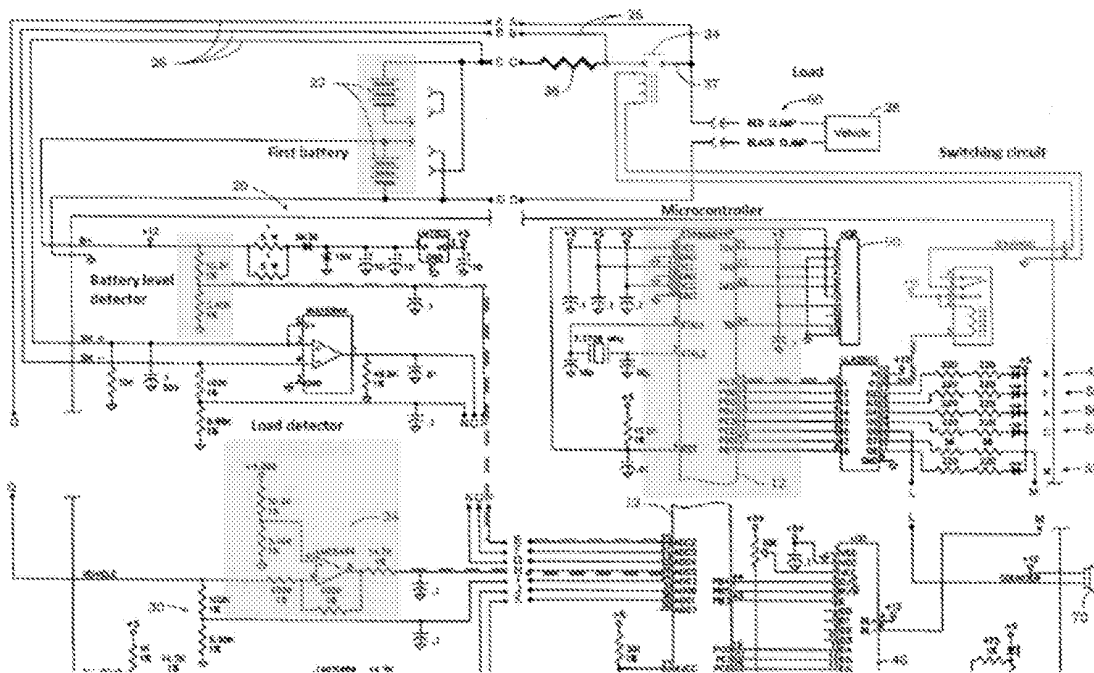
[Richardson’s] invention monitors the voltage of the battery of the vehicle to be jump started and the current delivered by the jump starter batteries to determine if a proper connection has been established and to provide fault monitoring. For safety purposes, only if the proper polarity is detected can the system operate. The voltage is monitored to

determine open circuit, disconnected conductive clamps, shunt cable fault, and solenoid fault conditions. The current through the shunt cable is monitored to determine if there is a battery explosion risk, and for excessive current conditions presenting an overheating condition, which may result in fire. The system includes an internal battery to provide the power to the battery of the vehicle to be jump started. Once the vehicle is started, the unit automatically electrically disconnects from the vehicle's battery.

Id. ¶ 6.

Richardson's Figures 2A–2D are “schematic[s] of the portable power source, control circuit and sensors of the . . . invention.” Ex. 1005 ¶ 8. Dr. Kattamis's Declaration provides a composite of Figures 2A–2D⁶ in annotated schematic Figure K–9, reproduced below.

⁶ Richardson's Figures 2A–2D are partial schematics of the same circuit; each Figure is a quadrant of the circuit and labels the circuit terminals to indicate where any given terminal constitutes another terminal of the other three figures. When pieced together, the Figures are located as follows: Figure 2A at upper left; Figure 2B at lower left; Figure 2C at upper right; and Figure 2D at lower right.



Ex. 1008 ¶ 166. Figure K-9 shows Richardson's Figures 2A and 2C in their entirety in the upper half of the figure. Figure K-9 shows partial versions of Richardson's Figures 2B and 2D in the lower half of the figure.

Richardson describes that its portable power source includes microprocessor 12, jump-starter batteries 22, battery voltage sensor 20, reverse voltage sensor 24, vehicle voltage sensor 30, and contact relay 34.

Ex. 1005 ¶¶ 11-12. In this configuration:

A battery voltage sensor 20 monitors the voltage level of one or more jump starter batteries 22. A reverse voltage sensor 24 monitors the polarity of the jumper cables on line 26 which are connected to the vehicle's electrical system 28. A vehicle voltage sensor 30 monitors the voltage on line 37 (voltage of the vehicle). When the contacts are open, the solenoid voltage sensor 32 input to microprocessor 12 is used to measure the voltage of the jump starter batteries 22, which may be configured for various jump starter voltages. When the contacts are closed, the voltage difference between the batteries 22 and the contact relay 34 is used to measure the voltage drop across a

temperature-and-resistance calibrated 00 AWG [American Wire Gauge] shunt cable 36 in order to calculate the current being delivered by the jump starter batteries 22 to the vehicle's electrical system 28.

Id. ¶ 12. Thus, generally speaking, microprocessor 12 receives inputs and produces informational and control outputs. *Id.* ¶¶ 11, 14, Figs. 2C–2D. The microprocessor closes contact relay 34 to connect jump-starter batteries 22 to the vehicle's electrical system and opens the contact relay to disconnect the jump-starter batteries. *Id.* ¶ 14, Figs. 2C–2D. When closed, the contact relay couples the positive pole of the jump-starter batteries to the positive pole (red clamp) of the vehicle's electrical system. *Id.* at Figs. 2A, 2C.

2. *Krieger (Ex. 1004)*

Krieger is titled “Microprocessor Controlled Booster Apparatus with Polarity Protection.” Ex. 1004, code (54). Krieger describes “a booster device used for boosting a depleted battery” that prevents current flow to the depleted battery “unless proper polarity is achieved.” *Id.* at 1:15–18, 2:21–44, 5:11–13, Abstr.

Krieger's Figure 1 is reproduced below.

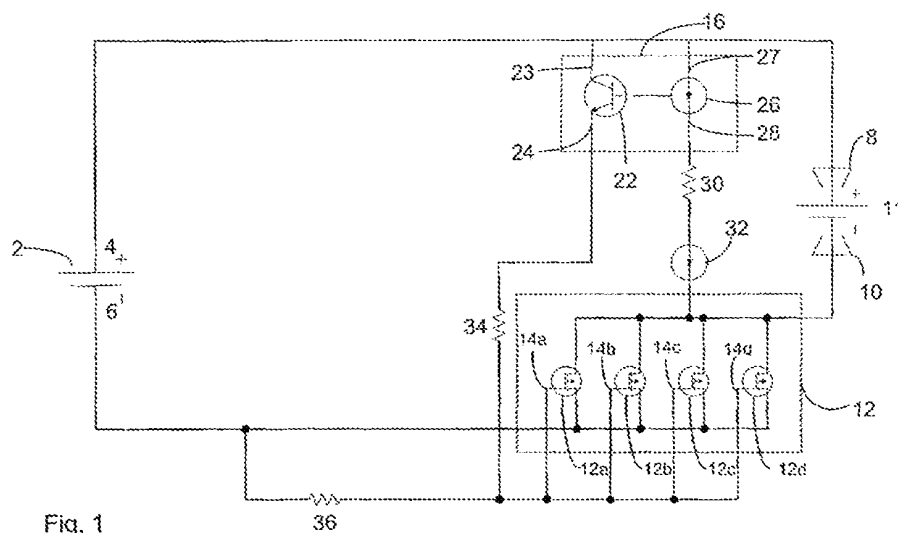


Fig. 1

Figure 1 is a circuit schematic of the invention and depicts polarity-sensing circuit 16 and switch 12 connected to boosting battery 2 and depleted battery 11. *Id.* at 4:55–57, 5:11–52. “The switch 12 is activated to complete a boosting circuit between the boosting battery 2 and the depleted battery 11 only when a correct polarity connection between the batteries is attained.” *Id.* at 5:23–26. The polarity-protection circuit preferably includes solid-state components rather than “mechanical or electro-mechanical devices, such as solenoids,” and “[t]he switch 12 is preferabl[y] a solid state device, such as a transistor, diode, field effect transistor (FET), etc.” *Id.* at 2:21–25, 2:60–61, 3:4–5, 5:34–35, 6:30–32. Krieger’s Figure 1 depicts “the switch 12 as a number [of] FETs 12a–12d connected in parallel with each other.” *Id.* at 5:35–37. “The switch 12 is activated by a polarity sensing circuit 16 to allow current flow from the boosting battery 2 to the depleted battery 11.” *Id.* at 5:47–49.

In addition, Krieger discloses an embodiment with “microprocessor 60 . . . programmed to perform essentially all of the control functions needed

for operation of the jump starter” and “used to control the switch 12.” *Id.* at 8:40–9:32. In particular, “[t]he output signals from the microprocessor 60 to control switch 12 are provided to control electrodes 14a–14d of transistors 12a–12d.” *Id.* at 9:11–13.

Krieger describes a “solid state switch arranged in series” with the jumper cable that couples either (1) the boosting battery’s positive pole to the depleted battery or (2) the boosting battery’s negative pole to the depleted battery. *Id.* at 2:64–3:5. Krieger’s Figure 1 provides more details and shows switch 12 arranged in series between the boosting battery’s negative pole and the depleted battery’s negative pole. *Id.* at Fig. 1. In other figures, Krieger also shows switch 12 arranged in series between the boosting battery’s negative pole and the depleted battery’s negative pole. *Id.* at Figs. 3–6.

Like Richardson, Krieger recognizes that improperly connecting jumper cables presents a danger and “one or both of the batteries may be damaged, and in some cases, an explosion, fire and damage to the vehicle or to a person may result.” *Id.* at 1:27–51, 6:33–44.

3. Analysis

Claim 1

Petitioner contends that the preamble of claim 1 is not limiting, but even if it were treated as a limitation, Richardson teaches a charging device “[i]n the situation where the vehicle’s battery is present but has a voltage of less than 10 volts, the jump starter will start to charge the vehicle’s battery before any starting operation begins.” Pet. 40 (quoting Ex. 1005 ¶ 41); *see also id.* at 44 (reasoning presented for claim 16).

Claim 1 recites “a battery connected to a voltage regulator, the battery supplying a charging current.” Petitioner contends Richardson’s disclosure of jump starter batteries 22 connected to the voltage regulator comprising integrated circuit LM7805, resistors, and capacitors, satisfies this limitation. Pet. 44 (citing Ex. 1008 ¶ 179).

Claim 1 next recites “a battery voltage detector, connected to a microcontroller, to detect a voltage of an automobile battery when the charging device is connected to an automobile.” Petitioner contends Richardson teaches this limitation based on its disclosure of a battery voltage detector formed by the two resistors labeled as “battery level detector” in Figure K–9 (labeled “10.2K” and “3.40K” in Richardson Figure 2A) and these resistors are connected by terminal E to an ATmega644P microprocessor. Pet. 45 (citing Ex. 1008 ¶ 181).

Claim 1 next recites “a load detector, connected to the microcontroller, to detect when the charging device is connected to the automobile battery.” Petitioner contends Richardson teaches this limitation based on its teaching of reverse voltage detector 24 that detects whether the load is correctly connected, and which is connected by terminal H to the ATmega644P microprocessor. Pet. 45–46 (citing Ex. 1008 ¶ 182).

Claim 1 next recites “the microcontroller generating, when the charging device is connected to the automobile battery, an output signal based on a detected voltage of the automotive battery.” Petitioner contends Richardson teaches this limitation by disclosing that microprocessor 12 “includes several outputs 16 to provide information to the user and to control the application of power to the vehicle to be jump started” and one of these outputs is reverse voltage LED 48 “illuminated when the microprocessor 12

determines that a reverse voltage jumper cable voltage is detected by reverse voltage sensor 24.” Pet. 46 (quoting Ex. 1005 ¶ 14; citing Ex. 1008 ¶ 185) (emphasis omitted).

Claim 1 next recites “switching circuitry including a plurality of MOSFETs to selectively connect a negative terminal of the battery to the automobile battery when the microcontroller generates the output signal.” Petitioner contends Richardson teaches this limitation by disclosing “a solenoid and a [contact] relay are connected [by] the pin 01 of chip ULN2803 . . . to [an] output signal . . . generated by the microcontroller [12].” Pet. 47 (citing Ex. 1008 ¶ 188). Petitioner further contends contact relay control output 58 of microprocessor 12 controls contact relay 34 based upon the reverse polarity sensor 24 determining that the jump starter is correctly connected to the vehicle. *Id.* (citing Ex. 1005 ¶¶ 14, 20, Fig. 2C; Ex. 1008 ¶ 188, Fig. K–9). Petitioner acknowledges that Richardson does not disclose the solenoid and contact relay include a plurality of MOSFETs to selectively connect a negative terminal of the battery to the automobile battery when the microcontroller generates the output signal and relies on Krieger as teaching these limitations, as discussed below. *Id.* at 47–49.

As to the “MOSFETs” limitation, Petitioner contends Krieger discloses a polarity protection circuit for a battery booster device and that the protection circuit includes “a switch 12, which is preferably ‘a solid state device, such as a transistor, diode, field effect transistor (FET), etc.’” Pet. 47 (quoting Ex. 1004, 5:34–35) (emphasis omitted). Petitioner further contends a MOSFET is a specific type of field effect transistor and thus a person of ordinary skill in the art would have understood a MOSFET as a type of device which may comprise Krieger’s switch 12 and FETs 12a–12d

of the switch. *Id.* (citing Ex. 1008 ¶ 189). According to Petitioner, it would have been obvious to replace Richardson’s solenoid and contact relay with a solid-state switch of MOSFETs in view of Krieger. *Id.* at 47–48. Petitioner further contends Krieger teaches it is preferable not to include mechanical or electro-mechanical devices, such as solenoids, in the polarity protection circuit. *Id.* (citing Ex. 1004, 2:23–25; Ex. 1008 ¶ 190).

As to the “negative terminal” limitation, Petitioner contends Krieger discloses the switch 12 connects to the negative terminal of the automobile battery, and teaches that “other locations of the switch in the boosting circuit are possible.” Pet. 48 (citing Ex. 1004, 5:27–30, 5:32–33). Petitioner further contends a person of ordinary skill would have understood that the switching may be placed on either the positive or negative side of the connection between the jump starter batteries and the load and, because there are only two possible general locations to provide the switch, “it would have been obvious to try locating the switch on the negative side.” *Id.* (citing Ex. 1008 ¶ 191). Petitioner also contends a person of ordinary skill would have been further motivated to locate the switch on the negative side because “when performing a jump start . . . there generally will be some arc or spark” and therefore “it is common in the automotive industry . . . to connect the negative terminals last . . . whenever the final connection is made” and “advisable to have this connection be made away from the automobile battery, usually to ground via the engine block.” *Id.* at 49 (citing Ex. 1008 ¶ 192; Ex. 1007).

Claim 1 next recites “a boost device for boosting a gate voltage of the plurality of MOSFETs.” Petitioner contends that Richardson teaches this limitation by disclosing a ULN2803 chip, which a person of ordinary skill in

the art would have recognized as a transistor array featuring high voltage outputs for switching inductive loads that would act as a boost device to increase the voltage used to trigger Richardson's switch circuitry to connect the charging device battery to the load. Pet. 49 (citing Ex. 1008 ¶ 194).

Petitioner further contends it would have been obvious to replace Richardson's switch circuitry with a solid-state switch of MOSFETs, as discussed above, and that Krieger suggests a boost device for the substituted MOSFETs by disclosing a level translator 68 "translates the output voltage of [its] microprocessor 60 to the higher levels that are needed to operate transistors 12a–12d." *Id.* at 50 (quoting Ex. 1004, 9:21–23; citing Ex. 1008 ¶ 195) (emphasis omitted). Thus, Petitioner contends it would have been obvious to a person of ordinary skill in the art to use either Krieger's level translator or Richardson's ULN2803 as a boost device for boosting the gate voltage of the substituted MOSFETs. *Id.* (citing Ex. 1008 ¶ 195).

Having reviewed Petitioner's undisputed evidence and argument regarding claim 1, we find that Petitioner has demonstrated that Richardson and Krieger teach or suggest all of the limitations of claim 1, and that a person of ordinary skill in the art would have had reason to combine the teachings in the way Petitioner proposes and would have had a reasonable expectation of success in doing so. Accordingly, Petitioner has established by a preponderance of the evidence that claim 1 is obvious over the combination of Richardson and Krieger.

Claims 2–7, 9–15, and 17–19

Claims 2–7 and 9–15 depend directly from claim 1. Petitioner directs us to Richardson's and Krieger's disclosures corresponding to the additional limitations in claims 2–7 and 9–15. Pet. 50–60.

Claims 17–19 depend directly or indirectly from independent claim 16. As discussed below, we determine Petitioner has demonstrated by a preponderance of the evidence that Richardson anticipates claim 16. Petitioner directs us to Richardson’s and Krieger’s disclosures corresponding to the additional limitations in claims 17–19. Pet. 60–62.

Having reviewed the undisputed evidence and argument Petitioner presents regarding these claims, we find that Petitioner has demonstrated that Richardson and Krieger teach or suggest all of the limitations of claims 2–7, 9–15, and 17–19, and that a person of ordinary skill in the art would have had reason to combine the teachings in the way Petitioner proposes and would have had a reasonable expectation of success in doing so. Accordingly, Petitioner has established by a preponderance of the evidence that claims 2–7, 9–15, and 17–19 are obvious over the combination of Richardson and Krieger.

4. Conclusion

For all of the foregoing reasons, we determine Petitioner has demonstrated by a preponderance of the evidence that claims 1–7, 9–15, and 17–19 are unpatentable as obvious in view of Richardson and Krieger.

E. Claim 16 – Anticipation Based on Richardson

Petitioner argues that claim 16 is anticipated by Richardson. Pet. 39–43.

Petitioner contends that the preamble of claim 1 is not limiting, but even if it were treated as a limitation, Richardson discloses “a method for a device to charge an automobile battery” for the same reasons as discussed above for claim 1. Pet. 40.

Claim 16 recites “detecting a voltage level of a battery.” Petitioner contends Richardson’s disclosure of battery voltage sensor 20 formed by the two resistors labeled as “battery level detector” in Figure K–9 (labeled “10.2K” and “3.40K” in Richardson Figure 2A), that “monitors the voltage level of one or more jump starter batteries 22,” satisfies this limitation. Pet. 40 (citing Ex. 1005 ¶ 12; Ex. 1008 ¶ 179).

Claim 16 next recites “detecting a connection and a type of connection between the battery and the automobile battery.” Petitioner contends Richardson discloses this limitation based on reverse voltage detector 24 that detects whether a load is correctly connected and thus detects when the charging device is connected to the automobile battery. Pet. 41 (citing Ex. 1003, Fig. K-9; Ex. 1008 ¶ 166).

Claim 16 next recites “generating, by a microcontroller, an output signal based on the voltage level of the battery, the connection to the automobile battery and the type of connection of the automobile battery.” Petitioner contends Richardson’s disclosure of microprocessor 12 that “includes several outputs 16 to provide information to the user and to control the application of power to the vehicle to be jump started” satisfies this limitation because it describes that one of the outputs, reverse voltage LED 48, is “illuminated when the microprocessor 12 determines that a reverse voltage jumper cable voltage is detected by reverse voltage sensor 24.” Pet. 42 (quoting Ex. 1003 ¶ 14; citing Ex. 1008 ¶ 168).

Claim 16 next recites “selectively connecting the battery to the automobile battery using the output signal.” Petitioner contends Richardson’s disclosure of switching circuitry comprising a solenoid and a relay, which are connected from the pin 01 of chip ULN2803 in response to

the output signal generated by microprocessor 12, satisfies this limitation. Pet. 42 (citing Ex. 1005 ¶ 14; Ex. 1008 ¶ 188). Petitioner further contends contact relay control output 58 of microprocessor 12 controls contact relay 34 based upon the reverse polarity sensor 24 determining that the jump starter is correctly connected to the vehicle. *Id.* at 43 (citing Ex. 1005 ¶¶ 14, 20, Fig. 2C; Ex. 1008 ¶ 171).

Claim 1 next recites “providing a low voltage protection to prevent damages caused by over discharging of the battery.” Petitioner contends Richardson’s disclosure that the microcontroller tests for the battery voltage being above a threshold (step 212) and for the cables being properly connected (step 214) satisfies this limitation because it prevents damages from an over-discharged battery. Pet. 43 (citing Ex. 1008 ¶ 172).

Having reviewed Petitioner’s undisputed evidence and argument regarding claim 16, we find that Petitioner has demonstrated that Richardson discloses all of the limitations of claim 16. Accordingly, Petitioner has established by a preponderance of the evidence that Richardson anticipates claim 16.

F. Claim 8 – Obviousness Based on Richardson, Krieger, and George

Petitioner argues that claim 8 is obvious in view of Richardson, Krieger, and George. Pet. 62–64.

1. George (Ex. 1006)

George discloses a “jump start protection circuit having a normally open switch” and a controller that manipulates the switch between an open and closed position. Ex. 1006, code (57). The controller measures voltages at the battery and a jump start post, and moves the switch to a closed

position, thereby connecting the jump start post to the battery, when it detects acceptable jump start conditions. Ex. 1006, code (57). According to George, its circuit “provides protection against attempts to charge a battery with incorrect polarity connections and attempts to charge a battery from a potentially hazardous higher voltage power.” Ex. 1006, code (57). George explains that one example of a condition that would cause its switch to open includes the voltage at the battery or jump start post exceeding a predefined range for a predefined period of time. Ex. 1006, 5:55–64.

2. Analysis

Claim 8 depends from claim 7, and requires that “the microcontroller generates the output signal to cause the switching circuitry to disconnect the battery from the automobile battery when the recharging voltage level of the batter is greater than a threshold.”

Petitioner relies on its arguments and evidence demonstrating that the combination of Richardson and Krieger renders obvious claim 7, and acknowledges neither Richardson nor Krieger discloses that the switching circuitry will disconnect the batteries when the voltage of the battery is greater than a threshold. Pet. 63. Petitioner argues that George discloses its switch will be opened if the voltage of the power source is too high as compared to the vehicle battery. *Id.* (citing Ex. 1006, 5:64–6:2; Ex. 1008 ¶ 259). Petitioner further argues it would have been obvious to a person of ordinary skill to modify Richardson to open the contact relay when the voltage level detector detects a voltage higher than a given level, either in place of, or in addition to, Richardson’s current sensing method, because it would simplify Richardson’s circuit and reduce cost by avoiding the need

for current-sensing circuit elements, or it would provide redundancy for safety purposes. *Id.* (citing Ex. 1008 ¶ 260).

Having reviewed Petitioner’s undisputed evidence and argument regarding claim 8, we find that Petitioner has demonstrated that the combination of Richardson, Krieger, and George teach or suggest all of the limitations of claim 8, and that a person of ordinary skill in the art would have had reason to combine the teachings and would have had a reasonable expectation of success in doing so. Accordingly, Petitioner has established by a preponderance of the evidence that claim 8 is obvious over the combination of Richardson, Krieger, and George.

In view of Petitioner’s undisputed evidence demonstrating where the prior-art references teach or suggest each limitation in the challenged claims, and explaining why a person of ordinary skill in the art would have had reason to combine the prior-art references with a reasonable expectation of success, we find Petitioner has established, by a preponderance of the evidence, that claim 8 is unpatentable as obvious in view of Richardson, Krieger and George.

G. Petitioner’s Remaining Patentability Challenges

Having determined that Petitioner establishes by a preponderance of the evidence that claims 1–7, 9–15, and 17–19 are unpatentable as obvious in view of Richardson and Krieger, that claim 16 is anticipated by Richardson, and that claim 8 is unpatentable as obvious in view of Richardson, Krieger, and George, we do not address Petitioner’s additional grounds challenging claims 1, 2, 4–6, 9–14, and 16–19. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Boston*

Sci. Scimed, Inc. v. Cook Grp. Inc., 809 F. App'x 984, 990 (Fed. Cir. 2020) (nonprecedential) (“We agree that the Board need not address [alternative grounds] that are not necessary to the resolution of the proceeding.”).

III. CONCLUSION

After reviewing the complete record developed during the course of the trial, we conclude that Petitioner has satisfied its burden of demonstrating, by a preponderance of the evidence, that claims 1–19 of the '806 patent are unpatentable.⁷

IV. ORDER

In consideration of the foregoing, it is hereby

ORDERED that Petitioner established by a preponderance of the evidence that claims 1–19 of the '806 patent are unpatentable; and

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

In summary:

⁷ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

Claim(s)	35 U.S.C. §	References/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
16–19	102	Baxter ⁸		
1, 2, 4–6, 9–14	103	Baxter, Krieger		
16	102	Richardson	16	
1–7, 9–15, 17–19	103	Richardson, Krieger	1–7, 9–15, 17–19	
8	103	Richardson, Krieger, George	8	
Overall Outcome			1–19	

⁸ As explained above, we do not reach this ground, or the ground involving Baxter and Krieger, in view of our determination that Petitioner has otherwise established claims 1–19 are unpatentable.

IPR2021-01235
Patent 10,328,806 B2

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AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
filed in the U.S. District Court Southern District on the following

☐ Trademarks or ☐ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 9:21-cv-81009-DMM	DATE FILED 6/7/2021	U.S. DISTRICT COURT Southern District
PLAINTIFF PILOT, INC.		DEFENDANT Baccus Global LLC
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 9,525,297		SEE COMPLAINT
2 10,046,653		
3 10,328,806		
4 10,875,410		
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
1			
2			
3			
4			
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK Angela E. Noble	(BY) DEPUTY CLERK s/ Carlos Davis	DATE 7/30/2021
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF FLORIDA**

CASE NO. 21-81009-CV-MIDDLEBROOKS/Matthewman

PILOT, INC.,

Plaintiff,

v.

BACCUS GLOBAL LLC,

Defendant.

ORDER CLOSING CASE

THIS CAUSE comes before the Court upon the Parties' Joint Stipulation of Dismissal of Complaint with Prejudice and Joint Stipulation of Counterclaims Without Prejudice ("Stipulation"), filed on July 28, 2021. (DE 20). The Court congratulates the Parties on their amicable resolution of this matter and notes that pursuant to *Anago Franchising, Inc. v. Shaz, LLC*, 677 F.3d 1272 (11th Cir. 2012), the Parties' Stipulation is self-executing and no order of the Court is required to dismiss this action.

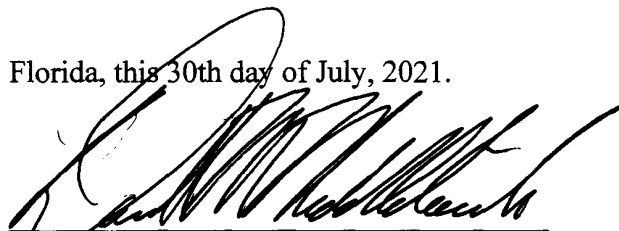
Accordingly, it is hereby **ORDERED and ADJUDGED** that:

(1) Plaintiff Pilot, Inc.'s claims against Defendant Baccus Global LLC are **DISMISSED WITH PREJUDICE**.

(2) Defendant Baccus Global LLC's Counterclaims against Plaintiff Pilot, Inc. are **DISMISSED WITHOUT PREJUDICE**.

(3) The Clerk of Court shall **CLOSE THIS CASE** and **DENY AS MOOT** all pending motions.

SIGNED in Chambers in West Palm Beach, Florida, this 30th day of July, 2021.

A handwritten signature in black ink, appearing to read 'Donald M. Middlebrooks', written over a horizontal line.

DONALD M. MIDDLEBROOKS
UNITED STATES DISTRICT JUDGE

Copies to: Counsel of Record

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK Angela E. Noble	(BY) DEPUTY CLERK s/ Carlos Davis	DATE 6/7/2021
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

below, Baccus has incorporated Pilot's patented technology into a number of other products currently featured on its websites at <https://www.stanley12volt.com/> and <https://www.blackanddecker12volt.com/>.

32. The infringing Baccus product models (collectively "the Accused Baccus Jump Starters") are at least those depicted in the below table:

TABLE 1: ACCUSED BACCUS JUMP STARTERS		
Model #	Product Description	Product Imaging
SS4LS Sold at various prices through third party retailers and websites	Stanley PowerToGo™ Lithium Ion Jump Starter / Power Pack 5 th Call out: "Reverse polarity warning to alert when there is an improper connection" 6 th Call out: "Backlit digital readout displays battery level and voltage"	 The image shows a black, rectangular Stanley PowerToGo SS4LS Lithium Ion Jump Starter. It has a digital display screen on the front, several buttons, and a carrying handle. Two red and black jumper cables are attached to the top. The Stanley logo is visible on the front. https://www.stanley12volt.com/copy-of-p2g7s
P2G7S Sold at various prices through third party retailers and websites	Stanley Simple Start™ Lithium Ion Battery Booster 6 th Call out: "Reverse polarity warning to alert when there is an improper connection"	 The image shows a black, rectangular Stanley Simple Start P2G7S Lithium Ion Battery Booster. It has a digital display screen on the front, several buttons, and a carrying handle. Two red and black jumper cables are attached to the top. The Stanley logo is visible on the front. https://www.stanley12volt.com/p2g7s

P2G7B Sold at various prices through third party retailers and websites	BLACK+DECKER Power to Go™ Lithium Ion Battery Booster 5th Call Out: “Reverse polarity warning to alert when there is an improper connection”	 https://www.blackanddecker12volt.com/p2g7b
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33. These products, their functionality, their Instruction Manuals, and the circuit boards incorporated within them have all been reviewed and inspected and that analysis confirms that manufacture, offer for sale, sale and/or use of the Accused Baccus Jump Starters' constituted literal and doctrine of equivalents infringement of at least Claims 7, 8, 9, 10, 11, 17, 18, 19 and 20 of the '653 patent.

34. The Instruction Manual that accompanied the P2G7S is attached as Exhibit E. This Manual applies to P2G7S and P2G7B.

35. The Instruction Manual that accompanied the SS4LS is attached as Exhibit F.

36. Claim 7 of the '653 patent requires as follows:

30 35	7. A charging device, comprising: a battery level detector to detect a level of a first battery; a load detector to detect a type of connection of a load; a microcontroller to generate an output signal based on the level of the first battery and the type of connection of the load; and switching circuitry to selectively connect the first battery to the load based on the output signal.
---------------------	---

37. Each limitation in Claim 7 is literally present within the P2G7S, the P2G7B, and the SS4LS products, as well as their associated cables.

38. The P2G7S, P2G7B, and SS4LS products are charging devices to the extent this limitation is required by Claims 7-11 and 17-20 of the '653 patent.

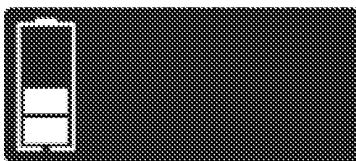
39. The P2G7S, P2G7B, and SS4LS have the claimed "battery level detector." Here, the first battery is the lithium battery within the housing. When in operation, the P2G7S or P2G7B user clicks the power button on the face of the housing. A Colored LED immediately displays an indication of the electrical power level of the first battery using the LED color to indicate battery level. *See* Ex. D at 7 (excerpted below).

READING THE OPERATING STATUS LED INDICATOR RING	
The Operating Status LED indicator Ring is a translucent ring around the Main Power Button. Press the Main Power Button to turn the unit on. The Operating Status LED Indicator Ring lights or flashes in one of four colors, indicating the following:	
Battery Status (Standby) Mode This displays constantly when the unit has been turned on and is not in Charging or Booster Mode.	
Blue (solid):	The unit's internal lithium-ion battery is in a fully charged state (80-100%).
Yellow (solid):	The unit's internal lithium battery is in a partially charged state (41-79%).
Red (solid):	The unit's internal lithium-ion battery has low battery power and should be recharged.



40. In the case of the SS4LS product, the LCD display illuminates and shows an indication of the level of the lithium battery. *See* Ex. E at 1 (excerpted below).

VIEWING BATTERY STATUS



The Battery Status Icon indicates the battery charge level as follows:

- If the battery charge level is at full capacity, four solid bars will display.
- If the battery is partially charged, two or three solid bars will display.
- If the battery is nearly empty, one solid bar will display. The unit should be charged at this time.
- If the battery is completely empty, four blank bars will display. The unit **MUST** be charged at this time or the unit's built-in low voltage protection will activate. The empty Battery Status Icon will light for a short period of time before automatic shut down. The unit will not operate until the battery is recharged.

41. The P2G7S, P2G7B, and SS4LS products have the claimed “load detector to detect a type of connection of the load.” As instructed in both Instruction Manuals, the user is directed to connect the jump starter to an automobile battery. As a result, the P2G7S and P2G7B products literally infringe Claims 9 and 19 of the ‘653 patent.

42. The LED’s function on the P2G7S and P2G7B products confirms the existence of the load detector. The housing features an LED that will flash red, yellow, or green based upon certain conditions, including the type of connection of the load. The SS4LS product uses a Bi-Color Booster Status Indicator for the same purpose.

43. On Page 7 of the Instruction Manual for the P2G7S product, the following chart appears:

Booster Mode This displays when the unit is boosting the vehicle battery using either the 12V DC Boosting/Charging Cable or the Battery Clamps. Important: The length of time for each stage of the boosting process varies depending on ambient temperature and the condition of the vehicle battery.	
Red (flashing):	This continues for up to 25 minutes when the unit detects that the vehicle battery it is connected to is at low charge level. It will automatically begin the boosting process. The Operating Status LED Indicator Ring continues to flash red until the process moves to stage 2, when it changes to flashing yellow.
Yellow (flashing):	This continues for up to 12 minutes until the process moves to stage 3, when it changes to flashing green.
Green (flashing):	This continues for up to 12 minutes until the process moves to the final stage, when it changes to solid green.
Green (solid):	The vehicle battery voltage has reached a sufficient charge level that you can attempt to start the vehicle.
Fault Condition	
Red & Blue (flashing alternately):	A fault condition has been detected. This could include unit overheating or reverse polarity connection of the battery clamps. The unit will stop operating until the fault has been corrected.
Red & Green (flashing alternately):	A vehicle battery fault condition has been detected. This could include lead sulfation or an internal shorted cell in the vehicle battery. The unit will stop operating until it is disconnected from the faulty battery.
Red & Yellow (flashing alternately):	The unit's internal lithium-ion battery has dropped to a low charged state (0%) and must be recharged at this time or the unit's built-in low voltage protection will activate shortly, when the unit will stop operating until it recharged.

44. In the Instruction Manual for the SS4LS product, the following chart appears:

Procedure

Take the following steps, observing all cautions and warnings in the "Important Safety Instructions" section at the front of this manual.

1. Turn off vehicle ignition and all accessories (radio, A/C, lights, connected cell phone chargers, etc.). Place vehicle in "park" and set the emergency brake.
2. Make sure all the unit functions are turned off (the LCD Screen is not lit) and the USB Charging Cable is NOT connected.
3. Lift up the protective cover of the unit's Smart Cables Port. Insert the double-barrel Smart Cables Connector into the Smart Cables Port on the unit.
4. Set up the unit as described in the "Preparing to Boost Using the Included Battery Clamps" section, observing all warnings and cautions in the "Important Safety Instructions" section.
5. When the unit is properly connected, the Bi-Color Booster Status Indicator on the Smart Cables Controller will light green.
6. Turn on the ignition and crank the engine in 5-6 second bursts until the engine starts.
7. When the process is completed, disconnect the booster. First remove the NEGATIVE black (-) clamp from vehicle chassis, and then remove the POSITIVE red (+) clamp from the POSITIVE battery post. Disconnect the double barrel Smart Cables Connector from the Smart Cables Port.
8. Store the Smart Cables Controller in a safe place.
9. Recharge the unit fully.

IMPORTANT NOTES:

If the battery clamps are incorrectly connected with regard to polarity, the Bi-Color LED Status Indicator will light red until the clamps are disconnected. Remove the clamps and then reconnect them with correct polarity.

If the voltage of the unit's internal lithium battery is low and has insufficient output power, the Bi-Color LED Status Indicator will light red. Disconnect the unit and fully charge following the directions in the "Charging / Recharging the Booster" section.

If the Smart Cables Controller is overheated, the Bi-Color LED Status Indicator will light red. Disconnect the Battery Clamps and allow the unit to cool down for a period before resuming any operation.

If the cranking current and/or time period exceeds the unit's parameters, the Bi-Color Booster Status Indicator will flash red for 30 seconds (a cooling down period) before lighting green again (resuming normal operation).

45. The load detector claimed in the '653 patent contributes to the behavior of Accused Baccus Jump Starters as described above. Specifically, the load detector of the P2G7S and P2G7B products will detect the type of connection of the load. Based upon the type of connection detected, the microcontroller will cause the LED to be illuminated when polarity is proper and boosting is occurring and will cause the LED to flash to alternate between colors when a faulty load connection is detected, for example, alternating blue and red when reverse polarity is detected. In the case of the SS4LS product, the load detector will detect the type of connection of the load. Based upon the

type of connection detected, the microcontroller will cause the Bi-Color LED Status Indicator to be solid green when polarity is proper and red when the connection is reversed.

46. Claim 8 and 18 require as follows:

8. The charging device of claim 7, wherein the type of connection includes a proper connection of the load and an improper connection of the load.

18. The method of claim 17, wherein the type of connection includes a proper connection of the load and an improper connection of the load.

47. The behavior described in the Instruction Manuals, and as observed in operation, confirms that the P2G7S, P2G7B, and SS4LS products detect a proper connection and an improper connection, as indicated by the LEDs. As a result, the Accused Baccus Jump Starters literally infringe Claims 8 and 18 of the '653 patent.

48. Claim 10 requires as follows:

10. The charging device of claim 9, wherein the proper connection of the load is a polarity match between the second battery and the motor, and wherein the improper connection of the load is a polarity reversal between the second battery and the motor or a disconnection of the second battery from the motor.

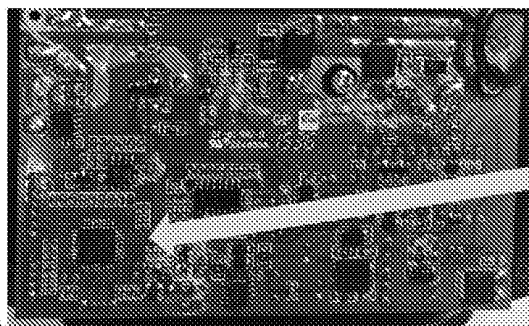
49. Claim 19 similarly requires "A method claim of **claim 18**, wherein the load is a second source and an electrical component powered by the second source,"

8
wherein the proper connection of the load is a correct polarity connection between the second power source and the electrical component, and wherein the improper connection of the load is an incorrect polarity connection between the second power source and the electrical component or a disconnection of the second power source from the electrical component.

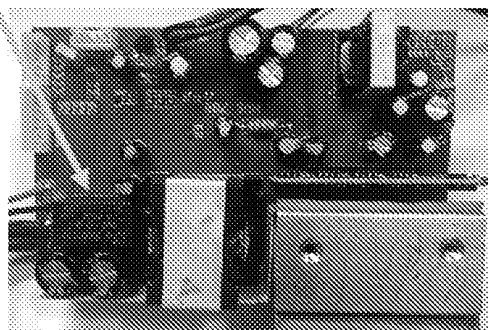
50. The behavior described in the Instruction Manuals, and as observed in operation, confirms that the P2G7S, P2G7B, and SS4LS products require a polarity match to achieve a proper connection, i.e. green light. Further, the P2G7S, P2G7B, and SS4LS products treat a polarity reversal as an improper connection, i.e. the flashing alternating colors or a red light. As a result, the Accused Baccus Jump Starters literally infringe Claim 10 and Claim 19 of the ‘653 patent.

51. The P2G7S and P2G7B products have a “microcontroller to generate an output signal based on the level of the first battery and the type of connection of the load.” The microcontroller used in the P2G7S and the P2G7B products receives information from the load detector and the battery detector and produces an output signal which travels to the switching circuitry.

Switching Circuitry
to Selectively
Connect the first
Battery to the load
based on the
output signal

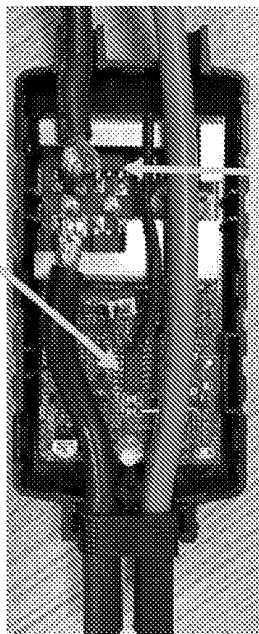


Microcontroller
to generate an
output signal
based on the
level of the
first battery and
the type of
connection of
the load



P2G7S

Microcontroller
to generate an
output signal
based on the
level of the
first battery and
the type of
connection of
the load



Switching Circuitry
to Selectively
Connect the first
Battery to the load
based on the output
signal

SS4LS

52. Both the P2G7S and the P2G7B products utilize a relay as switching circuitry. The SS4LS product uses a plurality of Metal Oxide Field Effect Transistors (“MOSFETs”) as the switching circuitry. The switching circuitry will only allow passage of the load based upon the output signal received from the microcontroller.

53. Based upon inspection, the P2G7S, P2G7B, and SS4LS products also literally infringe Claims 11 and 20 of the ‘653 patent. Claim 11 requires as follows:

11. The charging device of claim 8, wherein the micro-
controller is configured to:
generate the output signal to cause the switching circuitry
50 to connect the first battery to the load if the load is
properly connected and the level of the first battery is
above a threshold; and
generate the output signal to cause the switching circuitry
to disconnect the first battery from the load if i) the
55 level of the first battery is below the threshold, or ii) the
load is improperly connected.

54. Claim 20 requires as follows:

10 **20.** The method of claim 18, the generating comprising:
generating the output signal to cause the switching cir-
cuits to connect the first power source to the load if the
load is properly connected and the level of the first
power source is above a threshold; and
15 generating the output signal to cause the switching cir-
cuits to disconnect the first power source from the load
if i) the level of the first power source is below the
threshold, or ii) the load is improperly connected.

55. The microcontroller of the P2G7S, P2G7B, and SS4LS products generate an output signal that is delivered to the claimed switching circuitry which causes the switching circuitry to connect the lithium battery (or first power source) to the automobile if (1) the load is properly connected and (2) the level of the first power source is above a threshold.

56. In addition, the microcontroller of the P2G7S, P2G7B, and SS4LS products generate an output signal that is delivered to the claimed switching circuitry which causes the switching circuitry to disconnect the lithium battery (or first power source) from the automobile when (1) the power of the first power source is below a threshold or (2) the load is improperly connected.

57. The SS4LS product and its functionality, its Instruction Manual, and the circuit boards incorporated within it were also analyzed and examined in connection with assessing infringement of the '806 patent. Based upon a careful inspection of the Accused Baccus Jump Starters' configuration and operation and related materials, the SS4LS product infringes, both literally and under the doctrine of equivalents, at least claims 16-19 of the '806 patent.

58. Exemplary independent claim 16 of the '806 patent reads:

16. A method for a device to charge an automobile battery, the method comprising:
detecting a voltage level of a battery;
detecting a connection and a type of connection between the battery and the automobile battery;
generating, by a microcontroller, an output signal based on the voltage level of the battery, the connection to the automobile battery and the type of connection of the automobile battery;
selectively connecting the battery to the automobile battery using the output signal; and
providing a low voltage protection to prevent damages caused by over discharging of the battery.

59. The SS4LS chargers include a lithium “battery” inside the housing that supplies a charging current and thus meet the first limitation of the claim. As explained above, in the case of the SS4LS chargers, detection of a voltage level of a battery is shown by the LCD display, which shows an indication of the level of the lithium battery, and the device’s Bi-Color LED Status Indicator, which will light red or green depending on the detected level of the lithium battery. In order to use the SS4LS chargers as intended, and as directed in the Instruction Manual, “detecting a voltage level of a battery” occurs automatically.

60. The SS4LS chargers include circuitry to detect whether there is a connection between the lithium battery and an automobile battery and the type of connection between them. As discussed above, the Bi-Color LED Status Indicator’s function on the SS4LS confirms the existence of a detection of a connection. The cable housing features an LED that illuminates red or green based upon certain conditions, including whether an automobile is connected and the type of connection. In order to use the SS4LS chargers as intended and as directed in the Instruction Manual, “detecting a connection and a type of connection between the battery and the automobile battery” occurs automatically.

**IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF FLORIDA
WEST PALM BEACH DIVISION**

PILOT, INC.,
a California Corporation,

Plaintiff,

v.

BACCUS GLOBAL LLC, a Florida Limited
Liability Company,

Defendant.

Case No.

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Pilot, Inc. (“Pilot” or “Plaintiff”) files this Complaint with Jury Demand for Patent Infringement against Defendant Baccus Global LLC (“Baccus”), and alleges as follows:

THE PARTIES

1. Pilot is a corporation organized under the laws of the state of California with its principal place of business at 13000 Temple Avenue, City of Industry, California 91746.
2. Defendant Baccus is a limited liability company organized under the laws of Florida having its principal place of business at 621 NW 53rd Street, Suite 450, Boca Raton, Florida 33487.

JURISDICTION AND VENUE

3. This is an action for patent infringement under the Patent Laws of the United States. 35 U.S.C. § 101, *et seq.*
4. This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).
5. This Court has personal jurisdiction over Baccus because Baccus resides in the state of Florida and engages in continuous and systematic business in Florida and this District.

61. The SS4LS chargers include microcontroller configured to generate, when the jump starter device is connected with a correct connection to the automobile battery and the lithium battery voltage is sufficient, an output signal based on a detected battery voltage. As explained above, the microcontroller used in the SS4LS chargers receives information from the battery voltage detector and load detector that produces an output signal which travels to the switching circuitry and signaling LEDs. In order to use the SS4LS chargers as intended and as directed in the Instruction Manual, “generating, by a microcontroller, an output signal based on the voltage level of the battery, the connection to the automobile battery and the type of connection of the automobile battery” occurs automatically.

62. The SS4LS chargers include a plurality of MOSFETs as switching circuitry to selectively connect the lithium battery to the automobile battery when the microcontroller generates the output signal to the MOSFETs. As discussed, and identified above, the switching circuitry in the SS4LS chargers consist of a plurality of MOSFETs that are activated on receipt of an output signal from the microcontroller creating a connection whereby power is supplied from the lithium battery in the housing to the automobile battery. In order to use the SS4LS chargers as intended and as directed in the Instruction Manual, “selectively connecting the battery to the automobile battery using the output signal” occurs automatically.

63. The same MOSFETs discussed above function to disconnect the lithium battery from the automobile battery as appropriate in response to an output signal from the microcontroller. Based on testing and references in the Instruction Manual to the devices performance during the jump start process, the SS4LS disconnects the lithium battery from the automobile battery at the MOSFETs when the lithium battery is sufficiently charged, and this status is indicated by the Bi-Color LED Status Indicator. Disconnection in the instance of a low lithium battery protects the

lithium battery from becoming overly discharged, resulting in damage. In order to use the SS4LS chargers as intended and as directed in the Instruction Manual, “providing a low voltage protection to prevent damages caused by over discharging of the battery” occurs automatically.

64. All the limitations of claim 16 of the '806 patent, as above shown, necessarily occur in using the SS4LS chargers as intended and instructed, meaning manufacture, use, offer for sale, and/or sale in the U.S. and/or importation of these devices into the U.S. constitutes infringement of that independent claim.

65. The SS4LS chargers include a lithium battery that supplies a charging current and thus meets the first limitation of the claim. They also have the claimed “battery voltage detector, connected to a microcontroller, to detect a voltage of an automobile battery when the charging device is connected to an automobile.” When the cables are connected, the charges measure the voltage of the automobile battery and determine whether the detected voltage is above or below a threshold. Specifically, the Owner’s Manual directs that after a good connection between the charger and a sufficiently charged load battery is made, the system will indicate it is ready to jump and the “Bi-Color Booster Status Indicator on the Smart Cables Controller will light green.” Ex. E at 1. However, even if the cables are correctly connected, if the automobile battery is below 2-volts based on the voltage detector, the system will not indicate it is ready to jump. *Id.* (“The Battery Booster requires a minimum voltage to detect the correct connection before it will begin to boost. If the vehicle battery voltage is below approximately 2 volts, it may not be able to detect connection and may not be able to boost the vehicle. While this low battery voltage is rare it may occur under extreme conditions.”). These signals are mediated through the microprocessor, which controls the signaling LEDs.

66. The SS4LS chargers also include the claimed “load detector, connected to the microcontroller, to detect when the charging device is connected to the automobile battery.” As discussed above, the LED’s function on the SS4LS confirms the existence of the load detector. The cable housing features an LED that will turn red or green based upon certain conditions, including whether a load is connected and the type of connection.

67. The SS4LS chargers further have the claimed “microcontroller generating, when the charging device is connected to the automobile battery, an output signal based on a detected voltage of the automotive battery.” The microcontroller used in the SS4LS chargers receives information from the battery voltage detector and produces an output signal which travels to the switching circuitry and signaling LEDs. As discussed, and identified above, the switching circuitry in the SS4LS consists of a plurality of MOSFETs and thus also meets the fifth limitation of claim 1.

68. The SS4LS chargers finally also include the claimed “boost device for boosting a gate voltage of the plurality of MOSFETs.” The “boost device” is located in the circuit between the battery and the MOSFETs.

69. The SS4LS charger, its functionality, its Instruction Manual and the circuit boards incorporated with it were further examined and analyzed in connection with assessing infringement of the ’410 patent. Based upon a careful inspection of the Accused Baccus Jump Starters’ configuration and operation and related materials, the SS4LS chargers infringes, both literally and under the doctrine of equivalents, at least claims 16-19 of the ’410 patent.

70. Exemplary independent claim 16 of the ’410 patent reads:

16. A method for a device to charge an automobile battery, the method comprising:
detecting a voltage level of a battery;
detecting a connection and a type of connection between the battery and the automobile battery;
generating, by a microcontroller, an output signal based on the voltage level of the battery, the connection to the automobile battery and the type of connection of the automobile battery;
based on the output signal, selectively connecting the battery to the automobile battery by activating a plurality of MOSFETs; and
based on the output signal, selectively disconnecting the battery from the automobile battery to prevent damages caused by over-discharging of the battery.

71. The SS4LS chargers include a lithium “battery” inside the housing that supplies a charging current and thus meet the first limitation of the claim. As explained above, in the case of the SS4LS chargers, detection of a voltage level of a battery is shown by the LCD display, which shows an indication of the level of the lithium battery, and the device’s Bi-Color LED Status Indictor, which will light red or green depending on the detected level of the lithium battery. In order to use the SS4LS chargers as intended and as directed in the Instruction Manual, “detecting a voltage level of a battery” occurs automatically.

72. The SS4LS chargers include circuitry to detect whether there is a connection between the lithium battery and an automobile battery and the type of connection between them. As discussed above, the Bi-Color LED Status Indictor’s function on the SS4LS confirms the existence of a detection of a connection . The cable housing features an LED that illuminates red or green based upon certain conditions, including whether an automobile is connected and the type of connection. In order to use the SS4LS chargers as intended and as directed in the Instruction Manual, “detecting a connection and a type of connection between the battery and the automobile battery” occurs automatically.

73. The SS4LS chargers include microcontroller configured to generate, when the jump starter device is connected with a correct connection to the automobile battery and the lithium battery voltage is sufficient, an output signal based on a detected battery voltage. As explained above, the microcontroller used in the SS4LS chargers receives information from the battery voltage detector and load detector that produces an output signal which travels to the switching circuitry and signaling LEDs. In order to use the SS4LS chargers as intended and as directed in the Instruction Manual, “generating, by a microcontroller, an output signal based on the voltage level of the battery, the connection to the automobile battery and the type of connection of the automobile battery” occurs automatically.

74. The SS4LS chargers include a plurality of MOSFETs as switching circuitry to selectively connect the lithium battery to the automobile battery when the microcontroller generates the output signal to the MOSFETs. As discussed, and identified above, the switching circuitry in the SS4LS chargers consist of a plurality of MOSFETs that are activated on receipt of an output signal from the microcontroller creating a connection whereby power is supplied from the lithium battery in the housing to the automobile battery. In order to use the SS4LS chargers as intended and as directed in the Instruction Manual, “based on the output signal, selectively connecting the battery to the automobile battery by activating a plurality of MOSFETs” occurs automatically.

75. The same MOSFETs discussed above function to disconnect the lithium battery from the automobile battery as appropriate in response to an output signal from the microcontroller. Based on testing and references in the Instruction Manual to the devices performance during the jump start process, the SS4LS disconnects the lithium battery from the automobile battery at the MOSFETs when the lithium battery is sufficiently charged, and this status is indicated by the Bi-Color LED Status Indicator. Disconnection in the instance of a low lithium battery protects the

lithium battery from becoming overly discharged, resulting in damage. In order to use the SS4LS chargers as intended and as directed in the Instruction Manual, “based on the output signal, selectively disconnecting the battery from the automobile battery to prevent damages caused by over-discharging of the battery” occurs automatically in appropriate circumstances.

76. All the limitations of claim 16 of the ’410 patent, as above shown, necessarily occur in using the SS4LS chargers as intended and instructed, meaning manufacture, use, offer for sale, and/or sale in the U.S. and/or importation of these devices into the U.S. constitutes infringement of that independent claim.

77. Baccus directs and controls how the Accused Baccus Jump Starters are used through the Instruction Manuals that it provides with its products. These Instruction Manuals set out in detail the steps that users should carry out in using the Accused Baccus Jump Starters so that they will function for their intended purpose. Ex. D. E. Failure to follow the instructions will result in the Accused Baccus Jump Starters not providing any benefit to users because the jump starter will not function as intended. Additionally, Baccus establishes the manner and timing that users trigger the functions of the Accused Baccus Jump Starters by providing user instructions and/or determining the functions, circuitry, and programming of the Accused Baccus Jump Starters such that they carry out certain steps automatically when activated by the user.

78. On information and belief, Baccus has tested the Accused Baccus Jump Starters by carrying out the jump starter process using them and has directed its employees to test and use the Accused Baccus Jump Starters.

79. By letter dated September 30, 2020, Pilot informed Baccus of its rights in the ’297 Patent family and its allegations that Baccus’ products infringed the claims of those patents. This letter was received by Baccus, which responded.

80. During the pre-suit correspondence, Baccus stated that certain alleged prior art rendered the claims of the patent in suit invalid. Pilot provided all such alleged prior art and the related correspondence from Baccus to the USPTO prior to the issuance of the '410 Patent. Exhibit J at 1-2. Baccus was thus well aware of Pilot's asserted patents and their disclosure and their validity over and above the art it suggested would be relevant to at least some of the here asserted claims, and nevertheless continued to utilize the teachings of these patents to enrich itself and at the expense of Pilot, making its infringement complained of herein willful and wonton.

FIRST CAUSE OF ACTION
Patent Infringement of the '653 Patent

81. Pilot incorporates and re-alleges paragraphs 1 through 80 as set forth above as though fully set forth herein.

82. The '653 Patent is non-anticipated and non-obvious as defined in 35 U.S.C. §§ 102 and 103.

83. The '653 Patent is not subject to prosecution history claim disclaimer. *See* Exhibit F, G, & H.

84. Baccus has made, used, imported, supplied, distributed, sold, and/or offered for sale in the U.S. the Accused Baccus Jump Starters.

85. By so doing, the Accused Baccus Jump Starters directly infringe (literally and/or under the doctrine of equivalents, through Baccus' own acts and as joint infringement with users) at least Claim 7-11 and 17-20 of the '653 patent. Baccus's infringement in this regard is ongoing and not limited to the analysis set forth herein.

86. Consistent with 35 U.S.C. § 287, Pilot has marked, or caused its licensees to mark, all products relevant to the '653 patent.

87. Pilot has been damaged as a result of Baccus's infringing conduct alleged herein. Baccus is liable to Pilot in an amount that adequately compensates it for such infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by the Court under 35 U.S.C. § 284.

88. Pilot has been damaged by loss of profits associated with the sale of its patented lithium jump starter to retailers. Pilot is responsible for opening and establishing the lithium jump starter segment through the development of the safety circuitry.

89. Pilot had the manufacturing capabilities, sales team, and connections within Lowes and other retailers, to satisfy its demand for safe lithium jump starters.

90. There is not a commercially acceptable non-infringing substitute to the technology disclosed in the '653 patent.

91. Pilot is entitled to damages for lost profits caused by Baccus, in an amount to be established at trial.

92. Baccus's infringement has been and continues to be willful and intentional and with full knowledge of the existence and validity of the '653 patent and its patent family.

93. The willful and intentional nature of Baccus's infringement entitles Pilot to an award of treble damages pursuant to 35 U.S.C. § 284 and the exceptional nature of the case entitles Pilot to an award of its attorneys' fees pursuant to 35 U.S.C. § 285.

94. Pilot will continue to suffer damages and irreparable harm unless Baccus is restrained and enjoined by this court, pursuant to 35 U.S.C. § 283 from further infringement of the patents.

SECOND CAUSE OF ACTION
Patent Infringement of the '806 Patent

95. Pilot incorporates and re-alleges paragraphs 1 through 80 as set forth above as

though fully set forth herein.

96. The '806 patent is non-anticipated and non-obvious as defined in 35 U.S.C. §§ 102 and 103.

97. The '806 patent is not subject to prosecution history claim disclaimer. *See* Exhibit G, H & I.

98. Baccus has made, used, imported, supplied, distributed, sold, and/or offered for sale the Accused Baccus Jump Starters. By so doing, the Accused Baccus Jump Starters that use MOSFET switches, such as the SS4LS chargers, directly infringe (literally and/or under the doctrine of equivalents, through Baccus' own acts and as joint infringement with users) at least claims 16-19 of the '806 patent. Baccus's infringement in this regard is ongoing.

99. Pilot has been damaged as a result of Baccus's infringing conduct and Baccus is liable to Pilot in an amount that adequately compensates it for such infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by the Court under 35 U.S.C. § 284.

100. Baccus's infringement has been, and continues to be, willful and intentional and with full knowledge of the existence and validity of the '806 patent and its patent family.

101. The willful and intentional nature of Baccus's infringement entitles Pilot to an award of treble damages pursuant to 35 U.S.C. § 284, and the exceptional nature of the case entitles Pilot to an award of its attorneys' fees pursuant to 35 U.S.C. § 285.

102. Pilot will continue to suffer damages and irreparable harm unless Baccus is restrained and enjoined by this Court pursuant to 35 U.S.C. § 283 from further infringement of the '806 patent.

THIRD CAUSE OF ACTION
Patent Infringement of the '410 Patent

103. Pilot incorporates and re-alleges paragraphs 1 through 80 as set forth above as though fully set forth herein.

104. The '410 patent is non-anticipated and non-obvious as defined in 35 U.S.C. §§ 102 and 103.

105. The '410 patent is not subject to prosecution history claim disclaimer. *See* Exhibit G, H, I, & J.

106. Baccus has made, used, imported, supplied, distributed, sold, and/or offered for sale the Accused Baccus Jump Starters. By so doing, the Accused Baccus Jump Starters that use MOSFET switches, such as the SS4LS chargers, directly infringe (literally and/or under the doctrine of equivalents, through Baccus' own acts and as joint infringement with users) at least claims 16-19 of the '410 patent. Baccus's infringement in this regard is ongoing.

107. Pilot has been damaged as a result of Baccus's infringing conduct and Baccus is liable to Pilot in an amount that adequately compensates it for such infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by the Court under 35 U.S.C. § 284.

108. At least upon service of this Complaint, Baccus's infringement has been, and continues to be, willful and intentional and with full knowledge of the existence and validity of the '410 patent.

109. The willful and intentional nature of Baccus's infringement entitles Pilot to an award of treble damages pursuant to 35 U.S.C. § 284, and the exceptional nature of the case entitles Pilot to an award of its attorneys' fees pursuant to 35 U.S.C. § 285.

110. Pilot will continue to suffer damages and irreparable harm unless Baccus is

6. Venue is proper in this Judicial District pursuant to 28 U.S.C. §§ 1391 and 1400(b). Baccus maintains a principal place of business in this District, transacts business in this District, and committed acts of patent infringement in this District.

GENERAL ALLEGATIONS

7. Formed in 1996, Pilot strives to be first to market with innovations designed to serve the various needs of the growing automotive aftermarket. Through the years, Pilot has formed strong relationships with automotive retailers and large retail establishments as a source for quality and innovative automotive products, performance products, lighting, interior and exterior car and truck accessories, automotive jump starters, replacement parts, ornaments, towing accessories, and a variety of consumer electronics, such as dash cameras, smart phone accessories and ornamental lighting. Pilot sells under the following brand names:



8. In January of 2013, Mr. Calvin Wang (“Mr. Wang”), then President and CEO of Pilot, began exploring the development of a new, safe lithium jump starter for sale through Pilot’s retail channels, including Pep Boys, Auto Zone, Inc., Advance Auto Parts, Inc., Walmart Inc., and Lowes Companies, Inc.. A chemical engineer with a master’s degree from the University of California at Los Angeles, Mr. Wang often led Pilot’s new product initiatives. At the time, retailers were reluctant to stock lithium jump starters due to public concerns regarding combustion and fire associated with the use of rechargeable lithium batteries, particularly in high energy consumption applications such as jump starting an automobile.

9. During the first portion of 2013, Lowes Companies Inc., (“Lowes”) communicated to Pilot that it would be interested in offering a *safe* lithium jump starter, in addition to the

restrained and enjoined by this Court pursuant to 35 U.S.C. § 283 from further infringement of the '410 patent.

PRAYER FOR RELIEF

WHEREFORE, Pilot prays for judgment against Baccus as follows:

- A. Adjudging that the '653, '806, and '410 patents have been infringed by Baccus;
- B. Awarding Pilot damages against Baccus in an amount adequate to compensate Pilot for Baccus's infringement, together with interest and costs;
- C. Awarding Pilot an additional sum on account of the willful, intentional, and deliberate character of Baccus's infringing acts pursuant to 35 U.S.C. § 284;
- D. Adjudging that this case is exceptional pursuant to 35 U.S.C. § 285 and awarding Pilot reasonable attorney fees and costs against Baccus; and
- E. Granting Pilot all other legal and equitable relief for which Pilot is entitled.

DEMAND FOR JURY TRIAL

Pilot hereby requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure on all claims triable to a jury.

Dated: June 7, 2021

Respectfully submitted,

SANCHEZ FISCHER LEVINE, LLP

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Attorneys For Plaintiff Pilot, Inc.

traditional alkaline-based jump starters it was then exclusively selling. At the time, Baccus dominated the automotive jump starter segment at Lowes, but did not offer a lithium option due to the unresolved safety issues that arise around the timing and passage of substantial power from a lithium battery sufficient to jump start the vehicle.

10. Lowes noted that it was unwilling to place the available lithium jump starters on its shelves as they had many unacceptable safety issues. Based upon its survey of the available products, no manufacturer was offering a lithium jump starter that was considered safe for use by consumers. In fact, none of the major retailers (Walmart, Auto Zone, Advance Auto, Pep Boys, Target, Lowes, Home Depot, etc.) were offering a lithium alternative to the ubiquitous alkaline-based automotive jump starters.

11. Lowes wanted to offer its own lithium jump starter via a private label arrangement with Pilot, provided Pilot could design a safe lithium jump starter that could pass the rigors of the Lowes' quality assurance team. At the time, a standard had not been published by UL or Nationally Recognized Testing Laboratories ("NRTL") for these products.

12. In the years leading up to 2013, Pilot had a relationship with Foxconn, a respected manufacturer of high-quality consumer electronics. Through this relationship, Mr. Wang retained the services of Mr. Chung-Hsin "Jason" Wang ("Mr. Jason Wang"), an electrical engineer working for Foxconn. Mr. Jason Wang was hired to assist Mr. Wang in achieving his conception for a safe lithium jump starter. Together, Messrs. Wang developed a safety circuit that employed a novel combination of a microcontroller unit and electrical circuit modules to govern and safely control transfer of power from a lithium ion battery to a battery to be charged.

13. Through a lengthy and expensive research and development effort, Messrs. Wang designed an electrical architecture, microcontroller unit and scheme that protected the lithium jump

starter, the automotive battery, and the user prior to, during, and following the surge of energy transferred when the jump starter is activated. Through Mr. Wang, Pilot presented the solution to Lowes in the summer of 2013.

14. Lowes demonstrated healthy skepticism regarding the presented solution. Over the coming year, Lowes imposed a demanding quality assurance program upon Pilot and its novel technology. Only after satisfying Lowes rigorous QA was Pilot able to secure the first purchase order for lithium jump starters that feature the now patented safety mechanism.

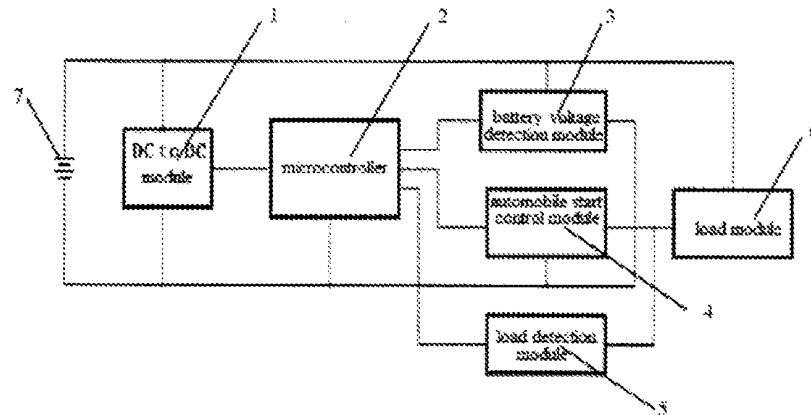
15. Lowes was unwilling to purchase lithium jump starters without the safety mechanisms designed by Pilot. Once satisfied with the technology, Lowes created space in its store for a new product line and ordered \$10,000,000 worth of the product, which Lowes marketed under the INSTABOOST brand name. Pilot marketed technically identical products under the LIGHTNING brand name, a photo of the product being represented below:



PILOT'S PATENTS COVERING THE WANG INVENTIONS

16. On April 28, 2014, Mr. Wang filed Chinese Patent Application Number 2014 2 0212173 ("the '173 application") describing various inventive aspects of the above product. Specifically, the '173 Application disclosed the novel and non-obvious use of a microcontroller

and a series of modules to control the timing and passage of electrical power from the lithium battery to the battery of a car in a safe manner, as shown in the below drawing:



17. Thereafter, Mr. Wang filed U.S. Patent Application 14/569,352, which ultimately matured into U.S. Patent Number 9,525,297 (the “’297 patent”), entitled “Automobile Charger,” on December 20, 2016. A copy of the ‘297 Patent is attached hereto as Exhibit A and incorporated herein. On July 3, 2018, inventorship was amended to note that Mr. Jason Wang was a contributing inventor to the ‘297 patent. A certificate of correction was entered regarding Mr. Jason Wang’s inventorship on March 26, 2019.

18. The ‘297 patent was fully assigned to Pilot on December 20, 2016.

19. Pilot has continuously marked its jump starter products covered by at least one claim of the ‘297 Patent with United States Patent No 9,525,297.

20. On November 18, 2016, Messrs. Wang filed a continuation of patent application No. 14/569,352, now the ‘297 patent. The United States Patent & Trademark Office (“USPTO”) issued the continuation application on August 14, 2018 as U.S. Patent No. 10,046,653 (the “’653 patent”). The continuation patent that ultimately matured into the ‘653 patent was fully assigned to Pilot on January 10, 2018. A copy of the ‘653 Patent is attached hereto as Exhibit B and incorporated herein.

21. On March 16, 2018, the Messrs. Wang filed another continuation application, which issued on June 25, 2019 as U.S. Patent No. 10,328,806 (the “’806 patent”). The continuation patent that ultimately matured into the ’806 patent was fully assigned to Pilot on January 10, 2018. A copy of the ’806 Patent is attached hereto as Exhibit C and is incorporated herein. Pilot has sold no lithium jump starter product covered by claims of the ’806 patent since issuance of that patent.

22. On May 6, 2019, the Messrs. Wang filed another continuation application, which too is owned by Pilot, and which issued on December 29, 2020 as U.S. Patent No. 10,875,410 (the “’410 patent”). The continuation patent that ultimately matured into the ’410 patent was fully assigned to Pilot on January 10, 2018. A copy of the ’410 Patent is attached hereto as Exhibit D and incorporated herein.

23. A further continuation application is currently pending before the United States Patent and Trademark Office (“USPTO”).

24. This family of patents describe and claim, *inter alia*, an automobile charging device with a stable power supply that allows for safe charging. Namely, the patented features ensure that the mobile battery does not discharge unless the cables are properly connected to the battery to be charged and other characteristics are present before a jump start can be initiated. This patented safety mechanism has been critical to the success of Pilot’s commercial embodiment and, not coincidentally, the accused Baccus Jump Starters that followed.

ACCEPTANCE AND COMMERCIAL SUCCESS

25. Lowes was the first major customer for Pilot’s lithium jump starter, accepting delivery of \$10 million in product commencing in September of 2014.

26. In order to draw attention to the existence of the safety mechanism in these products, Pilot directed that the microprocessor and modules described in the Pilot Patents be positioned in a control housing located on the jumper cables.



This allowed easy visual confirmation for the consumer that the jump starter featured the desired safety controls.

27. Subsequent to launching Pilot's INSTABOOST at Lowes, many lithium based automotive jump starter manufacturers obtained and copied the patented design.

28. The patented safety mechanisms were essential to the success of the overall product and presented the reason why consumers (including retail buyers and end consumers) preferred INSTABOOST and LIGHTNING over other lithium jump starters then in the market.

29. To ensure that retailers and end consumers knew that the Baccus Jump Starters had the safety features disclosed in Pilot's patents, Baccus positioned the control housing on its jumper cables for certain models:



30. Ultimately, Baccus has released at least three different models of lithium jump starters that feature Pilot's patented safety technology. The different models allow the products to be sold through various mass market retailers and through many eCommerce channels under brands, on information and belief, licensed by Baccus. The models take at least the following three forms:



31. Baccus incorporated Pilot's safety technology within the body of the battery of the two models on the right. In addition to the P2G7S and SS4LS models deconstructed and analyzed

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
 filed in the U.S. District Court District of Arizona on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. CN 22-1452-9140-SRB	DATE FILED 7/23/2020	U.S. DISTRICT COURT District of Arizona
PLAINTIFF Pilot, Inc., a California corporation		DEFENDANT The NOCO Company, Inc., an Ohio corporation
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 10,046,653	8/14/2018	Pilot, Inc.
2 10,328,806	6/25/2020	Pilot, Inc.
3		
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5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY	
	☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK Debra D. Lucas	(BY) DEPUTY CLERK [Signature]	DATE 7/29/2020
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
filed in the U.S. District Court _____ for the Central District of California _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT for the Central District of California
PLAINTIFF PILOT, INC.		DEFENDANT BATTERY-BIZ, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 10,046,653	4/28/2014	Pilot, Inc.
2 US 10,328,806	4/28/2014	Pilot, Inc.
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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DECISION/JUDGEMENT		
CLERK	(BY) DEPUTY CLERK	DATE

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AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
 filed in the U.S. District Court _____ for the Central District of California _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT for the Central District of California
PLAINTIFF PILOT, INC.		DEFENDANT BATTERY-BIZ, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 10,046,653	4/28/2014	Pilot, Inc.
2 US 10,328,806	4/28/2014	Pilot, Inc.
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
filed in the U.S. District Court _____ for the Central District of California _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT for the Central District of California
PLAINTIFF PILOT, INC.		DEFENDANT BATTERY-BIZ, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 10,046,653	4/28/2014	Pilot, Inc.
2 US 10,328,806	4/28/2014	Pilot, Inc.
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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DECISION/JUDGEMENT		
CLERK	(BY) DEPUTY CLERK	DATE

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Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court _____ for the Southern District of New York _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 1:20-cv-04080-JMF	DATE FILED 5/27/2020	U.S. DISTRICT COURT for the Southern District of New York
PLAINTIFF UNIVERSITY OF SOUTH FLORIDA RESEARCH FOUNDATION, INC. and UNIVERSITY OF SOUTH FLORIDA BOARD OF TRUSTEES		DEFENDANT FUJIFILM MEDICAL SYSTEMS USA, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,630,937 B2	10/7/2003	University of South Florida
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
filed in the U.S. District Court _____ for the Northern District of Illinois _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED 7/10/2020	U.S. DISTRICT COURT for the Northern District of Illinois
PLAINTIFF PILOT, INC., a California corporation,		DEFENDANT THE DURACELL COMPANY, a Delaware corporation,
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 10,046,653	8/14/2018	Pilot, Inc.
2 10,328,806	6/25/2020	Pilot, Inc.
3		
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT		
CLERK	(BY) DEPUTY CLERK	DATE

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Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT6287599

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST

CONVEYING PARTY DATA

Name	Execution Date
PILOT INC.	09/08/2020

RECEIVING PARTY DATA

Name:	WINGSPIRE CAPITAL LLC, AS ADMINISTRATIVE AGENT
Street Address:	13010 MORRIS ROAD
Internal Address:	BUILDING ONE, SUITE 175
City:	ALPHARETTA
State/Country:	GEORGIA
Postal Code:	30004

PROPERTY NUMBERS Total: 81

Property Type	Number
Patent Number:	8269405
Patent Number:	D673491
Patent Number:	D631404
Patent Number:	D640176
Patent Number:	D662446
Patent Number:	D658559
Patent Number:	D652358
Patent Number:	D649918
Patent Number:	D682163
Patent Number:	D708114
Patent Number:	D719889
Patent Number:	D708101
Patent Number:	D715717
Patent Number:	D743861
Patent Number:	D743862
Patent Number:	9525297
Patent Number:	D779717
Patent Number:	D773724
Patent Number:	D779718

Property Type	Number
Patent Number:	D789263
Patent Number:	D779400
Patent Number:	D789264
Patent Number:	D779401
Patent Number:	D781191
Patent Number:	D789265
Patent Number:	9744908
Patent Number:	D833176
Patent Number:	10227050
Patent Number:	D789270
Patent Number:	D793218
Patent Number:	D791052
Patent Number:	D793322
Patent Number:	10554878
Application Number:	16725638
Application Number:	15495506
Patent Number:	D848319
Patent Number:	D844495
Patent Number:	D844496
Patent Number:	10235984
Patent Number:	D860568
Patent Number:	D879087
Patent Number:	10046653
Patent Number:	D842793
Patent Number:	D843295
Patent Number:	D843296
Patent Number:	D843913
Patent Number:	D843914
Patent Number:	D843297
Patent Number:	D843298
Patent Number:	D843299
Patent Number:	D843300
Patent Number:	D843301
Application Number:	16172335
Patent Number:	D866447
Patent Number:	D869873
Patent Number:	D866448
Patent Number:	D852715

Property Type	Number
Patent Number:	10328806
Application Number:	16404321
Application Number:	29665449
Application Number:	29665457
Application Number:	29665570
Patent Number:	D871300
Application Number:	29713702
Patent Number:	D870630
Application Number:	29713703
Patent Number:	D870631
Application Number:	29713704
Patent Number:	D870632
Application Number:	29713705
Application Number:	29667002
Patent Number:	D879689
Application Number:	29668106
Application Number:	29668107
Application Number:	29668108
Application Number:	16663108
Application Number:	29693885
Application Number:	16525280
Application Number:	29703973
Patent Number:	D855531
Patent Number:	D856244

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 3128637141

Email: kristen.lange@goldbergkohn.com

Correspondent Name: KRISTEN N. LANGE, PARALEGAL

Address Line 1: C/O GOLDBERG KOHN LTD.

Address Line 2: 55 E. MONROE STREET, SUITE 3300

Address Line 4: CHICAGO, ILLINOIS 60603

ATTORNEY DOCKET NUMBER:	8177.001
NAME OF SUBMITTER:	KRISTEN N. LANGE
SIGNATURE:	/kristenlange/
DATE SIGNED:	09/08/2020

Total Attachments: 9

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PATENT SECURITY AGREEMENT

PATENT SECURITY AGREEMENT, dated as of September 8, 2020 (as the same may be amended, restated, supplemented, or otherwise modified from time to time, this "Agreement"), among Pilot Inc., a California corporation (referred to herein as "Grantor" or "Grantors"), and WINGSPIRE CAPITAL LLC, as Administrative Agent (in such capacity, the "Administrative Agent").

Reference is made to (a) that certain Credit Agreement, dated as of September 8, 2020, by and among PILOT-NGC HOLDING, INC., a Delaware corporation ("Holdings"), PILOT INC., a California corporation (the "Borrower-Pilot"), WANG'S INTERNATIONAL, INCORPORATED, a California corporation (the "Borrower-Wangs"), the other Subsidiaries (if any) of Holdings from time to time party thereto as "Borrowers" (together with Borrower-Pilot and Borrower-Wangs, each, a "Borrower" and individually and collectively, jointly and severally, the "Borrowers"), the Subsidiaries (if any) of Holdings from time to time party thereto as "Guarantors" (together with Holdings, each, a "Guarantor" and collectively, the "Guarantors"), the lenders from time to time party thereto as lenders (each, a "Lender" and, collectively, the "Lenders"), and the Administrative Agent (as the same may be amended, restated, supplemented, or otherwise modified from time to time, the "Credit Agreement"), and (b) that certain Pledge and Security Agreement, dated as of September 8, 2020, by and among Holdings, Borrower-Pilot, Borrower-Wangs, the other Subsidiaries (if any) of Holdings from time to time party thereto as "Grantors" and the Administrative Agent (as the same may be amended, restated, supplemented or otherwise modified from time to time, the "Security Agreement").

The Lenders have agreed to extend credit to the Borrowers subject to the terms and conditions set forth in the Credit Agreement, the Guarantors have guaranteed Obligations and the Grantors have secured their obligations pursuant to the Security Agreement. The obligations of the Lenders to extend such credit are conditioned upon, among other things, the execution and delivery of this Agreement.

Accordingly, the parties hereto agree as follows:

1. Terms. Capitalized terms used in this Agreement and not otherwise defined herein have the meanings specified in the Security Agreement or the Credit Agreement.

2. Grant of Security Interest. As security for the payment or performance, as applicable, in full when due (whether at the stated maturity, by acceleration or otherwise) of the Obligations, each Grantor, pursuant to the Security Agreement, did and hereby does grant to the Administrative Agent (and its successors and assigns), for the ratable benefit of the Secured Parties, a security interest in, all such Grantor's right, title and interest in, to or under any and all of the following assets now owned or at any time hereafter acquired (collectively, the "Patent Collateral"):

(a) all letters patent of the United States of America, all registrations and recordings thereof and all applications for letters patent of the United States of America, including registrations, recordings and pending applications in the United States Patent and Trademark

Office, in each case described on Schedule I and all reissues, renewals, continuations and extensions thereof and amendments thereto (the "Patents");

(b) all inventions and improvements described and claimed therein, including the right to make, use and/or sell the inventions disclosed or claimed therein,

(c) all reissues, continuations, divisions, continuations in part, renewals or extensions thereof and amendments thereto, and the inventions disclosed or claimed therein, and

(d) all income, fees, royalties, damages, claims and payments now or hereafter due and/or payable thereunder and with respect thereto.

3. Security Agreement. The security interests granted to the Administrative Agent herein are granted in furtherance, and not in limitation of, the security interests granted to the Administrative Agent pursuant to the Security Agreement. Each Grantor hereby acknowledges and affirms that the rights and remedies of the Administrative Agent with respect to the Patent Collateral are more fully set forth in the Security Agreement, the terms and provisions of which are hereby incorporated herein by reference as if fully set forth herein. In the event of any conflict between the terms of this Agreement and the Security Agreement, the terms of the Security Agreement shall govern.

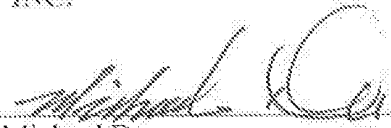
4. Counterparts. This Agreement may be executed in counterparts (and by different parties hereto in different counterparts), each of which shall constitute an original, but all of which when taken together shall constitute a single contract. Delivery of an executed counterpart of a signature page of this Agreement by facsimile or in electronic (e.g., "pdf" or "tif") format shall be effective as delivery of a manually executed counterpart of this Agreement.

5. Governing Law. This Agreement shall be governed by, and construed in accordance with, the laws of the State of New York.

[Continued on the following page.]

IN WITNESS WHEREOF, the parties hereto have duly executed this Patent Security Agreement as of the day and year first above written.

PILOT INC.

By: 
Name: Michael Du
Title: Chief Financial Officer

Signature Page to Patent Security Agreement

WINGSPIRE CAPITAL LLC, as Administrative
Agent

By: 

Name: John R. Smith

Title: President & CEO

Signature Page to Patent Security Agreement

SCHEDULE I

PATENTS

Loan Party	Title	Serial Number	Filing Date	Status
Pilot	NEUTRAL ELECTRODE SPARK PLUG	Patent No. 8,269,405	40723	
Pilot	VEHICLE FLOOR MAT HAVING A LOWER WINTER MAT AND A REMOVABLE UPPER SUMMER MAT	Patent No. D673,491	41120	
Pilot	AUTOMOTIVE GRILLE (Design)	Patent No. D631,404	10/23/2009	
Pilot	AUTOMOTIVE GRILLE (Design)	Patent No. D640,176	12/22/10	
Pilot	AUTOMOTIVE GRILLE (Design)	Patent No. D662,446	01/03/11	
Pilot	AUTOMOTIVE STEP (Design)	Patent No. D658,559	01/05/11	
Pilot	FENDER (Design)	Patent No. D652,358	03/09/11	
Pilot	AUTOMOTIVE GRILLE (Design)	Patent No. D649,918	06/17/11	
Pilot	AUTOMOTIVE GRILLE (Design)	Patent No. D682,163	01/20/12	
Pilot	BEADLOCK (Design)	Patent No. D708,114	10/09/13	
Pilot	WHEEL (Design)	Patent No. D719,889	10/09/13	
Pilot	ROCK BLOCKER (Design)	Patent No. D708,101	11/20/13	
Pilot	WHEEL (Design)	Patent No. D715,717	11/20/13	
Pilot	LED ROCK PROTECTOR (Design)	Patent No. D743,861	04/14/14	
Pilot	LED SIDE MOUNT (Design)	Patent No. D743,862	04/14/14	
Pilot	AUTOMOBILE CHARGER	Patent No. 9,525,297	12/12/2014	

Pilot	CORDLESS LED LAMP (Design #1)	Patent No. D779,717	11/18/2015	
Pilot	CORDLESS LED LAMP (Design #2)	Patent No. D773,724	11/18/2015	
Pilot	CORDLESS LED LAMP (Design #3)	Patent No. D779,718	11/18/2015	
Pilot	SHIFT KNOB COVER (Monkey)	Patent No. D789,263	1/21/2016	
Pilot	SHIFT KNOB COVER (Beard)	Patent No. D779,400	1/21/2016	
Pilot	SHIFT KNOB COVER (cow)	Patent No. D789,264	1/21/2016	
Pilot	SHIFT KNOB COVER (shark)	Patent No. D779,401	1/21/2016	
Pilot	SHIFT KNOB COVER (bandit)	Patent No. D781,191	1/21/2016	
Pilot	SHIFT KNOB COVER (bandit revised)	Patent No. D789,265	4/28/2016	
Pilot	TRUCK STEP (Utility)	Patent No. 9,744,908	5/19/2016	
Pilot	HEATED SEAT Cover Design Patent	Patent No. D833,176	8/3/2016	
Pilot	EXHAUST TIP (Utility)	Patent No. 10,227,050	9/16/2016	
Pilot	WHEEL (Design)	Patent No. D789,270	06/17/16	
Pilot	LUGNUT (Design)	Patent No. D793,218	08/11/16	
Pilot	WHEEL (Design)	Patent No. D791,052	09/02/16	
Pilot	WHEEL (Design)	Patent No. D793,322	09/02/16	
Pilot	SMART SELFIE MIRROR	Patent No. 10,554,878	3/15/2017	
Pilot	SMART SELFIE MIRROR	Application No. 16/725,638	12/23/2019	
Pilot	BLUETOOTH ENABLED SNAKE CAM	Application No. 15/495,506	4/24/2017	
Pilot	Vehicle Grille (Design Patent)	Patent No. D848,319	4/28/2017	
Pilot	Vehicle Grille (Design Patent)	Patent No. D844,495	4/28/2017	

Pilot	Vehicle Grille (Design Patent)	Patent No. D844,496	4/28/2017	
Pilot	Karaoke Device	Patent No. 10,235,984	4/24/2017	
Pilot	BUCKET GRATING SECTION (Design Patent)	Patent No. D860,568	7/13/2017	
Pilot	BUCKET GRATING SECTION (Design Patent)	Application No. 29/610,534	9/6/2019	
Pilot	Mobile Device Mount (Design Patent)	Patent No. D879,087	7/17/2017	
Pilot	AUTOMOBILE CHARGER	Patent No. 10,046,653	11/18/2016	
Pilot	Vehicle Wheel (Design Patent)	Patent No. D842,793	10/27/2017	
Pilot	Vehicle Wheel (Design Patent)	Patent No. D843,295	10/27/2017	
Pilot	Vehicle Wheel (Design Patent)	Patent No. D843,296	10/27/2017	
Pilot	Vehicle Wheel (Design Patent)	Patent No. D843,913	10/27/2017	
Pilot	Vehicle Wheel (Design Patent)	Patent No. D843,914	10/27/2017	
Pilot	Vehicle Wheel (Design Patent)	Patent No. D843,297	10/27/2017	
Pilot	Vehicle Wheel (Design Patent)	Patent No. D843,298	10/27/2017	
Pilot	Vehicle Wheel (Design Patent)	Patent No. D843,299	10/27/2017	
Pilot	Vehicle Wheel (Design Patent)	Patent No. D843,300	10/27/2017	
Pilot	Vehicle Wheel (Design Patent)	Patent No. D843,301	10/27/2017	
Pilot	Lift Kit	Application No. 16/172,335	10/26/2018	
Pilot	Chase Rack (Design Patent)	Patent No. D866,447	10/30/2017	
Pilot	Overhead Rack (Design Patent)	Patent no. D869,873	10/30/2017	
Pilot	Rack (Design Patent)	Patent No. D866,448	10/30/2017	

Pilot	Vehicle Grille (Design Patent)	CA Patent No. 177849	10/30/2017	
Pilot	Vehicle Grille (Design Patent)	CA Patent No. 177851	10/30/2017	
Pilot	Vehicle Grille (Design Patent)	CA Patent No. 177850	10/30/2017	
Pilot	Wheel Cap (Design Patent)	Patent No. D852,715	11/6/2017	
Pilot	AUTOMOBILE CHARGER	Patent No. 10,328,806	3/16/2018	
Pilot	AUTOMOBILE CHARGER	Application No. 16/404,321	5/6/2019	
Pilot	VEHICLE WHEEL (Design)	CA Patent No. 180997	4/26/2018	
Pilot	STEERING WHEEL GRIP (Design)	Application No. 29/665,449	10/3/2018	
Pilot	SEAT PONCHO (Design Patent)	Application No. 29/665,457	10/3/2018	
Pilot	BURRITO HOLDER (Design Patent)	Application No. 29/665,570	10/4/2018	
Pilot	VEHICLE WHEEL (Design)	Patent No. D871,300	10/17/2018	
Pilot	VEHICLE WHEEL SPOKE (Design)	Application No. 29/713,702	11/18/2019	
Pilot	VEHICLE WHEEL (Design)	Patent No. D870,630	10/17/2018	
Pilot	VEHICLE WHEEL SPOKE (Design)	Application No. 29/713,703	11/18/2019	
Pilot	VEHICLE WHEEL (Design)	Patent No. D870,631	10/17/2018	
Pilot	VEHICLE WHEEL SPOKE (Design)	Application No. 29/713,704	11/18/2019	
Pilot	VEHICLE WHEEL (Design)	Patent No. D870,632	10/17/2018	
Pilot	VEHICLE WHEEL SPOKE (Design)	Application No. 29/713,705	11/18/2019	
Pilot	VEHICLE WHEEL (Design)	Application No. 29/667,002	10/17/2018	
Pilot	SUNSHADE (Design)	Patent No. D879,689	10/26/2018	
Pilot	GEMSTONE BUCKLE (Design)	Application No. 29/668,106	10/26/2018	

Pilot	SUNSHADE (Design)	Application No. 29/668,107	10/26/2018	
Pilot	SUNSHADE (Design)	Application No. 29/668,108	10/26/2018	
Pilot	BEADLOCK WITH FILLER RING	Application No. 16/663,108	10/24/2019	
Pilot	CUP HOLDER (Design)	Application No. 29/693,885	6/5/2019	
Pilot	Automotive Accessories	Application No. 16/525,280	7/29/2019	
Pilot	Threaded Insert (Design)	Application No. 29/703,973	8/30/2019	
Pilot	Truck Step (Design)	Patent No. D855,531	5/13/2015	
Pilot	Truck Step (Design)	Patent No. D856,244	5/13/2015	
Pilot	Chair Cover (Design)	Application No. 29/912,636	8/2/2017	

Patent Licenses

None.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/923,219	06/25/2019	10328806	8523WANG-1-CON-2	4305

22442 7590 06/05/2019
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Calvin Shiening Wang, City of Industry, CA;
Pilot Inc., City of Industry, CA;
Chung-Hsin Wang, Shenzhen, CHINA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/923,219	03/16/2018	Calvin Shiening Wang	8523WANG-1-CON-2	4305
22442	7590	05/16/2019	EXAMINER	
Sheridan Ross PC			LIN, SUN J	
1560 Broadway			ART UNIT	PAPER NUMBER
Suite 1200			2851	
Denver, CO 80202			NOTIFICATION DATE	DELIVERY MODE
			05/16/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

e-docket@sheridanross.com

Response to Rule 312 Communication	Application No. 15/923,219	Applicant(s) Wang et al.	
	Examiner SUN J LIN	Art Unit 2851	AIA Status Yes
-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address -- 1. ☒ The amendment filed on <u>01 May 2019</u> under 37 CFR 1.312 has been considered, and has been: a) ☒ entered. b) ☐ entered as directed to matters of form not affecting the scope of the invention. c) ☐ disapproved because the amendment was filed after the payment of the issue fee. Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue. d) ☐ disapproved. See explanation below. e) ☐ entered in part. See explanation below. _____			
/SUN J LIN/ Primary Examiner, Art Unit 2851			

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Calvin Shiening Wang	)	Examiner Name: LIN, SUN J
	)	
Application No.: 15/923,219	)	Group Art Unit: 2851
	)	
Filing Date: March 16, 2018	)	Confirmation No.: 4305
	)	
Attorney Docket No.: 8523WANG-1-CON-2	)	
	)	
Title: AUTOMOBILE CHARGER	)	AMENDMENT
	)	AFTER ALLOWANCE
	)	(37 C.F.R. 1.312)
	)	

Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Applicant submits this Amendment After Allowance pursuant to 37 C.F.R. §1.312 in response to the Notice of Allowance and Fee(s) Due having a mailing date of April 5, 2019. Although no fees are believed due in connection with this filing, please charge any fees deemed necessary to Deposit Account No. 19-1970. Entry of the amendments set forth herein is respectfully requested.

Amendments to the Specification are reflected in the listing of claims beginning on page 2 of this communication.

Amendments to the Claims are provided beginning on page 3 of this communication.

Remarks/Arguments begin on page 7 of this communication.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

2242 7590 04/05/2019
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

/Mandi Lamberson/	(Typed or printed name)
Mandi Lamberson	(Signature)
May 3, 2019	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/923,219	03/16/2018	Calvin Shiening Wang	8523WANG-1-CON-2	4305

TITLE OF INVENTION: AUTOMOBILE CHARGER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	07/05/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
LIN, SUN J	2851	320-109000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1. Sheridan Ross P.C.
2. _____
3. _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Pilot Inc.

City of Industry, CA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 19-1970

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☒ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /David B. Kellis/Date May 3, 2019Typed or printed name David B. KellisRegistration No. 59,377

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

Calvin Shiening Wang

Serial No.: 15/923,219

Filed: March 16, 2018

Atty. File No.: 8523WANG-1-CON-2

Entitled: "AUTOMOBILE CHARGER"

Group Art Unit: 2851

Confirmation No.: 4305

Examiner: LIN, SUN J

Submitted via EFS-Web

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Dear Commissioner:

Applicant submits these Comments on Statement of Reasons for Allowance to address further the Notice of Allowability ("Notice") having a mailing date of April 5, 2019.

In the Notice, the Examiner's stated reasons for allowance were that "Claims 7-26 are allowed due to allowable subject matter cited in the *Ex Parte Quayle Office Action* mailed 01/08/2019." In the *Ex Parte Quayle Office Action*, the Examiner's stated reasons for allowance were:

Claims 7 - 26 are allowed because the prior art does not teach or fairly suggest the following subject matter:

- A charging device comprising: a **battery** connected to a voltage regulator, the battery supplying a charging current; a **battery voltage detector**, connected to a microcontroller, to detect a voltage of an automobile battery when the charging device is connected to an automobile; a **load detector**, connected to the microcontroller, to detect when the charging device is connected to the automobile battery; the microcontroller generating, when the charging device is connected to the automobile battery, an output signal based on a detected voltage of the automotive battery; **switching circuitry** including a plurality of MOSFETs to selectively connect a negative terminal of the battery to the automobile battery when the microcontroller generates the output signal; and

- a boost device** for boosting a gate voltage of the plurality of MOSFETs as recited in independent **Claim 1**;
- A method for a device to charge an automobile battery, the method comprising: **detecting a voltage level** of a battery; **detecting a connection** and a type of connection between the battery and the automobile battery; **generating**, by a microcontroller, an output signal based on the voltage level of the battery, the connection to the automobile battery and the type of connection of the automobile battery; **selectively connecting the battery to the automobile battery** using the output signal; and **providing a low voltage protection** to prevent damages caused by over discharging of the battery as recited in independent **Claim 22**;
 - A system for charging an automobile battery, the system comprising: **means for detecting a voltage level** of a battery; **means for detecting a type of connection** between the battery and the automobile battery; **means for generating**, by a microcontroller, an output signal based on the voltage level of the battery and the type of connection of the automobile battery; and **means for selectively connecting the battery to the automobile battery** based on the output signal; and **a boost device** for boosting a voltage associated with the means for selectively connecting the battery to the automobile battery based on the output signal as recited in **Claim 26**.

Applicant assumes the patentability of all independent and dependent claims is based upon the elements as set forth in the allowed claims and that such claims meet all criteria for patentability under §101, §102, §103 and §112. Applicant takes no position regarding the Reasons for Allowance presented by the Examiner other than the positions Applicant may have previously taken during prosecution. Therefore, the Reasons for Allowance should not be attributed to Applicant for any reason or as an indication of the bases for Applicant's belief that the claims are patentable.

As is clear from MPEP 1302.14:

The statement [of reasons for allowance] is not intended to necessarily state all the reasons for allowance or all the details why claims are allowed and should not be written to specifically or impliedly state that all the reasons for allowance are set forth.

Accordingly, Applicant respectfully asserts that there may be additional or alternative reasons for patentability of the claimed subject matter not explicitly stated in this record and Applicant does not waive its rights to such arguments by not further addressing such reasons herein.

Although the Applicant believes that no fees are due for filing these Comments on Statement of Reasons for Allowance, please charge any fees deemed necessary to Deposit Account No. 19-1970.

Respectfully submitted,

SHERIDAN ROSS P.C.

By: /David B. Kellis/
David B. Kellis
Registration No. 59377
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: May 3, 2019

Electronic Patent Application Fee Transmittal				
Application Number:		15923219		
Filing Date:		16-Mar-2018		
Title of Invention:		AUTOMOBILE CHARGER		
First Named Inventor/Applicant Name:		Calvin Shiening Wang		
Filer:		David B. Kellis/Mandi Lamberson		
Attorney Docket Number:		8523WANG-1-CON-2		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1000

Electronic Acknowledgement Receipt	
EFS ID:	35918212
Application Number:	15923219
International Application Number:	
Confirmation Number:	4305
Title of Invention:	AUTOMOBILE CHARGER
First Named Inventor/Applicant Name:	Calvin Shiening Wang
Customer Number:	22442
Filer:	David B. Kellis/Mandi Lamberson
Filer Authorized By:	David B. Kellis
Attorney Docket Number:	8523WANG-1-CON-2
Receipt Date:	03-MAY-2019
Filing Date:	16-MAR-2018
Time Stamp:	19:12:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$1000
RAM confirmation Number	050619INTEFSW00005745191970
Deposit Account	191970
Authorized User	Mandi Lamberson
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	20190503_IF-Transmittal.pdf	153936	no	1
			42a0400629d5b072071bb0f20cd86df5751f039		

Warnings:

Information:

2	Post Allowance Communication - Incoming	20190503_Comments-Reasons-Allowance.pdf	154312	no	3
			9b95c67b655da6a73a015f0e6bdd25805c155e4a		

Warnings:

Information:

3	Fee Worksheet (SB06)	fee-info.pdf	30461	no	2
			90e381543aea7f43b1979cf2020181e3a4f9e05		

Warnings:

Information:

Total Files Size (in bytes):	338709
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

REMARKS/ARGUMENTS

Applicant submits this Amendment after Allowance pursuant to 37 C.F.R. § 1.312 and after receipt of the Notice of Allowance having a mailing date of April 5, 2019. The Specification and Claim 8 are amended herein without adding any new matter. Claims 1-6 were previously cancelled and Claims 7-26 were previously added. Claims 7-26 are thus pending.

Amendments to the Specification

The Specification is amended herein to recite the entire priority chain of the present application in the first paragraph thereof. The added information matches the priority information provided in the Application Data Sheet submitted at the time of filing of the present Application.

Amendment to Claim 8

Claim 8 is amended to correct a grammatical error. Thus, no substantial amount of additional work on the part of the Office is required. In particular, the scope of the claims is not affected by the proposed amendments. Therefore, the claims remain patentable. This amendment was not presented earlier because it was discovered only after Applicant reviewed the allowed claims.

Pursuant to 37 C.F.R. §1.312, an amendment may be entered after the mailing of a Notice of Allowance, but prior to the payment of the Issue Fee, upon the recommendation of the Examiner. Therefore, it is respectfully requested the above-referenced application be amended as set forth herein.

Conclusion

Applicant respectfully requests entry of the amendments presented herein. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

SHERIDAN ROSS P.C.

Date: May 1, 2019

By: /David B. Kellis /

David B. Kellis

Registration No. 57,399

1560 Broadway, Suite 1200

Denver, CO 80202

Telephone: 303-863-9700

Facsimile: 303-863-0223

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1-6. (Cancelled)
7. (Previously Presented) A charging device, comprising:
a battery connected to a voltage regulator, the battery supplying a charging current;
a battery voltage detector, connected to a microcontroller, to detect a voltage of an automobile battery when the charging device is connected to an automobile;
a load detector, connected to the microcontroller, to detect when the charging device is connected to the automobile battery;
the microcontroller generating, when the charging device is connected to the automobile battery, an output signal based on a detected voltage of the automotive battery;
switching circuitry including a plurality of MOSFETs to selectively connect a negative terminal of the battery to the automobile battery when the microcontroller generates the output signal; and
a boost device for boosting a gate voltage of the plurality of MOSFETs.
8. (Currently Amended) The charging device of claim 7, wherein the voltage regulator ~~comprising~~ comprises a voltage stabilizer connected to a resistor, a capacitor and the microcontroller, the voltage regulator providing a DC power to the microcontroller.
9. (Previously Presented) The charging device of claim 7, wherein the load detector comprises a resistor in parallel with a capacitor, the resistor and the capacitor connected to the microcontroller.
10. (Previously Presented) The charging device of claim 7, wherein the microcontroller comprises a plurality of ports, the plurality of ports including a power supply port, a ground port, an output signal port, and an automobile start control module.

11. (Previously Presented) The charging device of claim 7, wherein the switching circuitry is connected to the microcontroller via the boost device, and the plurality of MOSFETs are connected in parallel.

12. (Previously Presented) The charging device of claim 7, wherein the microcontroller:

generates the output signal to cause the switching circuitry to connect the battery to the automobile battery when the automobile battery is properly connected and a voltage level of the battery is above a threshold; and

generates the output signal to cause the switching circuitry to disconnect the battery from the automobile battery when i) the voltage level of the battery is below the threshold, or ii) the automobile battery is improperly connected.

13. (Previously Presented) The charging device of claim 7, wherein the battery voltage detector detects a recharging voltage level of the battery.

14. (Previously Presented) The charging device of claim 13, wherein the microcontroller generates the output signal to cause the switching circuitry to disconnect the battery from the automobile battery when the recharging voltage level of the battery is greater than a threshold.

15. (Previously Presented) The charging device of claim 7, wherein the voltage regulator is a direct-current to direct-current (DC-DC) converter.

16. (Previously Presented) The charging device of claim 7, wherein the load detector prevents improper user operation of the charging device.

17. (Previously Presented) The charging device of claim 7, wherein the load detector detects a reversed polarity condition.

18. (Previously Presented) The charging device of claim 7, wherein the load detector is connected to a negative terminal of the plurality of MOSFETs.

19. (Previously Presented) The charging device of claim 7, further comprising one or more light emitting diodes (LEDs) controlled by the microcontroller.

20. (Previously Presented) The charging device of claim 7, wherein a portion of the load detector is connected in parallel with the plurality of MOSFETs.

21. (Previously Presented) The charging device of claim 7, wherein the microcontroller causes the charging device to enter a standby mode when a voltage of the battery is less than 9V and allows operation when the voltage of the battery is greater than 10V.

22. (Previously Presented) A method for a device to charge an automobile battery, the method comprising:

detecting a voltage level of a battery;

detecting a connection and a type of connection between the battery and the automobile battery;

generating, by a microcontroller, an output signal based on the voltage level of the battery, the connection to the automobile battery and the type of connection of the automobile battery;

selectively connecting the battery to the automobile battery using the output signal; and

providing a low voltage protection to prevent damages caused by over discharging of the battery.

23. (Previously Presented) The method of claim 22, further comprising activating a plurality of MOSFETs to connect the battery and the automobile battery, wherein a boost device boosts a gate voltage of the plurality of MOSFETs.

24. (Previously Presented) The method of claim 23, wherein:

a proper type of connection of the automobile battery is a correct polarity, and

an improper type of connection of the automobile battery is an incorrect polarity.

25. (Previously Presented) The method of claim 23, wherein the generating comprises:
generating the output signal to cause switching circuitry to connect the battery to the automobile battery when the automobile battery is properly connected and a voltage level of the battery is above a threshold; and

generating the output signal to cause the switching circuitry to disconnect the battery from the automobile battery when i) the voltage level of the battery is below the threshold, or ii) the automobile battery is improperly connected.

26. (Previously Presented) A system for charging an automobile battery, the system comprising:

means for detecting a voltage level of a battery;

means for detecting a type of connection between the battery and the automobile battery;

means for generating, by a microcontroller, an output signal based on the voltage level of the battery and the type of connection of the automobile battery; and

means for selectively connecting the battery to the automobile battery based on the output signal; and

a boost device for boosting a voltage associated with the means for selectively connecting the battery to the automobile battery based on the output signal.

AMENDMENTS TO THE SPECIFICATION

Please amend Paragraph [0001] as follows:

[0001] This application is a continuation of U.S. Patent Application No. 15/355,409 filed on November 18, 2016 and entitled “Automobile Charger,” now Patent No. 10,046,653, which is a continuation of U.S. Patent Application No. 14/569,352, filed on December 12, 2014 and entitled “Automobile Charger,” now Patent No. 9,525,297, which claims the benefit of priority of Chinese application no. 201420212173.5 filed April 28, 2014, the entire content of which is incorporated herein by reference.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Calvin Shiening Wang	)	Examiner Name: LIN, SUN J
	)	
Application No.: 15/923,219	)	Group Art Unit: 2851
	)	
Filing Date: March 16, 2018	)	Confirmation No.: 4305
	)	
Attorney Docket No.: 8523WANG-1-CON-2	)	
	)	
Title: AUTOMOBILE CHARGER	)	AMENDMENT
	)	AFTER ALLOWANCE
	)	(37 C.F.R. 1.312)
	)	

Mail Stop ISSUE FEE
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, VA 22313-1450

Dear Commissioner:

Applicant submits this Amendment After Allowance pursuant to 37 C.F.R. §1.312 in response to the Notice of Allowance and Fee(s) Due having a mailing date of April 5, 2019. Although no fees are believed due in connection with this filing, please charge any fees deemed necessary to Deposit Account No. 19-1970. Entry of the amendments set forth herein is respectfully requested.

Amendments to the Specification are reflected in the listing of claims beginning on page 2 of this communication.

Amendments to the Claims are provided beginning on page 3 of this communication.

Remarks/Arguments begin on page 7 of this communication.

Electronic Acknowledgement Receipt

EFS ID:	35894582
Application Number:	15923219
International Application Number:	
Confirmation Number:	4305
Title of Invention:	AUTOMOBILE CHARGER
First Named Inventor/Applicant Name:	Calvin Shiening Wang
Customer Number:	22442
Filer:	David B. Kellis/Mandi Lamberson
Filer Authorized By:	David B. Kellis
Attorney Docket Number:	8523WANG-1-CON-2
Receipt Date:	01-MAY-2019
Filing Date:	16-MAR-2018
Time Stamp:	20:19:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		20190501_312-AMEND-03.pdf	104361 66a45905569d9a2e4284dd79663b58d3dfe6777b	yes	8

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment/Req. Reconsideration-After Non-Final Reject	7	8
	Claims	3	6
	Specification	2	2
	Amendment after Notice of Allowance (Rule 312)	1	1
Warnings:			
Information:			
Total Files Size (in bytes):		104361	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.			



UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

22442 7590 04/05/2019
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

EXAMINER

LIN, SUN J

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 04/05/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/923,219	03/16/2018	Calvin Shiening Wang	8523WANG-1-CON-2	4305

TITLE OF INVENTION: AUTOMOBILE CHARGER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	07/05/2019

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

2242 7590 04/05/2019
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

	(Typed or printed name)
	(Signature)
	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/923,219	03/16/2018	Calvin Shiening Wang	8523WANG-1-CON-2	4305

TITLE OF INVENTION: AUTOMOBILE CHARGER

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	07/05/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
LIN, SUN J	2851	320-109000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

- ☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/923,219	03/16/2018	Calvin Shiening Wang	8523WANG-1-CON-2	4305
22442	7590	04/05/2019	EXAMINER	
Sheridan Ross PC			LIN, SUN J	
1560 Broadway			ART UNIT	
Suite 1200			PAPER NUMBER	
Denver, CO 80202			2851	

DATE MAILED: 04/05/2019

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b) (2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 15/923,219	Applicant(s) Wang et al.	
	Examiner SUN J LIN	Art Unit 2851	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment & Remarks and RCE filed on 02/27/2019.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are See Continuation Sheet. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov**.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some *c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has **THREE MONTHS FROM THE "MAILING DATE"** of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in **ABANDONMENT** of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☐ Examiner's Amendment/Comment
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date <u>2/27/19</u> .	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material ____.	7. ☐ Other ____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date ____.	

/SUN J LIN/ Primary Examiner, Art Unit 2851	
--	--

Continuation of 3. The allowed claim(s) is/are: 7-26, renumbered (37 CFR 1.126)

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file (FITF) provisions of the AIA.

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed on 02/27/2019. Since this application is eligible for continued examination under 37 CFR 1.114. Previous *Ex Parte Quayle* Office action mailed on 01/08/2019 has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on 02/27/2019 regarding application 15/923,219 filed on 03/16/2018 has been entered. *A set of documents include in Information Disclosure Statement (IDS) accompanying applicants' submission has been reviewed and recorded.* Claims 1 – 6 were originally filed in the *application*, Claims 1 – 6 have been cancelled, and Claims 7 – 26 have newly been added in a *First Preliminary Amendment* concurrently filed with *the application*. No claim has been cancelled and/or added in a *Second Preliminary Amendment* filed on 10/08/2018 and another *Amendment* concurrently filed with the RCE submission. *Claims 7 – 26 remain pending in the application.*

Reasons for Allowance

2. Claims 7 – 26 are allowed over the prior art of record. An examiner's statement of reasons for allowance is given in the following:

Claims 7 – 26 are allowed due to allowable subject matters cited in the *Ex Parte Quayle Office Action* mailed 01/08/2019.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to *SUN J LIN* whose telephone number is (571)272-1899. The examiner can normally be reached on 8:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, *Jack Chiang* can be reached on 571-272-7483/7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (in USA or CANADA) or 571-272-1000.

All responses to this Office Action should be mailed to ***Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450*** or faxed to ***571-273-8300***.

/SUN J LIN/
Acting Patent Examiner, 2851/2800

<i>Index of Claims</i> 	Application/Control No. 15/923,219	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner SUN J LIN	Art Unit 2851

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS									
☐ Claims renumbered in the same order as presented by applicant ☒ CPA ☐ T.D. ☐ R.1.47									
CLAIM		DATE							
Final	Original	01/02/2019	03/19/2019						
	1	-	-						
	2	-	-						
	3	-	-						
	4	-	-						
	5	-	-						
	6	-	-						
1	7	=	=						
2	8	=	=						
3	9	=	=						
4	10	=	=						
5	11	=	=						
6	12	=	=						
7	13	=	=						
8	14	=	=						
9	15	=	=						
10	16	=	=						
11	17	=	=						
12	18	=	=						
13	19	=	=						
14	20	=	=						
15	21	=	=						
16	22	=	=						
17	23	=	=						
18	24	=	=						
19	25	=	=						
20	26	=	=						

Search Notes 	Application/Control No. 15/923,219	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner SUN J LIN	Art Unit 2851

CPC - Searched*		
Symbol	Date	Examiner
B60L 11/1809; H02J 7/0065; H02J 9/005; H02J 7/0068; H02J 7/0029; H02J 7/0034	01/02/2019	/JSL/

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
320	109	01/02/2019	/JSL/

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST [US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB]\	01/02/2019	/JSL/

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
320	109	03/19/2019	/JSL/

--	--

Issue Classification 	Application/Control No. 15/923,219	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner SUN J LIN	Art Unit 2851

CPC						
Symbol				Type	Version	
B60L	/	11	/	1809	F	2013-01-01
H02J	/	7	/	0065	I	2013-01-01
H02J	/	7	/	0034	I	2013-01-01
H02J	/	7	/	0068	I	2013-01-01
B60L	/	53	/	00	I	2019-02-01
H02J	/	7	/	0029	A	2013-01-01
H02J	/	9	/	005	A	2013-01-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version
/				

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 20	
/SUN J LIN/ Primary Examiner, Art Unit 2851 (Primary Examiner) _____ (Date) 19 March 2019		O.G. Print Claim(s) 1	O.G. Print Figure 2

Issue Classification 	Application/Control No. 15/923,219	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner SUN J LIN	Art Unit 2851

INTERNATIONAL CLASSIFICATION			
CLAIMED			
B60L	/	11	/ 18
H02J	/	7	/ 00
H02J	/	9	/ 00
NON-CLAIMED			
	/		/

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
320	109

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/SUN J LIN/ Primary Examiner, Art Unit 2851 (Primary Examiner)	19 March 2019 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2

Issue Classification 	Application/Control No. 15/923,219	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner SUN J LIN	Art Unit 2851

☐ Claims renumbered in the same order as presented by applicant ☒ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	7	10	16	19	25										
2	8	11	17	20	26										
3	9	12	18												
4	10	13	19												
5	11	14	20												
6	12	15	21												
7	13	16	22												
8	14	17	23												
9	15	18	24												

NONE	Total Claims Allowed:	
(Assistant Examiner)	(Date)	20
/SUN J LIN/ Primary Examiner, Art Unit 2851	19 March 2019	O.G. Print Claim(s)
(Primary Examiner)	(Date)	1
		O.G. Print Figure
		2

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	15/923,219
				Filing Date	March 16, 2018
				First Named Inventor	Calvin Shiening Wang
				Art Unit	2851
				Examiner Name	Sun J Lin
Sheet	1	of	1	Attorney Docket Number	8523WANG-1-CON-2

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ ; Number ⁴ ; Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶

NON-PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
	1	Petition for Inter Partes Review of U.S. Patent No. 9,525,297, filed Jan. 13, 2018 (Attorney's Ref. No. 8523WANG-1-IPR) 93 pages
	2	Decision Institution of Inter Partes Review for U.S. Patent No. 9,525,297, dated Jul. 16, 2018, Case IPR2018-00488, 22 pages
	3	Order Granting Joint Motion to Terminate Proceeding and Granting Joint Request to Treat Settlement Agreement as Business Confidential Information for U.S. Patent No. 9,525,297, dated Nov. 16, 2018, Case IPR2018-00488, 4 pages
	4	Declaration of Shukri Sourì in Support of Petition for Inter Partes Review of U.S. Patent No. 9,525,297, dated Jan. 13, 2018, 92 pages
	5	Curriculum Vitae of Dr. Shukri J. Sourì, Jul. 2016, 4 pages

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JSL/

Examiner Signature	/SUN J LIN/	Date Considered	03/19/2019
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Calvin Shiening Wang	)	Examiner Name: Sun J. Lin
	)	
Application No.: 15/923,219	)	Group Art Unit: 2851
	)	
Filing Date: 3/16/2018	)	Confirmation No.: 4305
	)	
Attorney Docket No.: 8523WANG-1-CON-2	)	
	)	
Title: AUTOMOBILE CHARGER	)	NOTIFICATION OF LOSS OF SMALL ENTITY STATUS
	)	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In accordance with 37 CFR 1.27(g), Applicant submits this document to notify the U.S. Patent and Trademark Office of its loss of entitlement to small entity status. 37 CFR 1.27(g)(1) states that “[o]nce status as a small entity has been established in an application or patent, fees as a small entity may thereafter be paid in that application or patent without regard to a change in status until the issue fee is due or any maintenance fee is due.” Accordingly, Applicant will continue to pay fees as a small entity until the fees identified in 37 CFR 1.27(g)(1) are due. Per 37 CFR § 1.27(g)(2), the Undersigned is a party identified in 37 CFR § 1.33(b). Applicant does not believe that any fees are due in connection with the filing of this Notification, however, please charge any fees deemed necessary to Deposit Account No. 19-1970.

Respectfully submitted,
SHERIDAN ROSS P.C.

Date: February 27, 2019

By: /David B. Kellis/
David B. Kellis
Registration No. 59,377
1560 Broadway, Suite 1200
Denver, CO 80202
Telephone: 303-764-3055
Facsimile: 303-863-0223

Electronic Patent Application Fee Transmittal				
Application Number:		15923219		
Filing Date:		16-Mar-2018		
Title of Invention:		AUTOMOBILE CHARGER		
First Named Inventor/Applicant Name:		Calvin Shiening Wang		
Filer:		David B. Kellis/Mandi Lamberson		
Attorney Docket Number:		8523WANG-1-CON-2		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
RCE- 1ST REQUEST	2801	1	650	650
Total in USD (\$)				650

Electronic Acknowledgement Receipt	
EFS ID:	35267483
Application Number:	15923219
International Application Number:	
Confirmation Number:	4305
Title of Invention:	AUTOMOBILE CHARGER
First Named Inventor/Applicant Name:	Calvin Shiening Wang
Customer Number:	22442
Filer:	David B. Kellis/Mandi Lamberson
Filer Authorized By:	David B. Kellis
Attorney Docket Number:	8523WANG-1-CON-2
Receipt Date:	27-FEB-2019
Filing Date:	16-MAR-2018
Time Stamp:	13:28:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$650
RAM confirmation Number	022719INTEFSW00011917191970
Deposit Account	191970
Authorized User	Mandi Lamberson
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		20190227_RESP-EPQA.pdf	139816	yes	8
			3de530b4365cc5eb9980697cd2d1a8eddc4ef77d		
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Response after Ex Parte Quayle Action	1	1		
	Specification	2	2		
	Claims	3	6		
	Applicant Arguments/Remarks Made in an Amendment	7	8		
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	20190227_RCE-IDS.pdf	1349952	no	3
			67c99e0b5f3a09be8d54cde51f73ba2e493bc154		
Warnings:					
Information:					
3		20190227_IDS_03.pdf	307130	yes	4
			d4cef7f265ca596cf5891164720f42300e7a321b		
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Transmittal Letter	1	3		
	Information Disclosure Statement (IDS) Form (SB08)	4	4		
Warnings:					
Information:					

4	Non Patent Literature	NPL_Petition_for_Inter-Partes-Review_01-13-2018.pdf	4207349	no	93
			f507d88e0b3f83e2bb6c07cca09435d2d7e99534		
Warnings:					
Information:					
5	Non Patent Literature	NPL_Decision_Institution_of_In-ter_Part-Review_for_9525297.pdf	445031	no	22
			45a0598899d8bd3dffc18a033a940f3954a7f200		
Warnings:					
Information:					
6	Non Patent Literature	NPL_Order_Granteeing_Joint_Motion_to_Terminate_Proceeding_for_9525297.pdf	91526	no	4
			9545fc45ec242cb443b9218f111755a3f95b9bf1		
Warnings:					
Information:					
7	Non Patent Literature	NPL_Declaration_of_Shukri_Souri_01-13-2018.pdf	4248828	no	92
			2f2dbbf5fa0862857306e10fc2cc0e1be84f004b		
Warnings:					
Information:					
8	Non Patent Literature	NPL_Curriculum_Vitae_of_Dr_Shukri_J_Souri.pdf	186261	no	4
			708041eb1781c247604aff3b6017d6f6908957a3		
Warnings:					
Information:					
9	Notification of loss of entitlement to small entity status	20190227_NTF-Loss-Small-Entity-Status.pdf	83646	no	1
			b0a542bf7d2d1d6d8f149c243b18e5257b32371a		
Warnings:					
Information:					
10	Fee Worksheet (SB06)	fee-info.pdf	30520	no	2
			c24ceafabbee598d83a8ac5d9d2bf7d0d0306b44		
Warnings:					
Information:					
Total Files Size (in bytes):			11090059		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Calvin Shiening Wang	)	Examiner Name: Sun J. Lin
	)	
Application No.: 15/923,219	)	Group Art Unit: 2851
	)	
Filing Date: 3/16/2018	)	Confirmation No.: 4305
	)	
Attorney Docket No.: 8523WANG-1-CON-2	)	
	)	AMENDMENT AND RESPONSE TO
Title: AUTOMOBILE CHARGER	)	EX PARTE QUAYLE ACTION
	)	

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

In response to the *Ex Parte Quayle* Action issued on January 8, 2019, Applicant submits this Amendment and Response. Applicant does not believe that any fees are due with respect to the entry of this Amendment and Response. However, if any fees are due relating to the entry hereof, please debit those fees from Deposit Account No. 19-1970.

Amendments to the Specification, other than the claims, begin on page 2 of this communication.

Amendments to the Claims are reflected in the listing of claims beginning on page 3 of this communication.

Arguments/Remarks begin on page 7 of this communication.

AMENDMENTS TO THE SPECIFICATION

The following Abstract will replace all prior versions:

A novel automobile charger comprises a direct current (DC) voltage supply, wherein a positive pole of the (DC) voltage supply is connected with a first end or a first lead of a DC-to-DC module, a first end of a battery voltage detection module and a first end of a load module simultaneously while a negative pole of the DC voltage supply is connected with a second end of the DC-to-DC module, a first end of a microcontroller, a first end of an automobile start control module and a second end of the battery voltage detection module simultaneously. A third end of the DC-to-DC module is connected with a second end of the microcontroller. Third, fourth, and fifth ends of the microcontroller are connected with a third end of the battery voltage detection module, a second end of the automobile start control module and a first end of a load detection module respectively. A second end of the load detection module is connected with a third end of the automobile start control module and a second end of the load module simultaneously.

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

- 1-6. (Cancelled)
7. (Previously Presented) A charging device, comprising:
a battery connected to a voltage regulator, the battery supplying a charging current;
a battery voltage detector, connected to a microcontroller, to detect a voltage of an automobile battery when the charging device is connected to an automobile;
a load detector, connected to the microcontroller, to detect when the charging device is connected to the automobile battery;
the microcontroller generating, when the charging device is connected to the automobile battery, an output signal based on a detected voltage of the automotive battery;
switching circuitry including a plurality of MOSFETs to selectively connect a negative terminal of the battery to the automobile battery when the microcontroller generates the output signal; and
a boost device for boosting a gate voltage of the plurality of MOSFETs.
8. (Currently Amended) The charging device of claim 7, wherein the voltage regulator comprising a voltage stabilizer connected to a resistor, a capacitor and the microcontroller, the voltage regulator providing a DC power to the microcontroller.
9. (Currently Amended) The charging device of claim 7, wherein the load detector comprises a resistor in parallel with a capacitor, the resistor and the capacitor connected to the microcontroller.
10. (Currently Amended) The charging device of claim 7, wherein the microcontroller comprises a plurality of ports, the plurality of ports including a power supply port, a ground port, an output signal port, and an automobile start control module.

11. (Previously Presented) The charging device of claim 7, wherein the switching circuitry is connected to the microcontroller via the boost device, and the plurality of MOSFETs are connected in parallel.

12. (Currently Amended) The charging device of claim 7, wherein the microcontroller: generates the output signal to cause the switching circuitry to connect the battery to the automobile battery when the automobile battery is properly connected and a voltage level of the battery is above a threshold; and

generates the output signal to cause the switching circuitry to disconnect the battery from the automobile battery when i) the voltage level of the battery is below the threshold, or ii) the automobile battery is improperly connected.

13. (Currently Amended) The charging device of claim 7, wherein the battery voltage detector detects a recharging voltage level of the battery.

14. (Currently Amended) The charging device of claim ~~13~~7, wherein the microcontroller generates the output signal to cause the switching circuitry to disconnect the battery from the automobile battery when the recharging voltage level of the battery is greater than a threshold.

15. (Previously Presented) The charging device of claim 7, wherein the voltage regulator is a direct-current to direct-current (DC-DC) converter.

16. (Previously Presented) The charging device of claim 7, wherein the load detector prevents improper user operation of the charging device.

17. (Previously Presented) The charging device of claim 7, wherein the load detector detects a reversed polarity condition.

18. (Currently Amended) The charging device of claim 7, wherein the load ~~detection~~ moduledetector is connected to a negative terminal of the plurality of MOSFETs.

19. (Previously Presented) The charging device of claim 7, further comprising one or more light emitting diodes (LEDs) controlled by the microcontroller.

20. (Currently Amended) The charging device of claim 7, wherein a portion of the load ~~detection module~~detector is connected in parallel with the plurality of MOSFETs.

21. (Currently Amended) The charging device of claim 7, wherein the microcontroller causes the charging device to enter a standby mode when a voltage of the battery is less than 9V and allows operation when the voltage of the battery is greater than 10V.

22. (Currently Amended) A method for a device to charge an automobile battery, ~~the~~
method comprising:

detecting a voltage level of a battery;

detecting a connection and a type of connection between the battery and the automobile battery;

generating, by a microcontroller, an output signal based on the voltage level of the battery, the connection to the automobile battery and the type of connection of the automobile battery;

selectively connecting the battery to the automobile battery using the output signal; and

providing a low voltage protection to prevent damages caused by ~~the~~ over discharging of the battery.

23. (Currently Amended) The method of claim 22, further comprising activating a plurality of MOSFETs to connect the battery and the automobile battery, wherein a boost device boosts ~~the~~ a gate voltage of the plurality of MOSFETs.

24. (Currently Amended) The method of claim 23, wherein:

~~the a proper~~ type of connection of the automobile battery is a correct polarity, and

~~the an improper type of~~ connection of the automobile battery is an incorrect polarity.

25. (Currently Amended) The method of claim 23, wherein the generating comprises:
~~generates-generating~~ the output signal to cause switching circuitry to connect the battery to the automobile battery when the automobile battery is properly connected and ~~the level~~ a voltage level of the battery is above a threshold; and
~~generates-generating~~ the output signal to cause ~~the~~ switching circuitry to disconnect the battery from the automobile battery when i) the voltage level of the battery is below the threshold, or ii) the automobile battery is improperly connected.

26. (Currently Amended) A system for charging an automobile ~~battery comprising~~
~~battery, the system comprising:~~
means for detecting a voltage level of a battery;
means for detecting a type of connection between the ~~device battery~~ and the automobile battery;
means for generating, by a microcontroller, an output signal based on the voltage level of the battery and the type of connection of the automobile battery; and
means for selectively connecting the battery to the automobile battery based on the output signal; and
a boost device for boosting a voltage associated with the means for selectively connecting the battery to the automobile battery based on the output signal.

ARGUMENTS/REMARKS

The *Ex Parte Quayle* Action issued on January 8, 2019 indicates that the present application is in condition for allowance but for objections to the specification, namely, to the Abstract and the Claims.

Specification

A clean copy of the Abstract as amended by the Preliminary Amendment filed on March 16, 2018 is included herewith. Applicant respectfully requests that the objection to the specification be withdrawn.

Amendments to the Claims

Applicant respectfully submits that the amendments included herewith fully address the objections to the claims, and respectfully requests that the objections to the claims be withdrawn.

Examiner Interview Summary

Applicant's representative, Shyam Goswami, thanks the Examiner for the telephone interview conducted on February 15, 2019. The Abstract, as well as Claim 24 was discussed, and an agreement was reached. During the interview, the Examiner requested a clean copy of the Abstract, as amended by the Preliminary Amendment filed on March 16, 2018. In addition, Claim 24, line 2, would be changed from "the type of connection" to -a proper type of connection-; and Claim 24, line 3, would be changed from "the improper connection" to -an improper type of connection-.

CONCLUSION

Based upon the foregoing, Applicant believes that the application is in condition for allowance and such disposition is respectfully requested. Applicant does not acquiesce to any objection, rejections, or argument not specifically addressed herein. Rather, Applicant believes the amendments and arguments contained herein overcome all objections, rejections, or arguments. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (303) 764-3055.

The Commissioner is hereby authorized to charge to Deposit Account No. 19-1970 any fees under 37 CFR § 1.16 and 1.17 that may be required by this paper and to credit any overpayment to that account. If any extension of time is required in connection with the filing of this paper and has not been separately requested, such extension is hereby petitioned.

Respectfully submitted,
SHERIDAN ROSS P.C.

Date: February 27, 2019

By: /David B. Kellis/
David B. Kellis
Registration No. 59,377
1560 Broadway, Suite 1200
Denver, CO 80202
Telephone: 303-764-3055
Facsimile: 303-863-0223

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL (Submitted Only via EFS-Web)

Application Number	15/923,219	Filing Date	2018-03-16	Docket Number (if applicable)	8523WANG-1-CON-2	Art Unit	2851
First Named Inventor	Calvin Shiening Wang			Examiner Name	Sun J. Lin		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
Deposit Account No 191970

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

Signature of Registered U.S. Patent Practitioner			
Signature	David B. Kellis/	Date (YYYY-MM-DD)	2019-02-27
Name	David B. Kellis	Registration Number	59377

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:	)	Group Art Unit: 2851
Calvin Shiening Wang	)	Confirmation No.: 4305
Serial No.: 15/923,219	)	Examiner: Sun J Lin
Filed: March 16, 2018	)	
Atty. File No.: 8523WANG-1-CON-2	)	<u>SUPPLEMENTAL</u>
Entitled: "AUTOMOBILE CHARGER"	)	<u>INFORMATION DISCLOSURE</u>
	)	<u>STATEMENT</u>
	)	<i>Electronically Submitted</i>

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

The references cited on attached Form PTO/SB08 are being called to the attention of the Examiner.

- ☒ Copies of the cited non-patent and/or foreign references are enclosed herewith.
- ☐ Copies of the cited U.S. patents and/or patent applications are enclosed herewith.
- ☐ Copies of the cited U.S. patents/patent application publications are not enclosed in accordance with 37 C.F.R. § 1.98(a).
- ☐ Copies of the cited references are not enclosed, in accordance with 37 C.F.R. § 1.98(d), because the references were cited by or submitted to the U.S. Patent and Trademark Office in prior application Serial No. _____ filed _____, which is relied upon for an earlier filing date under 35 U.S.C. § 120.
- ☐ To the best of applicants' belief, the pertinence of the foreign-language references is believed to be summarized in the attached English abstracts and/or in the figures, although applicants do not necessarily vouch for the accuracy of the translation.
- ☐ Examiner's attention is drawn to the following related applications:
- Serial No. _____ filed _____ (Attorney Ref. No. _____)
- Serial No. _____ filed _____ (Attorney Ref. No. _____)
- ☐ Other: _____

Submission of the above information is not intended as an admission that any item is citable under the statutes or rules to support a rejection, that any item disclosed represents analogous art, or that those skilled in the art would refer to or recognize the pertinence of any reference without the benefit of hindsight, nor should an inference be drawn as to the pertinence

of the references based on the order in which they are presented. Submission of this statement should not be taken as an indication that a search has been conducted, or that no better art exists.

It is respectfully requested that the cited information be expressly considered during the prosecution of this application and the references made of record therein.

FEES

☒	37 CFR 1.97(b): No fee is believed due in connection with this submission, because the information disclosure statement submitted herewith is satisfied by one of the following conditions ("X" indicates satisfaction): ☐ Within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d), or ☐ Within three months of the date of entry of the national stage as set forth in § 1.491 in an international application, or ☐ Before the mailing date of a first Office Action on the merits, or ☒ Before the mailing of a first Office action after the filing of a request for continued examination under 37 CFR 1.114. Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970.
☐	37 CFR 1.97(c): The information disclosure statement transmitted herewith is being filed after all the above conditions (37 CFR 1.97(b)), but before the mailing date of any one of the following conditions: (1) a final action under 37 C.F.R. 1.113, or (2) a notice of allowance under 37 C.F.R. 1.311, or (3) an action that otherwise closes prosecution in the application. This Information Disclosure Statement is accompanied by: ☐ A Certification (below) as specified by 37 C.F.R. 1.97(e). Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970. OR ☐ Please charge Deposit Account 19-1970 in the amount of \$120.00 for the fee set forth in 37 C.F.R. 1.17(p) for submission of an information disclosure statement. Please credit any overpayment or charge any underpayment to Deposit Account 19-1970.
☐	37 CFR 1.97(d): This Information Disclosure Statement is being submitted after the period specified in 37 CFR 1.97(c). ☐ This information Disclosure Statement includes a Certification (below) as specified by 37 C.F.R. 1.97(e) AND ☐ Applicants hereby requests consideration of the reference(s) disclosed herein. Please charge Deposit Account 19-1970 in the amount of \$120.00 under 37 C.F.R. 1.17(p). Please credit any overpayment or charge any underpayment to Deposit Account 19-1970. Election to pay the fee should not be taken as an indication that applicant(s) cannot execute a certification.

Certification (37 C.F.R. 1.97(e))
(Applicable only if checked)

- ☐ The undersigned certifies that:
- ☐ Each item of information contained in the Information Disclosure Statement submitted herewith was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement. 37 C.F.R. 1.97(e)(1).
 - ☐ A copy of the communication from the foreign patent office is enclosed.

OR

- ☐ No item of information contained in the Information Disclosure Statement submitted herewith was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement. 37 C.F.R. 1.97(e)(2).

Respectfully submitted,

SHERIDAN ROSS P.C.

By: /David B. Kellis/
David B. Kellis
Registration No. 59377
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: February 27, 2019

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	15/923,219
				Filing Date	March 16, 2018
				First Named Inventor	Calvin Shiening Wang
				Art Unit	2851
				Examiner Name	Sun J Lin
Sheet	1	of	1	Attorney Docket Number	8523WANG-1-CON-2

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ² ; Number ⁴ ; Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶

NON-PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
	1	Petition for Inter Partes Review of U.S. Patent No. 9,525,297, filed Jan. 13, 2018 (Attorney's Ref. No. 8523WANG-1-IPR) 93 pages
	2	Decision Institution of Inter Partes Review for U.S. Patent No. 9,525,297, dated Jul. 16, 2018, Case IPR2018-00488, 22 pages
	3	Order Granting Joint Motion to Terminate Proceeding and Granting Joint Request to Treat Settlement Agreement as Business Confidential Information for U.S. Patent No. 9,525,297, dated Nov. 16, 2018, Case IPR2018-00488, 4 pages
	4	Declaration of Shukri Sourì in Support of Petition for Inter Partes Review of U.S. Patent No. 9,525,297, dated Jan. 13, 2018, 92 pages
	5	Curriculum Vitae of Dr. Shukri J. Sourì, Jul. 2016, 4 pages

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 15/923,219		Filing Date 03/16/2018		☐ To be Mailed					
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO													
APPLICATION AS FILED - PART I													
		(Column 1)		(Column 2)									
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)					
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A							
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A		N/A		N/A							
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A							
TOTAL CLAIMS (37 CFR 1.16(j))		minus 20 = *				x \$50 =							
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 = *				x \$230 =							
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).											
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))													
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL							
APPLICATION AS AMENDED - PART II													
		(Column 1)		(Column 2)		(Column 3)							
AMENDMENT	02/27/2019		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(j))		* 20 Minus		** 20		= 0		x \$50 =		0		
	Independent (37 CFR 1.16(h))		* 3 Minus		*** 3		= 0		x \$230 =		0		
	☐ Application Size Fee (37 CFR 1.16(s))												
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))												
										TOTAL ADD'L FEE		0	
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(j))		* Minus		**		=		x \$0 =				
	Independent (37 CFR 1.16(h))		* Minus		***		=		x \$0 =				
	☐ Application Size Fee (37 CFR 1.16(s))												
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))												
										TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.										LIE			
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".										/MINNIE A JACKSON/			
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".													
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.													

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/923,219	03/16/2018	Calvin Shiening Wang	8523WANG-1-CON-2	4305
22442	7590	01/08/2019	EXAMINER	
Sheridan Ross PC			LIN, SUN J	
1560 Broadway				
Suite 1200				
Denver, CO 80202				
			ART UNIT	PAPER NUMBER
			2851	
			NOTIFICATION DATE	DELIVERY MODE
			01/08/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

e-docket@sheridanross.com

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file (FITF) provisions of the AIA.

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

DETAILED ACTION

1. This office action is in response to application 15/923,219 and a *First Preliminary Amendment* concurrently filed on 03/16/2018, and a *Second Preliminary Amendment* filed on 10/08/2018. Claims 1 – 6 were originally filed in the application. Claims 1 – 6 have been cancelled and Claims 7 – 26 have newly been added in the *First Preliminary Amendment*. No claim has been cancelled and/or added, and parts of Claims 7 – 26 have been amended in the *Second Preliminary Amendment*. Claims 7 – 26 remain pending in the application.

Quayle Action

2. This application is in condition for allowance except for the following formal matters:

Specification Objections

ABSTRACT, line 1, change “comprise” to **—comprises—**.

ABSTRACT, line 1, change “a direct current voltage” insert **—supply—**.

ABSTRACT, line 2, change “the direct current voltage” insert **—supply—**.

ABSTRACT, line 4, change “battery” to **—direct current voltage supply—**.

ABSTRACT, line 5 – 6, change “the automobile start control module” to **—an automobile start control module—**.

ABSTRACT, line 7, change “the other end” to **—another end—**.

ABSTRACT, line 7 – 8, change “the other three ends of which” to **—other three ends of the microcontroller—**.

ABSTRACT, line 9, change “the other end” to **—another end—**.

ABSTRACT, line 9 – 10, change “the load detection module” to **—a load detection module—**.

ABSTRACT, line 10, change “The other end” to **—Another end—**.

ABSTRACT, line 11, change “the third end” to —**a third end**—.

ABSTRACT, line 11, change “the other end” to —**another end**—.

Claim Objections

Claim 8, line 1, before “the voltage regulator” insert —**wherein**—.

Claim 9, line 2, before “capacitor connected” insert —**the**—.

Claim 10, line 2, change “the ports” to —**the plurality of ports**—.

Claim 12, line 4, change “a level” to —**a voltage level**—.

Claim 12, line 7, change “the level” to —**the voltage level**—.

Claim 13, line 2, before “level” insert —**voltage**—.

Claim 14, line 1, change “claim 7” to —**claim 13**—.

Claim 14, line 3, before “level” insert —**voltage**—.

Claim 18, line 1 – 2, change “load detection module” to —**load detector**—.

Claim 20, line 1 – 2, change “load detection module” to —**load detector**—.

Claim 21, line 2, change “the device” to —**the charging device**—.

Claim 22, line 2, before “comprising:” insert —**the method**—.

Claim 22, line 9, before “low voltage protection” insert —**a**—.

Claim 22, line 9, before “over discharging” delete —**the**—.

Claim 23, line 3, change “the gate voltage” to —**a gate voltage**—.

Claim 24, line 2, change “the type of connection” to —**a proper type of correction**—.

Claim 24, line 3, change “the improper connection” to —**an improper type of correction**—.

Claim 25, line 1, change “the generating:” to —**the generating comprising:—**.

Claim 25, line 2, change “generates” to —**generating**—.

Claim 25, line 3, change “the level” to —**a voltage level**—.

Claim 25, line 5, change “generates” to —**generating**—.

Claim 25, line 5, before “switching circuitry” insert —**the**—.

Claim 25, line 6, change “the level” to —**the voltage level**—.

Claim 26, line 1, change “battery comprising:” to —**battery, the system comprising:—**.

Claim 26, line 3, change “the device” to —**the battery**—.

Claim 26, line 4, before “level” insert —**voltage**—.

Appropriate corrections are required.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Reasons for Allowance

3. The following is an examiner's statement of reasons for allowance:

Claims 7 – 26 are allowed because the prior art does not teach or fairly suggest the following subject matter:

- A charging device comprising: **a battery** connected to a voltage regulator, the battery supplying a charging current; **a battery voltage detector**, connected to a microcontroller, to detect a voltage of an automobile battery when *the charging device* is connected to an automobile; **a load detector**, connected to *the microcontroller*, to detect when *the charging device* is connected to the automobile battery; *the microcontroller* generating, when *the charging device* is connected to *the automobile battery*, an output signal based on a detected voltage of *the automotive battery*; **switching circuitry** including a plurality of MOSFETs to selectively connect a negative terminal of the battery to the automobile battery when *the microcontroller* generates the output signal; and **a boost device** for boosting a gate voltage of the plurality of MOSFETs as recited in independent **Claim 1**;
- A method for a device to charge an automobile battery, the method comprising: **detecting** a voltage level of a battery; **detecting** a connection and a type of connection between *the battery* and *the automobile battery*; **generating**, by a microcontroller, an output signal based on *the voltage level* of *the battery*, *the connection* to the automobile battery and *the type of connection* of the automobile battery; **selectively connecting** the battery to the automobile battery using *the output signal*; and **providing** a low voltage protection to prevent damages caused by over discharging of the battery as recited in independent **Claim 22**;
- A system for charging an automobile battery, the system comprising: **means for detecting** a voltage level of a battery; **means for detecting** a type of connection between *the battery* and *the automobile battery*; **means for generating**, by a microcontroller, an output signal based on *the voltage level* of *the battery* and *the type of connection* of *the automobile battery*; and **means for selectively connecting** the battery to the automobile battery based

on *the output signal*; and **a boost device** for boosting a voltage associated with the means for selectively connecting the battery to the automobile battery based on the output signal as recited in **Claim 26**.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to *SUN J LIN* whose telephone number is (571)272-1899. The examiner can normally be reached on 8:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, *Jack Chiang* can be reached on 571-272-7483/7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (in USA or CANADA) or 571-272-1000.

All responses to this Office Action should be mailed to **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450** or faxed to **571-273-8300**.

/SUN J LIN/
Acting Patent Examiner, 2851/2800

Notice of References Cited	Application/Control No. 15/923,219	Applicant(s)/Patent Under Reexamination	
	Examiner SUN J LIN	Art Unit 2851	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-9525297-B2	12-2016	Wang	B60L11/1809	1/1
*	B	US-10046653-B2	08-2018	Wang et al.	B60L11/1809	1/1
	C					
	D					
	E					
	F					
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	I					
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	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
 Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Index of Claims</i> 	Application/Control No. 15/923,219	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner SUN J LIN	Art Unit 2851

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	01/02/2019								
	1	-								
	2	-								
	3	-								
	4	-								
	5	-								
	6	-								
	7	=								
	8	=								
	9	=								
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	19	=								
	20	=								
	21	=								
	22	=								
	23	=								
	24	=								
	25	=								
	26	=								

Search Notes 	Application/Control No. 15/923,219	Applicant(s)/Patent Under Reexamination Wang et al.
	Examiner SUN J LIN	Art Unit 2851

CPC - Searched*		
Symbol	Date	Examiner
B60L 11/1809; H02J 7/0065; H02J 9/005; H02J 7/0068; H02J 7/0029; H02J 7/0034	01/02/2019	/JSL/

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
320	109	01/02/2019	/JSL/

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST [US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB]\	01/02/2019	/JSL/

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	15/923,219
				Filing Date	March 16, 2018
				First Named Inventor	Calvin Shiening Wang
				Art Unit	2851
				Examiner Name	Sun J Lin
Sheet	1	of	1	Attorney Docket Number	8523WANG-1-CON-2

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ ; Number ⁴ ; Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶

NON-PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
	1	Official Action for U.S. Patent Application No. 15/355,409, dated May 3, 2018 (Attorney's Ref. No. 8523WANG-1-CON) 6 pages
	2	Notice of Allowance for U.S. Patent Application No. 15/355,409, dated Jun. 21, 2018 (Attorney's Ref. No. 8523WANG-1-CON) 7 pages

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JSL/

Examiner Signature	/SUN J LIN/	Date Considered	12/11/2018
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.



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BIB DATA SHEET

CONFIRMATION NO. 4305

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
15/923,219	03/16/2018	320	2851	8523WANG-1-CON-2		
APPLICANTS Pilot Inc., City of Industry, CA; INVENTORS Calvin Shiening Wang, City of Industry, CA; Chung-Hsin Wang, Shenzhen, CHINA; ** CONTINUING DATA ***** This application is a CON of 15/355,409 11/18/2016 PAT 10046653 which is a CON of 14/569,352 12/12/2014 PAT 9525297 ** FOREIGN APPLICATIONS ***** CHINA 201420212173.5 04/28/2014 ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY **						
Foreign Priority claimed ☒ Yes ☐ No 35 USC 119(a-d) conditions met ☒ Yes ☐ No Verified and Acknowledged /SUN J LIN/ Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY CA	SHEETS DRAWINGS 2	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS Sheridan Ross PC 1560 Broadway Suite 1200 Denver, CO 80202 UNITED STATES OF AMERICA						
TITLE AUTOMOBILE CHARGER						
FILING FEE RECEIVED 785	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	(charg\$3 with ((automobile or vehicle) adj battery)) and ((voltage adj level) with battery) and (type adj connection) and (microcontroller with (output adj signal))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:19
S1	5235	320/109	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 08:50
S2	0	(320/109).ccls. and (charging adj device) and (voltage adj regulator) and (charging adj current) and (battery adj (voltage adj detector))and (load adj detector) and (automobile adj battery) and (switching adj circuitry) and (boost adj device)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 08:55
S3	0	(320/\$).ccls. and (charging adj device) and (voltage adj regulator) and (charging adj current) and (battery adj (voltage adj detector))and (load adj detector) and (automobile adj battery) and (switching adj circuitry) and (boost adj device)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 08:56
S4	0	(charging adj device) and (voltage adj regulator) and (charging adj current) and (battery adj (voltage adj detector))and (load adj detector) and (automobile adj battery) and (switching adj circuitry) and (boost adj device)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 08:56
S5	0	(charging adj device) and (voltage adj regulator) and (charging adj current) and (battery adj (voltage adj detector)) and (load adj detector) and (battery) and (switching adj circuitry) and (boost adj device)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 08:58
S6	1	(charging adj device) and (voltage adj regulator) and (charging adj current) and (battery adj (voltage adj detector)) and (load adj detector) and (battery) and (switching adj circuitry)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 08:58
S7	1	(charging adj device) and (voltage adj	US-PGPUB;	OR	OFF	2019/01/02

		regulator) and (charging adj current) and (battery adj (voltage adj detector)) and (load adj detector) and (battery) and (switching adj circuitry)	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			08:59
S8	1	S7 AND ((B60L11/1809 OR H02J7/0029 OR H02J7/0034 OR H02J7/0065 OR H02J7/0068 OR H02J9/005).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:02
S9	1	(charging adj device) AND (battery adj (voltage adj detector)) AND (load adj detector) AND (switching adj circuitry) AND ((B60L11/1809 OR H02J7/0029 OR H02J7/0034 OR H02J7/0065 OR H02J7/0068 OR H02J9/005).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:05
S10	0	(320/\$).ccls. and (charg\$3 with ((automobile or vehicle) adj battery)) and ((voltage adj level) adj battery) and (type adj connection) and (microcontroller with (output adj signal))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:11
S11	1	(charg\$3 with ((automobile or vehicle) adj battery)) and ((voltage adj level) adj battery) and (type adj connection) and (microcontroller with (output adj signal))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:12

1/ 2/ 2019 9:21:16 AM
C:\Users\slin1\Documents\EAST\Workspaces\CASE1334.wsp

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>			Complete if Known		
			Application Number	15/923,219	
			Filing Date	March 16, 2018	
			First Named Inventor	Calvin Shiening Wang	
			Art Unit	~~2855X~~ 2851	
			Examiner Name	Lin, Sun J.	
Sheet	1	of	2	Attorney Docket Number	8523WANG-1-CON-2

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	3343057	09/19/1967	Smith	
	2	3590357	06/29/1971	Reid	
	3	3950668	04/13/1976	Sancey et al.	
	4	5487002	01/23/1996	Diller et al.	
	5	5793185	08/11/1998	Prelec	
	6	6130519	10/10/2000	Whiting et al.	
	7	6262492	07/17/2001	Sheng	
	8	6351102	02/26/2002	Troy	
	9	6803743	10/12/2004	George et al.	
	10	7199555	04/03/2007	Hung	
	11	7345450	03/18/2008	Krieger et al.	
	12	8183821	05/22/2012	Sakurai	
	13	8253376	08/28/2012	Gale et al.	
	14	8447543	05/21/2013	Dickinson et al.	
	15	8565930	10/22/2013	Miwa	
	16	8692513	04/08/2014	Gaul et al.	
	17	8723477	05/13/2014	Gaul et al.	
	18	9007015	04/14/2015	Nook et al.	
	19	9248746	02/02/2016	Wen	
	20	9263907	02/16/2016	Richardson et al.	
	21	9333865	05/10/2016	Kawasaki et al.	
	22	9352652	05/31/2016	Cavazos et al.	
	23	9412994	08/09/2016	Koebler	
	24	9496728	11/15/2016	Lei	
	25	9506446	11/29/2016	Xinfang	
	26	9525297	12/20/2016	Wang	
	27	2005/0110467	05/26/2005	Thomason	
	28	2009/0008374	01/08/2009	Fosbinder	
	29	2009/0174362	07/09/2009	Richardson et al.	
	30	2012/0025763	02/02/2012	Hsiao et al.	
	31	2013/0015814	01/17/2013	Kelty et al.	
	32	2015/0032312	01/29/2015	Lambrinos et al.	
Examiner Signature	/SUN J LIN/			Date Considered	12/11/2018

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹Applicant's unique citation designation number (optional). ²See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	15/923,219
				Filing Date	March 16, 2018
				First Named Inventor	Calvin Shiening Wang
				Art Unit	~~2855X~~ 2851
				Examiner Name	Lin, Sun J.
Sheet	2	of	2	Attorney Docket Number	8523WANG-1-CON-2

	33	2015/0212135	07/30/2015	Jin et al.	
	34	2017/0066338	03/09/2017	Wang	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ² ; Number ⁴ ; Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
	35	CN 201947042	08/24/2011	SHENZHEN SBASE ELECTRONICS TECHNOLOGY CO LTD		(English translation)
	36	CN 203522157	04/02/2014	SHENZHEN SBASE ELECTRONICS TECHNOLOGY CO LTD		(English translation)

NON-PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
	37	"3000A 12/24V High Cranking Sure Start Jumpstarter," Projecta, Oct. 2011, 12 pages
	38	"900 Peak Amp Jump-Starter Model No. PKC0AZ Owner's Manual and Warranty Information," Old World Industries, LLC, © 2014, 8 pages
	39	"HT75XX-1 100mA Low Power LDO," Holtek Semiconductor Inc., Jan. 12, 2006, Rev. 1.50, 14 pages
	40	"LM78XX/LM78XXA 3-Terminal 1A Positive Voltage Regulator," Fairchild Semiconductor Corporation, Mar. 2008, Rev. 1.0, 28 pages
	41	"Start-It Jump Starter 12 Volt DC Power Supply User's Manual & Warranty Information," Vector Manufacturing, © 2005, 6 pages
	42	Official Action for U.S. Patent Application No. 14/569,352, mailed Aug. 31, 2016, 8 pages
	43	Notice of Allowance for U.S. Patent Application No. 14/569,352, mailed Oct. 13, 2016, 7 pages
	44	Official Action for U.S. Patent Application No. 15/355,409, dated Dec. 14, 2017 (Attorney's Ref. No. 8523WANG-1-CON) 6 pages

Examiner Signature	/SUN J LIN/	Date Considered	12/11/2018
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JSL/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Calvin Shiening Wang	)	Examiner Name: Sun J. Lin
	)	
Application No.: 15/923,219	)	Group Art Unit: 2851
	)	
Filing Date: 3/16/2018	)	Confirmation No.: 4305
	)	
Attorney Docket No.: 8523WANG-1-CON-2	)	
	)	
Title: AUTOMOBILE CHARGER	)	SECOND PRELIMINARY
	)	AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

Prior to the initial review of the above-identified patent application by the Examiner, please enter the following Second Preliminary Amendment. Applicant does not believe that any fees are due with respect to the entry of this Preliminary Amendment. However, if any fees are due relating to the entry hereof, please debit those fees from Deposit Account No. 19-1970.

Amendments to the Specification, other than the claims, begin on page 2 of this communication.

Amendments to the Drawings begin on page 3 of this communication and include an attached set of replacement sheets.

Amendments to the Claims are reflected in the listing of claims beginning on page 4 of this communication.

Arguments/Remarks begin on page 8 of this communication.

AMENDMENT TO THE SPECIFICATION

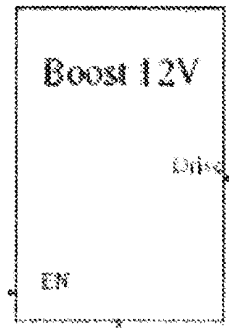
Please amend the Specification by inserting the following paragraph after Paragraph [0024] and before Paragraph [0025]:

[0024A] The EN port of the automobile start control module is positioned on a boost device, which provides a gate-source voltage to a plurality of N-channel MOSFETs Q3_1, Q3_2, Q3_3, Q4_1, Q4_2, Q4_3, which are connected in parallel pairs.

AMENDMENT TO THE DRAWINGS

Applicant submits herewith a Replacement Fig. 2, in which the word “Drive,” which was inadvertently omitted from the Replacement Fig. 2 submitted with the Preliminary Amendment dated March 16, 2018, has been restored. The portion of the original Fig. 2 upon which this change is based is reproduced below, together with the portion of the Replacement Fig. 2 submitted herewith containing the change.

Excerpt from Fig. 2 as filed:



Excerpt from Replacement Fig. 2 submitted herewith:



AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

- 1-6. (Cancelled)
7. (Currently Amended) A charging device, comprising:
a battery connected to a voltage regulator, the battery supplying a charging current;
a battery voltage detector, connected to a microcontroller, to detect a voltage of an automobile battery when the charging device is connected to an automobile;
a load detector, connected to the microcontroller, to detect when the charging device is connected to the automobile battery;
the microcontroller generating, when the charging device is connected to the automobile battery, an output signal based on a detected voltage of the automotive battery; ~~and~~
switching circuitry including a plurality of ~~transistors~~ MOSFETs to selectively connect a negative terminal of the battery to the automobile battery when the microcontroller generates the output signal; ~~and~~
a boost device for boosting a gate voltage of the plurality of MOSFETs.
8. (Previously Presented) The charging device of claim 7, the voltage regulator comprising a voltage stabilizer connected to a resistor, a capacitor and the microcontroller, the voltage regulator providing a DC power to the microcontroller.
9. (Previously Presented) The charging device of claim 7, wherein the load detector comprises a resistor in parallel with a capacitor, the resistor and capacitor connected to the microcontroller.
10. (Previously Presented) The charging device of claim 7, wherein the microcontroller comprises a plurality of ports, the ports including a power supply port, a ground port, an output signal port, and an automobile start control module.

11. (Currently Amended) The charging device of claim 7, wherein the switching circuitry is connected to the microcontroller via the boost device, and the plurality of ~~transistors~~ MOSFETs are connected in parallel.

12. (Previously Presented) The charging device of claim 7, wherein the microcontroller:

generates the output signal to cause the switching circuitry to connect the battery to the automobile battery when the automobile battery is properly connected and a level of the battery is above a threshold; and

generates the output signal to cause the switching circuitry to disconnect the battery from the automobile battery when i) the level of the battery is below the threshold, or ii) the automobile battery is improperly connected.

13. (Previously Presented) The charging device of claim 7, wherein the battery voltage detector detects a recharging level of the battery.

14. (Previously Presented) The charging device of claim 7, wherein the microcontroller generates the output signal to cause the switching circuitry to disconnect the battery from the automobile battery when the recharging level of the battery is greater than a threshold.

15. (Previously Presented) The charging device of claim 7, wherein the voltage regulator is a direct-current to direct-current (DC-DC) converter.

16. (Previously Presented) The charging device of claim 7, wherein the load detector prevents improper user operation of the charging device.

17. (Previously Presented) The charging device of claim 7, wherein the load detector detects a reversed polarity condition.

18. (Currently Amended) The charging device of claim 7, wherein the load detection module is connected to a negative terminal of the plurality of ~~transistors~~ MOSFETs.

19. (Previously Presented) The charging device of claim 7, further comprising one or more light emitting diodes (LEDs) controlled by the microcontroller.

20. (Currently Amended) The charging device of claim 7, wherein a portion of the load detection module is connected in parallel with the plurality of ~~transistors~~ MOSFETs.

21. (Previously Presented) The charging device of claim 7, wherein the microcontroller causes the device to enter a standby mode when a voltage of the battery is less than 9V and allows operation when the voltage of the battery is greater than 10V.

22. (Currently Amended) A method for a device to charge an automobile battery comprising:

detecting a voltage level of a battery;

detecting a connection and a type of connection between the battery and the automobile battery;

generating, by a microcontroller, an output signal based on the voltage level of the battery, the connection to the automobile battery and the type of connection of the automobile battery; and

selectively connecting the battery to the automobile battery using the output signal; and providing low voltage protection to prevent damages caused by the over discharging of the battery.

23. (Currently Amended) The method of claim 22, further comprising activating a plurality of ~~transistors~~ MOSFETs to connect the battery and the automobile battery, wherein a boost device boosts the gate voltage of the plurality of MOSFETs.

24. (Currently Amended) The method of claim ~~22~~ 23, wherein:

the type of connection of the automobile battery is a correct polarity, and

the improper connection of the automobile battery is an incorrect polarity.

25. (Currently Amended) The method of claim ~~2223~~, wherein the generating:
generates the output signal to cause switching circuitry to connect the battery to the automobile battery when the automobile battery is properly connected and the level of the battery is above a threshold; and

generates the output signal to cause switching circuitry to disconnect the battery from the automobile battery when i) the level of the battery is below the threshold, or ii) the automobile battery is improperly connected.

26. (Currently Amended) A system for charging an automobile battery comprising:
means for detecting a voltage level of a battery;
means for detecting a type of connection between the device and the automobile battery;
means for generating, by a microcontroller, an output signal based on the level of the battery and the type of connection of the automobile battery; and
means for selectively connecting the battery to the automobile battery based on the output signal; and

a boost device for boosting a voltage associated with the means for selectively connecting the battery to the automobile battery based on the output signal.

ARGUMENTS/REMARKS

This Second Preliminary Amendment amends the Specification and the Claims to include subject matter illustrated in Fig. 2. The Specification as well as Claims 7, 11, 18, 20, and 22-26 are currently amended, without adding any new subject matter. Claims 1-6 were previously cancelled, and no claims are currently added or cancelled. Applicant respectfully requests that the amendments included herein be entered prior to examination of this Application.

First Preliminary Amendment

Applicant notes that a first Preliminary Amendment was submitted with the filing of the present Application on March 16, 2018. This Second Preliminary Amendment is provided in addition to, and not instead of, the March 16, 2018 Preliminary Amendment. Accordingly, Applicant respectfully requests entry of both the March 16, 2018 Preliminary Amendment and this Second Preliminary Amendment, in that order.

Amendment to the Specification

The Specification is herein amended to insert a Paragraph [0024A] in between Paragraphs [0024] and [0025] of the Application as filed. Paragraph [0024A] describes subject matter illustrated in the highlighted portions of the below reproduction of Fig. 2 (as amended herein):

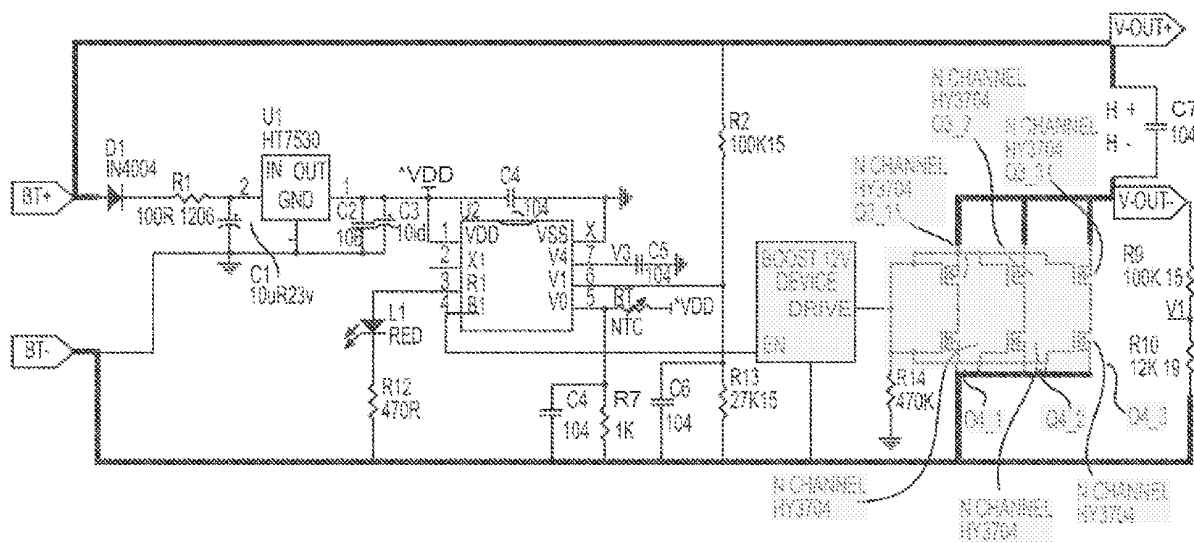


Fig. 2 (annotated).

More specifically, Paragraph [0024] states that “a B1 port of the microcontroller U2 is connected with a EN port of the automobile start control module.” Application, ¶ [0024].

Paragraph [0024A] further explains that “the EN port of the automobile start control module is positioned on a boost device,” which is plainly shown in Fig. 2. Paragraph [0024A] further states that the boost device “provides a gate-source voltage to a plurality of N-channel MOSFETs Q3_1, Q3_2, Q3_3, Q4_1, Q4_2, Q4_3, which are connected in parallel pairs.” This is also plainly apparent in Fig. 2, which shows six MOSFET symbols, each identified as “N Channel HY3704,” and further shows the boost device connected to the gate of each MOSFET.

Amendments to the Claims

Support for the amendment to Claim 22 may be found, for example, in the Application at Paragraph [0014], which states “The battery detection of the present disclosure can provide low voltage protection to prevent damages caused by the over discharging of the battery.” The remaining claim amendments submitted herewith are supported by Fig. 2 and by Paragraph [0024A].

CONCLUSION

In view of the foregoing, Applicant believes that the application is now in condition for allowance.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (303) 764-3055.

The Commissioner is hereby authorized to charge to Deposit Account No. 19-1970 any fees under 37 CFR § 1.16 and 1.17 that may be required by this paper and to credit any overpayment to that account. If any extension of time is required in connection with the filing of this paper and has not been separately requested, such extension is hereby petitioned.

Respectfully submitted,
SHERIDAN ROSS P.C.

Date: October 8, 2018

By: /David B. Kellis/
David B. Kellis
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1560 Broadway, Suite 1200
Denver, CO 80202
Telephone: 303-764-3055
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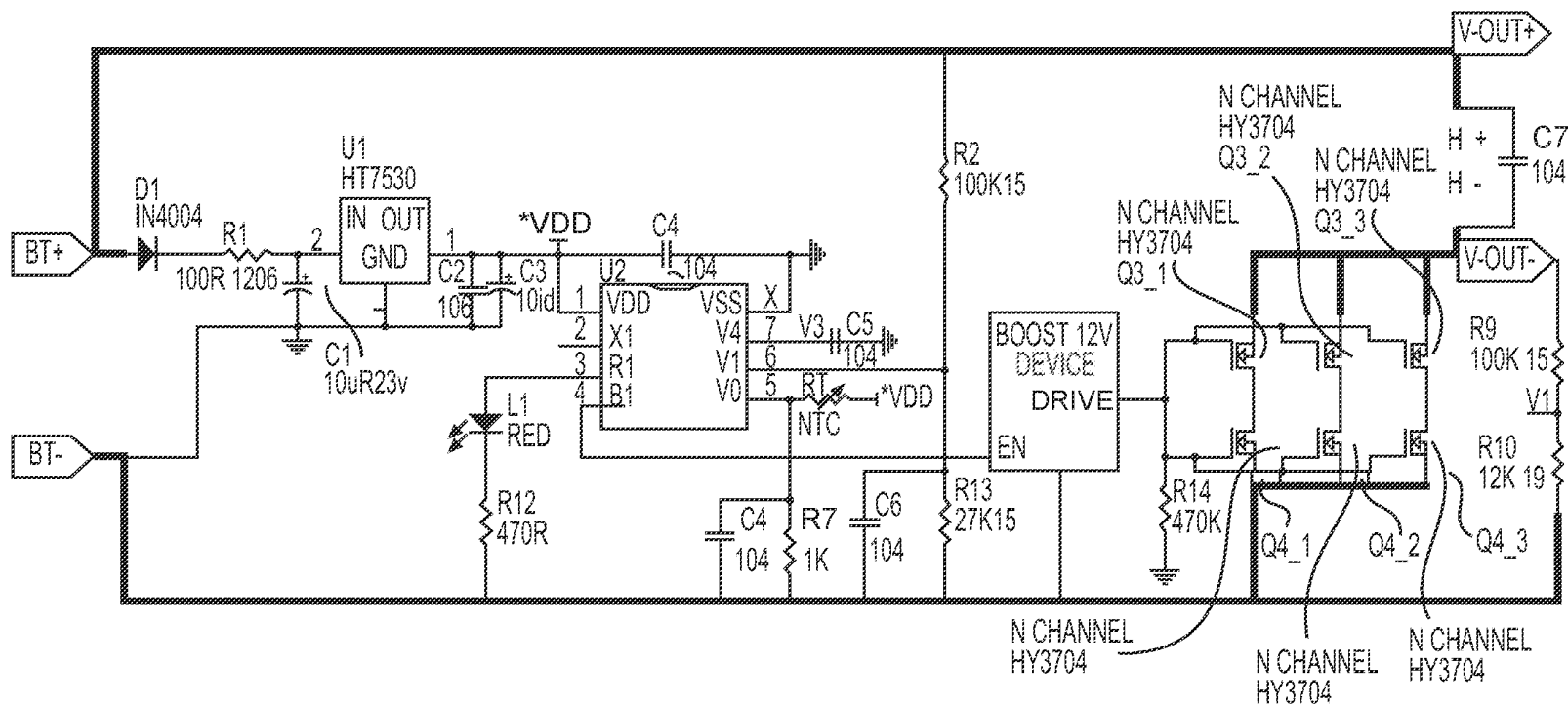


Figure 2

Electronic Acknowledgement Receipt

EFS ID:	33941828
Application Number:	15923219
International Application Number:	
Confirmation Number:	4305
Title of Invention:	AUTOMOBILE CHARGER
First Named Inventor/Applicant Name:	Calvin Shiening Wang
Customer Number:	22442
Filer:	David B. Kellis/Mandi Lamberson
Filer Authorized By:	David B. Kellis
Attorney Docket Number:	8523WANG-1-CON-2
Receipt Date:	08-OCT-2018
Filing Date:	16-MAR-2018
Time Stamp:	13:07:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		20181008_PRELIM-AMEND-02.pdf	219205 fc3a8b7b21a2bbe1f4721d9a3f7b1316e8bdea85	yes	9

	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Specification		2	2	
	Drawings-only black and white line drawings		3	3	
	Claims		4	7	
	Applicant Arguments/Remarks Made in an Amendment		8	9	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	20181008_RPLC-FIG-2.pdf	80707	no	1
			2c1bb92c3de9f2b3661667a8f3d6e3e49389c7f2		
Warnings:					
Information:					
Total Files Size (in bytes):			299912		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	15/923,219
				Filing Date	March 16, 2018
				First Named Inventor	Calvin Shiening Wang
				Art Unit	2851
				Examiner Name	Sun J Lin
Sheet	1	of	1	Attorney Docket Number	8523WANG-1-CON-2

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ ; Number ⁴ ; Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶

NON-PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
	1	Official Action for U.S. Patent Application No. 15/355,409, dated May 3, 2018 (Attorney's Ref. No. 8523WANG-1-CON) 6 pages
	2	Notice of Allowance for U.S. Patent Application No. 15/355,409, dated Jun. 21, 2018 (Attorney's Ref. No. 8523WANG-1-CON) 7 pages

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Electronic Acknowledgement Receipt	
EFS ID:	33315907
Application Number:	15923219
International Application Number:	
Confirmation Number:	4305
Title of Invention:	AUTOMOBILE CHARGER
First Named Inventor/Applicant Name:	Calvin Shiening Wang
Customer Number:	22442
Filer:	David B. Kellis/Robert Roe-Pachirat
Filer Authorized By:	David B. Kellis
Attorney Docket Number:	8523WANG-1-CON-2
Receipt Date:	30-JUL-2018
Filing Date:	16-MAR-2018
Time Stamp:	13:18:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		IDS_02.pdf	211568	yes	4
			e8ba90340a8c9a8f071d6f4c1a01b2ff2dd0d5e		

	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Transmittal Letter		1	3	
	Information Disclosure Statement (IDS) Form (SB08)		4	4	
Warnings:					
Information:					
2	Non Patent Literature	8523WANG-1- CON_FOA_05-03-2018.pdf	602190	no	6
			9fde21f3f3eb813e2415af6be1ff41048193eab0		
Warnings:					
Information:					
3	Non Patent Literature	8523WANG-1- CON_NOA_06-21-2018.pdf	426297	no	7
			79f94dddad9bda50e67b394ce76db80d048b9cbb		
Warnings:					
Information:					
Total Files Size (in bytes):			1240055		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:	)	Group Art Unit: 2851
Calvin Shiening Wang	)	Confirmation No.: 4305
Serial No.: 15/923,219	)	Examiner: Sun J Lin
Filed: March 16, 2018	)	
Atty. File No.: 8523WANG-1-CON-2	)	<u>SUPPLEMENTAL</u>
Entitled: "AUTOMOBILE CHARGER"	)	<u>INFORMATION DISCLOSURE</u>
	)	<u>STATEMENT</u>
	)	<i>Electronically Submitted</i>

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

The references cited on attached Form PTO/SB08 are being called to the attention of the Examiner.

- ☒ Copies of the cited non-patent and/or foreign references are enclosed herewith.
- ☐ Copies of the cited U.S. patents and/or patent applications are enclosed herewith.
- ☐ Copies of the cited U.S. patents/patent application publications are not enclosed in accordance with 37 C.F.R. § 1.98(a).
- ☐ Copies of the cited references are not enclosed, in accordance with 37 C.F.R. § 1.98(d), because the references were cited by or submitted to the U.S. Patent and Trademark Office in prior application Serial No. _____ filed _____, which is relied upon for an earlier filing date under 35 U.S.C. § 120.
- ☐ To the best of applicants' belief, the pertinence of the foreign-language references is believed to be summarized in the attached English abstracts and/or in the figures, although applicants do not necessarily vouch for the accuracy of the translation.
- ☐ Examiner's attention is drawn to the following related applications:
- Serial No. _____ filed _____ (Attorney Ref. No. _____)
- Serial No. _____ filed _____ (Attorney Ref. No. _____)
- ☐ Other: _____

Submission of the above information is not intended as an admission that any item is citable under the statutes or rules to support a rejection, that any item disclosed represents analogous art, or that those skilled in the art would refer to or recognize the pertinence of any reference without the benefit of hindsight, nor should an inference be drawn as to the pertinence

of the references based on the order in which they are presented. Submission of this statement should not be taken as an indication that a search has been conducted, or that no better art exists.

It is respectfully requested that the cited information be expressly considered during the prosecution of this application and the references made of record therein.

FEES

☒	37 CFR 1.97(b): No fee is believed due in connection with this submission, because the information disclosure statement submitted herewith is satisfied by one of the following conditions ("X" indicates satisfaction): ☐ Within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d), or ☐ Within three months of the date of entry of the national stage as set forth in § 1.491 in an international application, or ☒ Before the mailing date of a first Office Action on the merits, or ☐ Before the mailing of a first Office action after the filing of a request for continued examination under 37 CFR 1.114. Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970.
☐	37 CFR 1.97(c): The information disclosure statement transmitted herewith is being filed after all the above conditions (37 CFR 1.97(b)), but before the mailing date of any one of the following conditions: (1) a final action under 37 C.F.R. 1.113, or (2) a notice of allowance under 37 C.F.R. 1.311, or (3) an action that otherwise closes prosecution in the application. This Information Disclosure Statement is accompanied by: ☐ A Certification (below) as specified by 37 C.F.R. 1.97(e). Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970. OR ☐ Please charge Deposit Account 19-1970 in the amount of \$120.00 for the fee set forth in 37 C.F.R. 1.17(p) for submission of an information disclosure statement. Please credit any overpayment or charge any underpayment to Deposit Account 19-1970.
☐	37 CFR 1.97(d): This Information Disclosure Statement is being submitted after the period specified in 37 CFR 1.97(c). ☐ This information Disclosure Statement includes a Certification (below) as specified by 37 C.F.R. 1.97(e) AND ☐ Applicants hereby requests consideration of the reference(s) disclosed herein. Please charge Deposit Account 19-1970 in the amount of \$120.00 under 37 C.F.R. 1.17(p). Please credit any overpayment or charge any underpayment to Deposit Account 19-1970. Election to pay the fee should not be taken as an indication that applicant(s) cannot execute a certification.

Certification (37 C.F.R. 1.97(e))
(Applicable only if checked)

- ☐ The undersigned certifies that:
- ☐ Each item of information contained in the Information Disclosure Statement submitted herewith was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement. 37 C.F.R. 1.97(e)(1).
 - ☐ A copy of the communication from the foreign patent office is enclosed.

OR

- ☐ No item of information contained in the Information Disclosure Statement submitted herewith was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement. 37 C.F.R. 1.97(e)(2).

Respectfully submitted,

SHERIDAN ROSS P.C.

By: /David B. Kellis/
David B. Kellis
Registration No. 59377
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: July 30, 2018



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/923,219	03/16/2018	Calvin Shiening Wang	8523WANG-1-CON-2

CONFIRMATION NO. 4305

PUBLICATION NOTICE



OC000000101094167

22442
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

Title:AUTOMOBILE CHARGER

Publication No.US-2018-0201141-A1

Publication Date:07/19/2018

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <https://portal.uspto.gov/pair/PublicPair>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
15/923,219	03/16/2018	2851	785	8523WANG-1-CON-2	20	3

CONFIRMATION NO. 4305 UPDATED FILING RECEIPT



22442
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

Date Mailed: 07/06/2018

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Calvin Shiening Wang, City of Industry, CA;
Chung-Hsin Wang, Shenzhen, CHINA;

Applicant(s)

Pilot Inc., City of Industry, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 15/355,409 11/18/2016
which is a CON of 14/569,352 12/12/2014 PAT 9525297

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)
CHINA 201420212173.5 04/28/2014

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to**

Retrieve Electronic Priority Application(s) (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

Projected Publication Date: 07/19/2018

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

AUTOMOBILE CHARGER

Preliminary Class

320

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/923,219	03/16/2018	Calvin Shiening Wang	8523WANG-1-CON-2

22442
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

CONFIRMATION NO. 4305
37 CFR 1.48 ACKNOWLEDGEMENT
LETTER



Date Mailed: 07/06/2018

NOTICE OF ACCEPTANCE OF REQUEST UNDER 37 CFR 1.48(a)

This is in response to the applicant's request under 37 CFR 1.48(a) submitted on 07/03/2018.

The request under 37 CFR 1.48(a) to correct the inventorship, to correct or update the name of an inventor, or to correct the order of names of joint inventors is accepted.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/sstephanos/

**REQUEST FOR CORRECTION IN A
PATENT APPLICATION RELATING TO
INVENTORSHIP OR AN INVENTOR
NAME, OR ORDER OF NAMES, OTHER
THAN IN A REISSUE APPLICATION (37
CFR 1.48)**

Application Number	15/923,219
Filing Date	03/16/2016
First Named Inventor	Calvin Shiening Wang
Art Unit	2851
Examiner Name	Sun J Lin
Practitioner Docket Number	8523WANG-1-CON-2

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Applicant hereby requests that the inventorship be corrected or changed, or that the name of the inventor or a joint inventor, or the order of the names of joint inventors, be changed, in the above-identified application. **Note:** 37 CFR 1.48 applies to any request to correct inventorship filed on or after September 16, 2012, regardless of the application filing date. **Do not submit this form after payment of the issue fee or if the application has been patented.** See 37 CFR 1.324 for correction of inventorship in a patent.

Please check the applicable box(es) below.

For a nonprovisional application:

- ☒ 1. This request is to correct or change the inventorship in a **nonprovisional** application (under 37 CFR 1.48(a)) and includes:
- ☒ An application data sheet (ADS) in accordance with 37 CFR 1.76(c) with the corrected or updated information shown with markings (e.g., underlining for insertions, strikethrough for deletions). See the Manual of Patent Examining Procedure (MPEP) section 601.05(a) for information about filing an ADS in an application filed on/after September 16, 2012. For information about filing a Supplemental ADS in an application filed before September 16, 2012, see MPEP 601.05(b).
- ☒ The processing fee set forth in 37 CFR 1.17(i). \$ 70.00
- ☒ An inventor is being added. An inventor's oath or declaration by any actual inventor who has not yet executed an oath or declaration is required (see 37 CFR 1.48(b)). See MPEP 602.01(a) for information about an inventor's oath or declaration for an application filed on/after September 16, 2012 (e.g., form **PTO/AIA/01**). For information about an inventor's oath or declaration for an application filed before September 16, 2012 (e.g., form **PTO/SB/01**), see MPEP 602.01(b).
- ☐ This request is being filed after the first Office action on the merits has been given or mailed (see 37 CFR 1.48(c) and 1.17(d)). Check one of the following:
- ☐ This request to correct or change the inventorship is due solely to the cancellation of claims in the application.
- OR
- ☐ The fee set forth in 37 CFR 1.17(d) is due (in addition to the fee set forth in 37 CFR 1.17(i)). \$ _____

[Page 1 of 2]

This collection of information is required by 37 CFR 1.48. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REQUEST FOR CORRECTION IN A PATENT APPLICATION RELATING TO INVENTORSHIP OR AN INVENTOR NAME, OR ORDER OF NAMES, OTHER THAN IN A REISSUE APPLICATION
(37 CFR 1.48)

- ☐ 2. This request is to correct or update the name of the inventor or a joint inventor, or the order of names of joint inventors, in a **nonprovisional** application (under 37 CFR 1.48(f)) and includes:
- ☐ An application data sheet in accordance with 37 CFR 1.76(c) identifying the complete inventive entity, including the corrected or updated name of the inventor, or the new order of names shown with markings (e.g., underlining for insertions, strikethrough for deletions). See the MPEP 601.05(a) for information about filing an ADS in an application filed on/after September 16, 2012. For information about filing a Supplemental ADS in an application filed before September 16, 2012, see MPEP 601.05(b).
- ☐ The processing fee set forth in 37 CFR 1.17(i). \$ _____

For a provisional application:

- ☐ This request is to change or correct the inventorship, or correct or update the name of the inventor or a joint inventor, in a **provisional** application (under 37 CFR 1.48(d)) and includes:
- ☐ **Attached hereto** is a document that is signed by a party set forth in 37 CFR 1.33(b) and identifies each inventor by his or her legal name, in the preferred order. Note: the document may be an application data sheet in accordance with 37 CFR 1.76(c) that identifies the changes with markings (underlining for insertions, strikethrough for deletions).
- ☐ The processing fee set forth in 37 CFR 1.17(q). \$ _____

Fee Payment Information:

- ☒ Applicant asserts small entity status. See 37 CFR 1.27.
- ☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously
- ☐ A check in the amount of the fee is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 19-1970.
- ☒ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

- ☐ Applicant* ☒ attorney or agent of record ☐ attorney or agent acting under 37 CFR 1.34
Registration number 59377 Registration number _____

Signature /David B. Kellis/

Typed or printed name David B. Kellis

Date 07/03/2018

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. *Juristic entities must be represented by a patent practitioner (See 37 CFR 1.31, applicable to any paper filed on or after September 16, 2012 that is presented on behalf of a juristic entity, regardless of application filing date). Submit multiple forms if more than one signature is required, see below**.

☐ ** Total of _____ forms are submitted.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**Title of
Invention**AUTOMOBILE CHARGER**

Attorney Docket No. 8523WANG-1-CON-2

As the below named inventor, I hereby declare that:

This declaration
is directed to:☐

The attached application, or

☒United States application or PCT international application number 15/923,219filed on March 16, 2018

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001
by fine or imprisonment of not more than five (5) years, or both.**WARNING:**

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor

Chung-Hsin Wang

Date (Optional)

2018/5/29

Signature

Chung-Hsin Wang

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: Pilot Inc.Application No./Patent No.: 15/923,219Filed/Issue Date: 03/16/2018Titled: AUTOMOBILE CHARGERPilot Inc., a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is ____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Calvin Shiening Wang To: Wang's International, Inc.The document was recorded in the United States Patent and Trademark Office at
Reel 045253, Frame 0077, or for which a copy thereof is attached.2. From: Wang's International, Inc. To: Pilot Inc.The document was recorded in the United States Patent and Trademark Office at
Reel 045253, Frame 0271, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)3. From: Chung-Hsin Wang To: Pilot Inc.

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
 Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/David B. Kellis/

07/03/2018

Signature

Date

David B. Kellis

59,377

Printed or Typed Name

Title or Registration Number

[Page 2 of 2]

Worldwide Assignment

WHEREAS, I, **Chung-Hsin Wang**, have made an invention entitled **AUTOMOBILE CHARGER** for which the following applications have been prepared and filed with the United States Patent and Trademark Office

Application No. **14/569,352**, filed on **December 12, 2014**, issued as U.S. Patent No. **9,525,297** on **December 20, 2016**;

Application No. **15/355,409**, filed on **November 18, 2016**; and,

Application No. **15/923,219**, filed on **March 16, 2018**.

WHEREAS, **Pilot Inc.** ("ASSIGNEE"), a corporation or other business entity duly registered in the State of California, whose postal address is 13000 Temple Boulevard, City of Industry, CA 91746, desires to acquire the entire right, title, and interest in and to the invention, the application, and any patents to be granted for the invention in the United States and in all foreign countries;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I have sold, assigned, transferred, and conveyed, and do hereby sell, assign, transfer, and convey unto ASSIGNEE, its successors, legal representatives, and assigns: (a) the entire right, title, and interest in and to the inventions covered by the application, the application, all applications claiming benefit of the application, including, but not limited to, all provisionals, divisions and continuations of the application, and all patents that may be granted thereon in and throughout the United States and in all foreign countries, including without limitation utility models, design patents, certificates of invention and equivalent rights worldwide, and all reissues and reexaminations thereof; (b) all rights arising under or pursuant to any and all international agreements, treaties or laws, including the right to file applications for patents, design patents, utility models, certificates of invention or other governmental grants and equivalent rights worldwide, and to claim the same priority rights, under the patent laws of the United States, the applicable laws of the country in which any such application is filed, the International Convention for the Protection of Industrial Property and any other international union, convention, agreement and treaty; (c) all rights in and to causes of action and enforcement rights for the inventions and any resulting patents, including all rights to pursue damages, injunctive relief and other remedies for past, present and future infringement of the inventions and resulting patents, and to hold for ASSIGNEE'S sole use and benefit all recoveries, rights, and benefits arising from all such suits;

AND I authorize and request the Director of Patents of the United States, and any Official of any country or countries foreign to the United States, whose duty is to issue patents or other evidence or forms of industrial property to issue the same for the inventions to ASSIGNEE, its successors, legal representatives, and assigns in accordance with the terms of this Assignment;

AND I covenant and agree that I have the full right to convey the entire right, title, and interest herein assigned and that I have not executed and will not execute any assignment or other instrument in conflict with this Assignment.

AND I further covenant and agree that upon request by ASSIGNEE, its successors, legal representatives, and assigns, and without further consideration, I (or my executors or administrators) will do all lawful acts that may be necessary or desirable to assist ASSIGNEE, its successors, legal representatives, and assigns to obtain and enforce patent protection for the inventions in the United States and in all foreign countries, including, but not limited to, communicate with ASSIGNEE, its successors, legal representatives, and assigns any facts known to me regarding the inventions, testify in any legal proceeding, sign all lawful papers, make all rightful oaths, and execute and deliver all papers that may be necessary or desirable to record and perfect the interest and title to the inventions in ASSIGNEE, its successors, legal representatives, and assigns, it being understood that any expense incident to the rendering of such assistance will be borne by ASSIGNEE, its successors, legal representatives, and assigns;

IN WITNESS WHEREOF, I have executed this Assignment on the date indicated below.

Signature: Chung-Hsin Wang

Date: 2018/5/29

Full Name: Chung-Hsin Wang

Address: _____

Electronic Patent Application Fee Transmittal				
Application Number:		15923219		
Filing Date:		16-Mar-2018		
Title of Invention:		AUTOMOBILE CHARGER		
First Named Inventor/Applicant Name:				
Filer:		David B. Kellis/Mandi Lamberson		
Attorney Docket Number:		8523WANG-1-CON-2		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	70	70
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				70

Electronic Acknowledgement Receipt

EFS ID:	33080140
Application Number:	15923219
International Application Number:	
Confirmation Number:	4305
Title of Invention:	AUTOMOBILE CHARGER
First Named Inventor/Applicant Name:	
Customer Number:	22442
Filer:	David B. Kellis/Mandi Lamberson
Filer Authorized By:	David B. Kellis
Attorney Docket Number:	8523WANG-1-CON-2
Receipt Date:	03-JUL-2018
Filing Date:	16-MAR-2018
Time Stamp:	16:04:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$70
RAM confirmation Number	070518INTEFSW00005001191970
Deposit Account	191970
Authorized User	Mandi Lamberson
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet to update/ correct info	CorrectedADS.pdf	72235	no	5
			88900a96fab32d934879117e9d1d84380cf a0e28		
Warnings:					
Information:					
2	Request under Rule 48 correcting inventorship	20180703_Request-Correct- Inventorship.pdf	211700	no	3
			56a69b50a7d8d8a76a416e45353e49307cc 7e8ca		
Warnings:					
Information:					
3	Oath or Declaration filed	20180703_Declaration.pdf	310392	no	1
			46ef279cd0ac3e250b851c68fcd51e372ebe acda		
Warnings:					
Information:					
4	Assignee showing of ownership per 37 CFR 3.73	20180703_373-Statement.pdf	486957	no	3
			abb3075829b04d6264ccc50a26097598450 dec0f		
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	30440	no	2
			b5a31f80f005fac56e39ea70948ba2f9a7f31 d16		
Warnings:					
Information:					
Total Files Size (in bytes):			1111724		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

CORRECTED ADS FORM

Application Number	15923219
Title of Invention	AUTOMOBILE CHARGER

Inventor Information

****If no data is shown, no data has been corrected****

	Data of Record	Updated Data
Order Number	1	
Name	Calvin Shiening Wang	

Residence Information

Residency	us-residency	
City	City of Industry	
State	CA	
Country of Residence	US	

Mailing Address of Inventor

Address 1	13000 Temple Avenue	
Address 2		
City,State/Province, Postal Code	City of Industry CA 91746	
Country	US	

	Data of Record	Updated Data
Order Number		<u>2</u>
Name		<u>Chung-Hsin Wang</u>

Residence Information

Residency		<u>non-us-residency</u>
City		<u>Shenzhen</u>
State		
Country of Residence		<u>CN</u>

Mailing Address of Inventor

Address 1		<u>5F, Building 2, HuaFeng First Technology Park</u>
Address 2		<u>San Wei Village, XiXiang Town, Bao'an</u>
City,State/Province, Postal Code		<u>Shenzhen OT 518100</u>
Country		<u>CN</u>

Application Information

	Data of Record	Updated Data
Title of Invention	AUTOMOBILE CHARGER	
Attorney Docket Number	8523WANG-1-CON-2	
Entity Type	Small	

Domestic Benefit/National Stage Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121,365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S. C. 119(e) or 120, and 37 CFR 1.78(a).

Corrected ADS 1.0

		Data of Record	Updated Data
	Prior Application Status		
	Application Number		
	Continuity Type		
	Prior Application Number		
	Filing Date (YYYY-MM-DD)		
	Patent Number		
	Issue Date (YYYY-MM-DD)		

Foreign Priority Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

		Data of Record	Updated Data
	Application Number		
	Country		
	Filing Date		
	Access Code		

Applicant Information

****If no data is shown, no data has been corrected****

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

	Data of Record	Updated Data
Applicant Type		

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is		
Name of the Deceased or Legally Incapacitated Inventor		
Applicant is an Organization		
Name		
Organization Name		
Address 1		
Address 2		
City,State/Province,Postal Code		
Country		
Phone Number		
Fax Number		
Email Address		

Assignee Information including Non-Applicant Assignee Information

****If no data is shown, no data has been corrected****

Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office

	Data of Record	Updated Data
Order		
Applicant is an Organization		
Name		

Organization Name		
Mailing Address		
Address 1		
Address 2		
City,State/Province,Postal Code		
Country		
Phone Number		
Fax Number		
Email Address		

Signature

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/David B. Kellis/	Registration Number	59377
First Name	David B.	Last Name	Kellis

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 15/923,219	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	75		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	380		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20	minus 20 = *	x 50 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *	x 230 =	0.00	OR		
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
			TOTAL	785		TOTAL	
* If the difference in column 1 is less than zero, enter "0" in column 2.							
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	OR	x =
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	OR	x =
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x =	OR	x =
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =	OR	x =
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
			TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.							



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
15/923,219	03/16/2018	2835	785	8523WANG-1-CON-2	20	3

CONFIRMATION NO. 4305

FILING RECEIPT



22442
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

Date Mailed: 04/13/2018

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Calvin Shiening Wang, City of Industry, CA;

Applicant(s)

Pilot Inc., City of Industry, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

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CHINA 201420212173.5 04/28/2014

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/923,219**

Projected Publication Date: 07/19/2018

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

AUTOMOBILE CHARGER

Preliminary Class

361

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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page 2 of 4

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证 明

本证明之附件是向本局提交的下列专利申请文件副本。

申 请 号：201420212173.5
申 请 类 型：实用新型专利
发 明 创 造 名 称：一种新型汽车充电器
申 请 日：2014 年 04 月 28 日
申 请 人：王熙宁
发明人或设计人：王熙宁

局长
申长雨

2015 年 06 月 24 日



权 利 要 求 书

1. 一种新型汽车充电器，包括直流电源，其特征在于，直流电源正极同时连接为 DC to DC 模块的一端、电池电压侦测模块的一端和负载模块的一端，直流电压负极同时连接 DC to DC 模块的另一端、微控制器的一端、汽车启动控制模块的一端和电池电压侦测模块的另一端，所述 DC to DC 模块的第三端连接微控制器的另一端，所述微控制器的其他三端分别连接电池电压侦测模块的第三端、汽车启动控制模块的另一端和负载侦测模块的一端，所述负载侦测模块的另一端同时连接汽车启动控制模块的第三端和负载模块的另一端；所述负载模块位于汽车的一端，所述负载模块包括汽车电瓶和汽车发动机。
2. 根据权利要求 1 所述的一种新型汽车充电器，其特征在于，所述 DC to DC 模块包括二极管 D1、电阻 R1、电容 C1、HT7530 稳压管、电容 C2 和电容 C3，所述二极管 D1 的正极与电池的正极连接，二极管 D1 的负极通过电阻 R1 同时连接电容 C1 的一端和 HT7530 稳压管 IN 端口，所述 HT7530 稳压管的 OUT 端口同时连接电容 C2 的一端、电容 C3 的一端和微控制器 U2 的 VDD 端口，所述电容 C1 的另一端、电容 C2 的另一端、电容 C3 的另一端和 HT7530 稳压管的 GND 端口同时接地和电池负极；所述微控制器 U2 的 R1 端口通过串联的发光二极管 L1 和电阻 R12 连接电池负极，微控制器 U2 的 B1 端口连接汽车启动控制模块的 EN 端口，微控制器 U2 的 VO 端通过并联的电容 C4 和电阻 R7 连接电池负极，VO 端还通过滑动变阻器 RT 连接 VDD 端口，微控制器 U2 的 V1 端口通过并联电阻 10、电容 C6 和电阻 R13 也连接电池负极，V1 端口通过电阻 R2 连接电池正极，V1 端口还通过电阻 R9 同时连接汽车电瓶负极和汽车发动机，所述汽车电瓶两端还并联有电容 C7，电阻 R9、电阻 10、电容 C6 和电阻 R13 一起组成负载侦测模块，微控制器 U2 的 V4 端口通过电容 C5 接地，微控制器 U2 的 VSS 端口与电容 C4 的一端同时接地，所述电容 C4 的另一端连接微控制器 U2 的 VDD 端口，所述电阻 R2、电容 C6 和电阻 R13 一起组成电池电压侦测模块，所述汽车启动控制模块的 Drive 端口同时连接汽车发动机和电阻 R14 的一端，电阻 R14 的另一端接地。
3. 根据权利要求 1 所述的一种新型汽车充电器，其特征在于，所述 DC to DC 模块为微控制器提供稳定电压，所述微控制器采集相关数据进行对应控制，所述电池电压侦测模块进行电池电压的量测，所述汽车启动控制模块经由微控制器对负载模块进行供电或断电，所述负载侦测模块检测负载模块是否正确接上。
4. 根据权利要求 1 所述的一种新型汽车充电器，其特征在于，所述电池电压侦测模块为供电电池提供保护。
5. 根据权利要求 1 所述的一种新型汽车充电器，其特征在于，在待机状态下，直流电源的



权 利 要 求 书

电压低于可供电状态时，微控制器关闭所有输出，直流电源的电压高于可供电状态时恢复工作。

6. 根据权利要求 1 所述的一种新型汽车充电器，其特征在于，所述汽车启动控制模块为电子开关。



说明书

一种新型汽车充电器

技术领域

[0001] 本实用新型汽车充电装置，具体是一种新型安全电源快速充电的汽车充电器。

背景技术

[0002] 汽车充电给是驾车出行爱车人士和商务人士一项大事，其技术的成熟度是制约汽车充电器推广应用的关键因素之一，但现在的汽车充电器普遍存在无法自动侦测是否已接负载，侦测电极与汽车电瓶是否接反，侦测汽车发电机或电瓶是否有逆电流，侦测电池状态是否适合做大电流发电等问题，因此，本实用新型提供了一种新型安全电源快速充电的汽车充电器以解决上述问题，使汽车充电安全快速成熟且可推广。

发明内容

[0003] 本实用新型的目的在于提供一种新型安全电源快速充电的汽车充电器，以解决上述背景技术中提出的技术问题。

[0004] 为实现上述目的，本实用新型提供如下技术方案：一种新型汽车充电器，包括直流电源，直流电源正极同时连接为 DC to DC 模块的一端、电池电压侦测模块的一端和负载模块的一端，直流电压负极同时连接 DC to DC 模块的另一端、微控制器的一端、汽车启动控制模块的一端和电池电压侦测模块的另一端，所述 DC to DC 模块的第三端连接微控制器的另一端，所述微控制器的其他三端分别连接电池电压侦测模块的第三端、汽车启动控制模块的另一端和负载侦测模块的一端，所述负载侦测模块的另一端同时连接汽车启动控制模块的第三端和负载模块的另一端；所述负载模块位于汽车的一端，所述负载模块包括汽车电瓶和汽车发动机。

[0005] 作为本实用新型进一步的方案：所述 DC to DC 模块为微控制器提供稳定电压，所述微控制器采集相关数据进行对应控制，所述电池电压侦测模块进行电池电压的量测，所述汽车启动控制模块经由微控制器对负载模块进行供电或断电，所述负载侦测模块检测负载模块是否正确接上，所述负载模块包括汽车电瓶或是汽车发电机。

[0006] 作为本实用新型进一步的方案：电路对负载模块供电采用电子开关，可以对产品做更多的保护或缩小产品尺寸和降低材料成本。

[0007] 作为本实用新型进一步的方案：所述电池电压侦测模块为供电电池提供保护，防止直流电源放电造成毁损。

[0008] 作为本实用新型进一步的方案：所述负载侦测模块防止使用者不当操作。



说明书

[0009] 作为本实用新型进一步的方案：在待机状态下，直流电源的电压低于可供电状态时，微控制器关闭所有输出，直流电源的电压高于可供电状态时恢复工作。

[0010] 作为本实用新型进一步的方案：汽车启动控制模块为电子开关。

[0011] 与现有技术相比，本实用新型的有益效果是：

1.本实用新型的负载供电采用电子开关控制，这部分可以对产品做更多的保护以及缩小产品尺寸跟降低材料成本。

[0012] 2. 本实用新型的电池侦测可做低电压保护，防止电池过放电造成损坏。

[0013] 3. 本实用新型的负载侦测，可以防止使用者不正当操作，如极性接反，造成汽车或直流电源损坏。

[0014] 4. 本实用新型采用负载异常电压回流保护，当侦测异常电压时，关闭汽车启动线路，以保护电池。

[0015] 5. 本实用新型具有快速充电功能，且可根据人们使用需要进行固定安装或便携式移动。

[0016] 6.本实用新型的自动侦测模块可自动检测是否已经接上负载，侦测电极与汽车电瓶是否接反，侦测汽车发电机是否有逆充电流，侦测电池状态是否适合做大电流放电，保护负载和电路，功能齐全。

附图说明

[0017] 图 1 为安全智能汽车应急电源的原理框图；

图 2 为安全智能汽车应急电源的电路图。

[0018] 图中：1-DC to DC 模块、2-微控制器、3-电池电压侦测模块、4-汽车启动控制模块、5-负载侦测模块、6-负载模块、7-直流电源。

具体实施方式

[0019] 下面将结合本实用新型实施例中的附图，对本实用新型实施例中的技术方案进行清楚、完整地描述，显然，所描述的实施例仅仅是本实用新型一部分实施例，而不是全部的实施例。基于本实用新型中的实施例，本领域普通技术人员在没有做出创造性劳动前提下所获得的所有其他实施例，都属于本实用新型保护的范围。

[0020] 请参阅图 1，一种新型汽车充电器，包括直流电源，直流电源正极同时连接为 DC to DC 模块的一端、电池电压侦测模块的一端和负载模块的一端，直流电压负极同时连接 DC to DC 模块的另一端、微控制器的一端、汽车启动控制模块的一端和电池电压侦测模块的另一端，所述 DC to DC 模块的第三端连接微控制器的另一端，所述微控制器的其他三端分别



说明书

连接电池电压侦测模块的第三端、汽车启动控制模块的另一端和负载侦测模块的一端，所述负载侦测模块的另一端同时连接汽车启动控制模块的第三端和负载模块的另一端；所述负载模块位于汽车的一端，所述负载模块包括汽车电瓶和汽车发动机。

[0021] 请参阅图 2，所述 DC to DC 模块包括二极管 D1、电阻 R1、电容 C1、HT7530 稳压管、电容 C2 和电容 C3，所述二极管 D1 的正极与电池的正极连接，二极管 D1 的负极通过电阻 R1 同时连接电容 C1 的一端和 HT7530 稳压管 IN 端口，所述 HT7530 稳压管的 OUT 端口同时连接电容 C2 的一端、电容 C3 的一端和微控制器 U2 的 VDD 端口，所述电容 C1 的另一端、电容 C2 的另一端、电容 C3 的另一端和 HT7530 稳压管的 GND 端口同时接地和电池负极；所述微控制器 U2 的 R1 端口通过串联的发光二极管 L1 和电阻 R12 连接电池负极，微控制器 U2 的 B1 端口连接汽车启动控制模块的 EN 端口，微控制器 U2 的 VO 端通过并联的电容 C4 和电阻 R7 连接电池负极，VO 端还通过滑动变阻器 RT 连接 VDD 端口，微控制器 U2 的 V1 端口通过并联电阻 10、电容 C6 和电阻 R13 也连接电池负极，V1 端口通过电阻 R2 连接电池正极，V1 端口还通过电阻 R9 同时连接汽车电瓶负极和汽车发动机，所述汽车电瓶两端还并联有电容 C7，电阻 R9、电阻 10、电容 C6 和电阻 R13 一起组成负载侦测模块，微控制器 U2 的 V4 端口通过电容 C5 接地，微控制器 U2 的 VSS 端口与电容 C4 的一端同时接地，所述电容 C4 的另一端连接微控制器 U2 的 VDD 端口，所述电阻 R2、电容 C6 和电阻 R13 一起组成电池电压侦测模块，所述汽车启动控制模块的 Drive 端口同时连接汽车发动机和电阻 R14 的一端，电阻 R14 的另一端接地。

[0022] 本实用新型中所述 DC to DC 模块为微控制器提供稳定电压，所述微控制器采集相关数据进行对应控制，所述电池电压侦测模块进行电池电压的量测，所述汽车启动控制模块经由微控制器对负载模块进行供电或断电，所述负载侦测模块检测负载模块是否正确接上。

[0023] 本实用新型中微控制器经负载侦测模块判断汽车电瓶和汽车发动机是否接上，当负载接对后，汽车启动控制模块会自动开启，电池开始对负载模块供电；假设负载没接上或是正负极性接反，汽车启动控制模块会自动关闭，电池停止对负载模块供电。在待机状态，当电池电压低于 9V 时，微控制器关闭所有输出，只有电池电压高于 10V 才会恢复正常工作；汽车启动后，汽车发动机会产生正常电压对电池进行回充，当回充电压大于电池启动供电前的电压，立即关闭汽车启动控制模块，以免电池受到正常电压充电造成损害；汽车启动控制模块为电子开关，可以防止负载接反和正常电压回充，进而对电池进行保护以及延长寿命。

[0024] 汽车启动后，汽车发动机会产生异常电压对直流电源进行回充，当回充电压大于直流电源启动供电前的电压，立即关闭汽车启动控制模块，以避免直流电源受到异常电压充电



说明书

造成损坏。

[0025] 对于本领域技术人员而言，显然本实用新型不限于上述示范性实施例的细节，而且在不背离本实用新型的精神或基本特征的情况下，能够以其他的具体形式实现本实用新型。因此，无论从哪一点来看，均应将实施例看作是示范性的，而且是非限制性的，本实用新型的范围由所附权利要求而不是上述说明限定，因此旨在将落在权利要求的等同要件的含义和范围内的所有变化囊括在本实用新型内。不应将权利要求中的任何附图标记视为限制所涉及的权利要求。

[0026] 此外，应当理解，虽然本说明书按照实施方式加以描述，但并非每个实施方式仅包含一个独立的技术方案，说明书的这种叙述方式仅仅是为清楚起见，本领域技术人员应当将说明书作为一个整体，各实施例中的技术方案也可以经适当组合，形成本领域技术人员可以理解的其他实施方式。



说明书附图

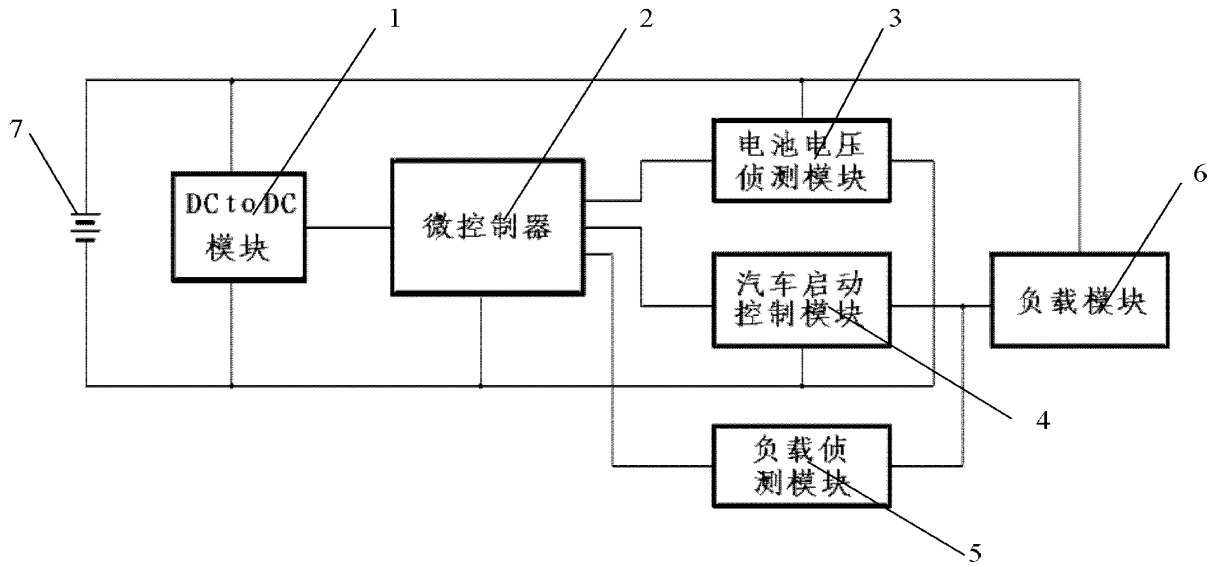


图 1

说 明 书 附 图

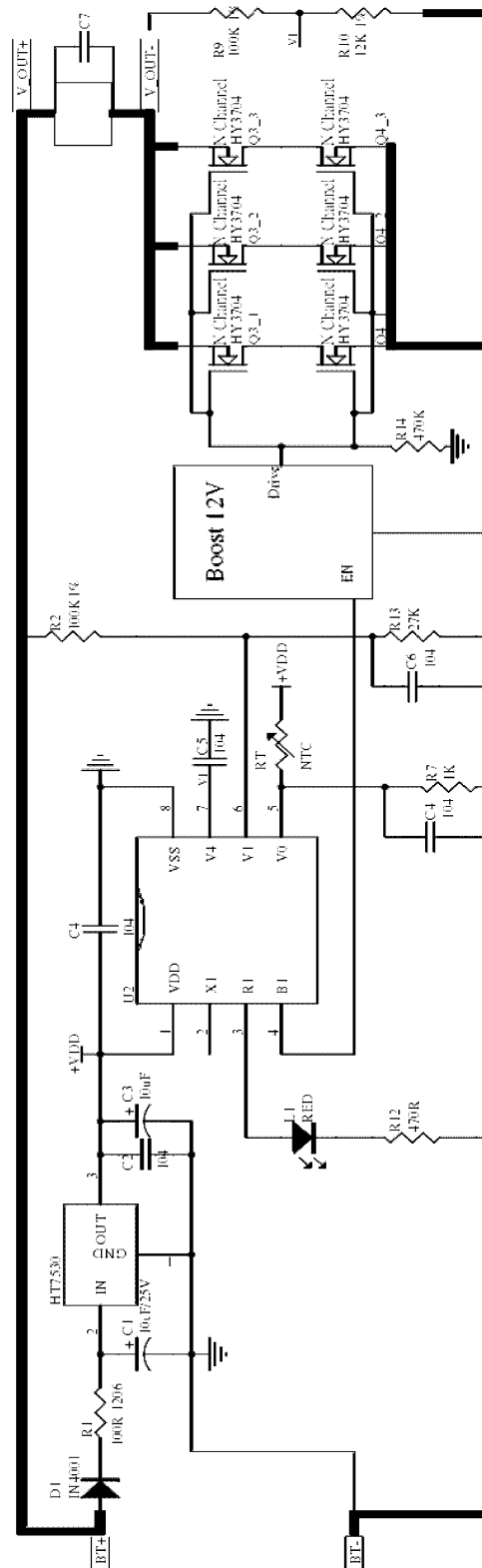


图 2

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>			Complete if Known		
			Application Number	15/923,219	
			Filing Date	March 16, 2018	
			First Named Inventor	Calvin Shiening Wang	
			Art Unit	2835	
			Examiner Name		
Sheet	1	of	2	Attorney Docket Number	8523WANG-1-CON-2

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	3343057	09/19/1967	Smith	
	2	3590357	06/29/1971	Reid	
	3	3950668	04/13/1976	Sancey et al.	
	4	5487002	01/23/1996	Diller et al.	
	5	5793185	08/11/1998	Prelec	
	6	6130519	10/10/2000	Whiting et al.	
	7	6262492	07/17/2001	Sheng	
	8	6351102	02/26/2002	Troy	
	9	6803743	10/12/2004	George et al.	
	10	7199555	04/03/2007	Hung	
	11	7345450	03/18/2008	Krieger et al.	
	12	8183821	05/22/2012	Sakurai	
	13	8253376	08/28/2012	Gale et al.	
	14	8447543	05/21/2013	Dickinson et al.	
	15	8565930	10/22/2013	Miwa	
	16	8692513	04/08/2014	Gaul et al.	
	17	8723477	05/13/2014	Gaul et al.	
	18	9007015	04/14/2015	Nook et al.	
	19	9248746	02/02/2016	Wen	
	20	9263907	02/16/2016	Richardson et al.	
	21	9333865	05/10/2016	Kawasaki et al.	
	22	9352652	05/31/2016	Cavazos et al.	
	23	9412994	08/09/2016	Koebler	
	24	9496728	11/15/2016	Lei	
	25	9506446	11/29/2016	Xinfang	
	26	9525297	12/20/2016	Wang	
	27	2005/0110467	05/26/2005	Thomason	
	28	2009/0008374	01/08/2009	Fosbinder	
	29	2009/0174362	07/09/2009	Richardson et al.	
	30	2012/0025763	02/02/2012	Hsiao et al.	
	31	2013/0015814	01/17/2013	Kelty et al.	
	32	2015/0032312	01/29/2015	Lambrinos et al.	
Examiner Signature				Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	15/923,219
				Filing Date	March 16, 2018
				First Named Inventor	Calvin Shiening Wang
				Art Unit	2835
				Examiner Name	
Sheet	2	of	2	Attorney Docket Number	8523WANG-1-CON-2

	33	2015/0212135	07/30/2015	Jin et al.	
	34	2017/0066338	03/09/2017	Wang	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ² ; Number ⁴ ; Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
	35	CN 201947042	08/24/2011	SHENZHEN SBASE ELECTRONICS TECHNOLOGY CO LTD		(English translation)
	36	CN 203522157	04/02/2014	SHENZHEN SBASE ELECTRONICS TECHNOLOGY CO LTD		(English translation)

NON-PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
	37	"3000A 12/24V High Cranking Sure Start Jumpstarter," Projecta, Oct. 2011, 12 pages
	38	"900 Peak Amp Jump-Starter Model No. PKC0AZ Owner's Manual and Warranty Information," Old World Industries, LLC, © 2014, 8 pages
	39	"HT75XX-1 100mA Low Power LDO," Holtek Semiconductor Inc., Jan. 12, 2006, Rev. 1.50, 14 pages
	40	"LM78XX/LM78XXA 3-Terminal 1A Positive Voltage Regulator," Fairchild Semiconductor Corporation, Mar. 2008, Rev. 1.0, 28 pages
	41	"Start-It Jump Starter 12 Volt DC Power Supply User's Manual & Warranty Information," Vector Manufacturing, © 2005, 6 pages
	42	Official Action for U.S. Patent Application No. 14/569,352, mailed Aug. 31, 2016, 8 pages
	43	Notice of Allowance for U.S. Patent Application No. 14/569,352, mailed Oct. 13, 2016, 7 pages
	44	Official Action for U.S. Patent Application No. 15/355,409, dated Dec. 14, 2017 (Attorney's Ref. No. 8523WANG-1-CON) 6 pages

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Electronic Acknowledgement Receipt

EFS ID:	32327760
Application Number:	15923219
International Application Number:	
Confirmation Number:	4305
Title of Invention:	AUTOMOBILE CHARGER
First Named Inventor/Applicant Name:	Calvin Shiening Wang
Customer Number:	22442
Filer:	David B. Kellis/Robert Roe-Pachirat
Filer Authorized By:	David B. Kellis
Attorney Docket Number:	8523WANG-1-CON-2
Receipt Date:	12-APR-2018
Filing Date:	16-MAR-2018
Time Stamp:	18:17:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		8523WANG-1-CON-2_IDS_01.pdf	227271 6f2bd3a717f6f3f690f8cb0725b966ce37a3273f	yes	5

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Transmittal Letter	1	3
	Information Disclosure Statement (IDS) Form (SB08)	4	5
Warnings:			
Information:			
Total Files Size (in bytes):		227271	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.			

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:	)	Group Art Unit: 2835
Calvin Shiening Wang	)	Confirmation No.: 4305
Serial No.: 15/923,219	)	Examiner:
Filed: March 16, 2018	)	
Atty. File No.: 8523WANG-1-CON-2	)	<u>INFORMATION DISCLOSURE</u>
Entitled: "AUTOMOBILE CHARGER"	)	<u>STATEMENT</u>
	)	<i>Electronically Submitted</i>
	)	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

The references cited on attached Form PTO/SB08 are being called to the attention of the Examiner.

- ☐ Copies of the cited non-patent and/or foreign references are enclosed herewith.
- ☐ Copies of the cited U.S. patents and/or patent applications are enclosed herewith.
- ☒ Copies of the cited U.S. patents/patent application publications are not enclosed in accordance with 37 C.F.R. § 1.98(a).
- ☒ Copies of the cited references 35 – 44 are not enclosed, in accordance with 37 C.F.R. § 1.98(d), because the references were cited by or submitted to the U.S. Patent and Trademark Office in prior applications Serial No. 14/569,352 filed 12/12/2014 and 15/355,409 filed 11/18/2016, which are relied upon for an earlier filing date under 35 U.S.C. § 120.
- ☒ To the best of applicants' belief, the pertinence of the foreign-language references is believed to be summarized in the attached English abstracts and/or in the figures, although applicants do not necessarily vouch for the accuracy of the translation.
- ☒ Examiner's attention is drawn to the following related applications:
- Serial No. 14/569,352 filed 12/12/2014 now U.S. Patent No. 9,525,297 (Attorney's Ref. No. 8523WANG-1)
 - Serial No. 15/355,409 filed 11/18/2016 (Attorney's Ref. No. 8523WANG-1-CON)
- ☐ Other: _____

Submission of the above information is not intended as an admission that any item is citable under the statutes or rules to support a rejection, that any item disclosed represents analogous art, or that those skilled in the art would refer to or recognize the pertinence of any

reference without the benefit of hindsight, nor should an inference be drawn as to the pertinence of the references based on the order in which they are presented. Submission of this statement should not be taken as an indication that a search has been conducted, or that no better art exists.

It is respectfully requested that the cited information be expressly considered during the prosecution of this application and the references made of record therein.

FEES

☒	37 CFR 1.97(b): No fee is believed due in connection with this submission, because the information disclosure statement submitted herewith is satisfied by one of the following conditions ("X" indicates satisfaction): ☒ Within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d), or ☐ Within three months of the date of entry of the national stage as set forth in § 1.491 in an international application, or ☐ Before the mailing date of a first Office Action on the merits, or ☐ Before the mailing of a first Office action after the filing of a request for continued examination under 37 CFR 1.114. Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970.
☐	37 CFR 1.97(c): The information disclosure statement transmitted herewith is being filed after all the above conditions (37 CFR 1.97(b)), but before the mailing date of any one of the following conditions: (1) a final action under 37 C.F.R. 1.113, or (2) a notice of allowance under 37 C.F.R. 1.311, or (3) an action that otherwise closes prosecution in the application. This Information Disclosure Statement is accompanied by: ☐ A Certification (below) as specified by 37 C.F.R. 1.97(e). Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970. OR ☐ Please charge Deposit Account 19-1970 in the amount of \$240.00 for the fee set forth in 37 C.F.R. 1.17(p) for submission of an information disclosure statement. Please credit any overpayment or charge any underpayment to Deposit Account 19-1970.
☐	37 CFR 1.97(d): This Information Disclosure Statement is being submitted after the period specified in 37 CFR 1.97(c). ☐ This information Disclosure Statement includes a Certification (below) as specified by 37 C.F.R. 1.97(e) AND ☐ Applicants hereby requests consideration of the reference(s) disclosed herein. Please charge Deposit Account 19-1970 in the amount of \$240.00 under 37 C.F.R. 1.17(p). Please credit any overpayment or charge any underpayment to Deposit Account 19-1970. Election to pay the fee should not be taken as an indication that applicant(s) cannot execute a certification.

Certification (37 C.F.R. 1.97(e))
(Applicable only if checked)

- ☐ The undersigned certifies that:
- ☐ Each item of information contained in the Information Disclosure Statement submitted herewith was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement. 37 C.F.R. 1.97(e)(1).
 - ☐ A copy of the communication from the foreign patent office is enclosed.

OR

- ☐ No item of information contained in the Information Disclosure Statement submitted herewith was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement. 37 C.F.R. 1.97(e)(2).

Respectfully submitted,

SHERIDAN ROSS P.C.

By: /David B. Kellis/
David B. Kellis
Registration No. 59377
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: April 12, 2018

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:	)	Examiner Name:	TBD
Calvin Shiening Wang	)		
	)	Group Art Unit:	TBD
Application No.:	)		
Herewith	)	Confirmation No.:	TBD
	)		
Filing Date:	)		
Herewith	)		
	)		
Atty. Docket No.:	)		
8523WANG-1-CON-2	)		
	)		
Title:	)		
“AUTOMOBILE CHARGER”	)		
	)		

PRELIMINARY AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

Applicant submits this Preliminary Amendment to make certain corrections to Specification and Drawings of the present Application, and to provide an amended set of claims. Applicant does not believe that any fees are due with respect to the entry of this Response and Preliminary Amendment. However, if any fees are due relating to the entry hereof, please debit those fees from Deposit Account No. 19-1970.

Amendments to the Specification:

Please amend the Abstract as follows:

A novel automobile charger ~~which comprises~~ a direct current (DC) voltage supply, wherein a positive pole of the ~~direct-current(DC)~~ voltage supply is connected with ~~one-a first~~ end or a first lead of a ~~DC-to-DC~~DC-to-DC module, ~~one-a first~~ end of a battery voltage detection module and ~~one-a first~~ end of a load module simultaneously~~[[L]]~~ while a negative pole of the ~~battery-DC~~ voltage supply is connected with ~~the-a second~~other end of the ~~DC-to-DC~~DC-to-DC module, ~~one-a first~~ end of a microcontroller, ~~one-a first~~ end of the ~~an~~ automobile start control module and ~~the-a second~~other end of the battery voltage detection module simultaneously. A third end of the ~~DC-to-DC~~DC-to-DC module is connected with ~~the-a second~~other end of the microcontroller, ~~the-Third, fourth, and fifth~~other three ends of ~~which-the~~ microcontroller are connected with ~~the-a~~ third end of the battery voltage detection module, ~~the-a second~~other end of the automobile start control module and ~~one-a first~~ end of the ~~a~~ load detection module respectively. ~~The-A second~~other end of the load detection module is connected with ~~the-a~~ third end of the automobile start control module and ~~the-a second~~other end of the load module simultaneously.

Amendment to the Drawings:

Please see the attached Replacement Sheet containing the following amendments to Fig. 2:

- "*VDO" has been changed to -*VDD-;
- "R2" next to C6 has been changed to -R7-; and
- "C3" between H+ and H- has been changed to -C7-.

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application.

Listing of Claims:

1-6. (Cancelled)

7. (New) A charging device, comprising:

a battery connected to a voltage regulator, the battery supplying a charging current;

a battery voltage detector, connected to a microcontroller, to detect a voltage of an automobile battery when the charging device is connected to an automobile;

a load detector, connected to the microcontroller, to detect when the charging device is connected to the automobile battery;

the microcontroller generating, when the charging device is connected to the automobile battery, an output signal based on a detected voltage of the automotive battery; and

switching circuitry including a plurality of transistors to selectively connect a negative terminal of the battery to the automobile battery when the microcontroller generates the output signal.

8. (New) The charging device of claim 7, the voltage regulator comprising a voltage stabilizer connected to a resistor, a capacitor and the microcontroller, the voltage regulator providing a DC power to the microcontroller.

9. (New) The charging device of claim 7, wherein the load detector comprises a resistor in parallel with a capacitor, the resistor and capacitor connected to the microcontroller.

10. (New) The charging device of claim 7, wherein the microcontroller comprises a plurality of ports, the ports including a power supply port, a ground port, an output signal port, and an automobile start control module.

11. (New) The charging device of claim 7, wherein the switching circuitry is connected to the microcontroller, and the plurality of transistors are connected in parallel.

12. (New) The charging device of claim 7, wherein the microcontroller:
generates the output signal to cause the switching circuitry to connect the battery to the automobile battery when the automobile battery is properly connected and a level of the battery is above a threshold; and
generates the output signal to cause the switching circuitry to disconnect the battery from the automobile battery when i) the level of the battery is below the threshold, or ii) the automobile battery is improperly connected.
13. (New) The charging device of claim 7, wherein the battery voltage detector detects a recharging level of the battery.
14. (New) The charging device of claim 7, wherein the microcontroller generates the output signal to cause the switching circuitry to disconnect the battery from the automobile battery when the recharging level of the battery is greater than a threshold.
15. (New) The charging device of claim 7, wherein the voltage regulator is a direct-current to direct-current (DC-DC) converter.
16. (New) The charging device of claim 7, wherein the load detector prevents improper user operation of the charging device.
17. (New) The charging device of claim 7, wherein the load detector detects a reversed polarity condition.
18. (New) The charging device of claim 7, wherein the load detection module is connected to a negative terminal of the plurality of transistors.
19. (New) The charging device of claim 7, further comprising one or more light emitting diodes (LEDs) controlled by the microcontroller.

20. (New) The charging device of claim 7, wherein a portion of the load detection module is connected in parallel with the plurality of transistors.

21. (New) The charging device of claim 7, wherein the microcontroller causes the device to enter a standby mode when a voltage of the battery is less than 9V and allows operation when the voltage of the battery is greater than 10V.

22. (New) A method for a device to charge an automobile battery comprising:
detecting a voltage level of a battery;
detecting a connection and a type of connection between the battery and the automobile battery;
generating, by a microcontroller, an output signal based on the voltage level of the battery, the connection to the automobile battery and the type of connection of the automobile battery; and
selectively connecting the battery to the automobile battery using the output signal.

23. (New) The method of claim 22, further comprising activating a plurality of transistors to connect the battery and the automobile battery.

24. (New) The method of claim 22, wherein:
the type of connection of the automobile battery is a correct polarity, and
the improper connection of the automobile battery is an incorrect polarity.

25. (New) The method of claim 22, wherein the generating:
generates the output signal to cause switching circuitry to connect the battery to the automobile battery when the automobile battery is properly connected and the level of the battery is above a threshold; and
generates the output signal to cause switching circuitry to disconnect the battery from the automobile battery when i) the level of the battery is below the threshold, or ii) the automobile battery is improperly connected.

26. (New) A system for charging an automobile battery comprising:
- means for detecting a voltage level of a battery;
 - means for detecting a type of connection between the device and the automobile battery;
 - means for generating, by a microcontroller, an output signal based on the level of the battery and the type of connection of the automobile battery; and
 - means for selectively connecting the battery to the automobile battery on the output signal.

REMARKS/ARGUMENTS

This Preliminary Amendment makes certain corrections to the Drawings and the Specification, which corrections are based on objections raised to the Drawings and Specification in the parent application and a previous continuation application. Additionally, Claims 1-6 are cancelled and new Claims 7-26 are newly presented. No new matter is added by these amendments, nor are the amendments intended to abandon or dedicate to the public any patentable subject matter.

CONCLUSION

In view of the foregoing, Applicant believes that the application is now in condition for allowance.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (720) 376-6904.

The Commissioner is hereby authorized to charge to Deposit Account No. 19-1970 any fees under 37 CFR § 1.16 and 1.17 that may be required by this paper and to credit any overpayment to that account. If any extension of time is required in connection with the filing of this paper and has not been separately requested, such extension is hereby petitioned.

Respectfully submitted,
SHERIDAN ROSS P.C.

Date: March 16, 2018

By: /David B. Kellis/
David B. Kellis
Registration No. 59,377
1560 Broadway, Suite 1200
Denver, CO 80202
Telephone: 720-376-6904

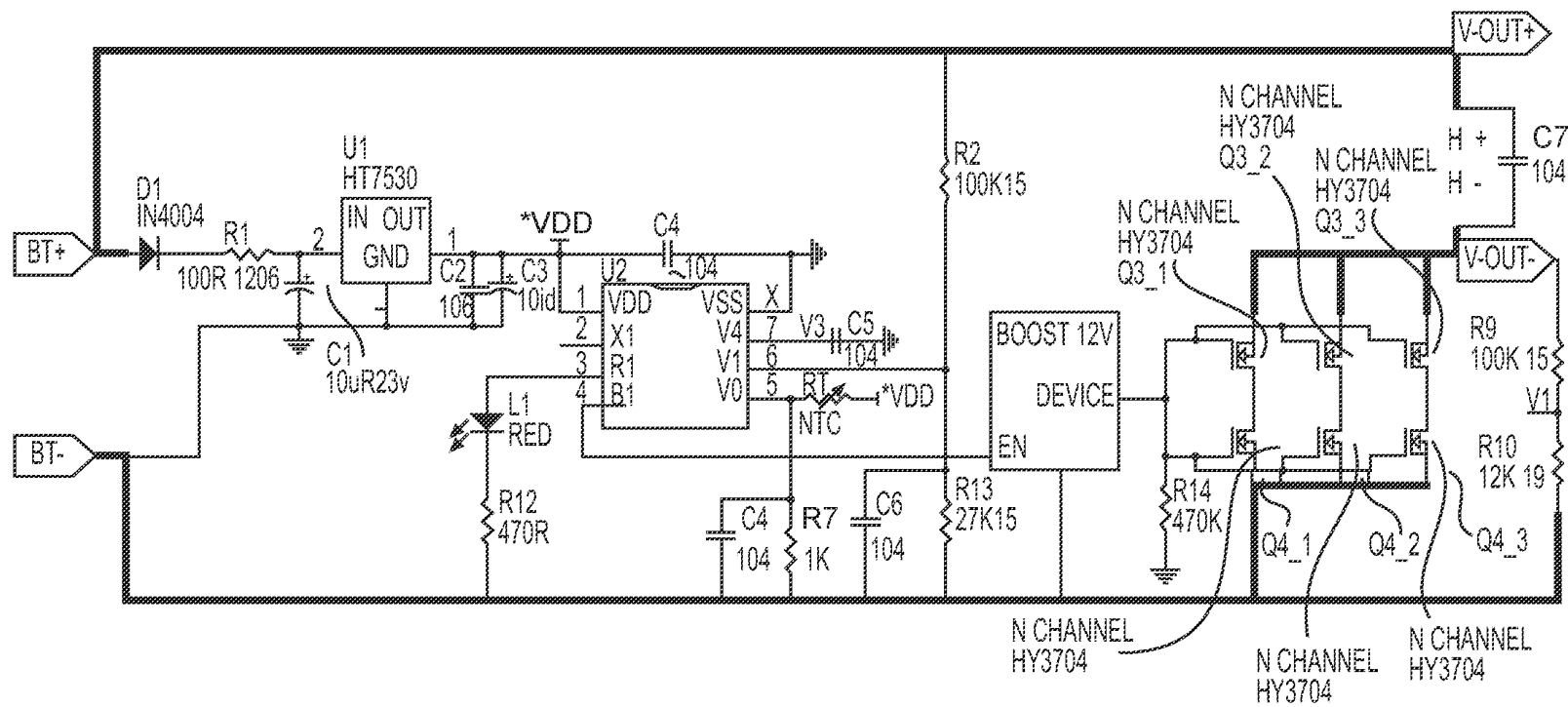


Figure 2

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		AUTOMOBILE CHARGER		
First Named Inventor/Applicant Name:		Calvin Shiening Wang		
Filer:		David B. Kellis/Mandi Lamberson		
Attorney Docket Number:		8523WANG-1-CON-2		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	75	75
UTILITY SEARCH FEE	2111	1	330	330
UTILITY EXAMINATION FEE	2311	1	380	380
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				785

Electronic Acknowledgement Receipt

EFS ID:	32074637
Application Number:	15923219
International Application Number:	
Confirmation Number:	4305
Title of Invention:	AUTOMOBILE CHARGER
First Named Inventor/Applicant Name:	Calvin Shiening Wang
Customer Number:	22442
Filer:	David B. Kellis/Mandi Lamberson
Filer Authorized By:	David B. Kellis
Attorney Docket Number:	8523WANG-1-CON-2
Receipt Date:	16-MAR-2018
Filing Date:	
Time Stamp:	12:53:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$785
RAM confirmation Number	031618INTEFSW00011452191970
Deposit Account	191970
Authorized User	Mandi Lamberson
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)
37 CFR 1.20 (Post Issuance fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	20180316_ADS.pdf	1822537	no	8
			b18c72844855edbbe8c77461ecff228f421ffb		

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Preliminary Amendment	1	1
	Specification	2	2
	Drawings-only black and white line drawings	3	3
	Claims	4	7
	Applicant Arguments/Remarks Made in an Amendment	8	8

Warnings:

Information:

6	Drawings-only black and white line drawings	20180316_PREM-AMEND_RPLC-FIG.pdf	62245	no	1
			884794446656e72a9873a364a7cd33bc6352b9a		

Warnings:

Information:

7	Fee Worksheet (SB06)	fee-info.pdf	35090	no	2
			e4794048add96a44e0a84d458068a70fe22a117a		

Warnings:

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Total Files Size (in bytes):		13500152
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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	8523WANG-1-CON-2
		Application Number	
Title of Invention	AUTOMOBILE CHARGER		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor	1				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Calvin	Shiening	Wang			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	City of Industry	State/Province	CA	Country of Residence	US	
Mailing Address of Inventor:						
Address 1	13000 Temple Avenue					
Address 2						
City	City of Industry	State/Province	CA			
Postal Code	91746	Country	US			
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.						
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☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	22442		
Email Address	e-docket@sheridanross.com	Add Email	Remove Email

Application Information:

Title of the Invention	AUTOMOBILE CHARGER		
Attorney Docket Number	8523WANG-1-CON-2	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	2	Suggested Figure for Publication (if any)	

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	8523WANG-1-CON-2
		Application Number	
Title of Invention	AUTOMOBILE CHARGER		

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

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Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
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This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	15/355409	2016-11-18

Application Data Sheet 37 CFR 1.76		Attorney Docket Number		8523WANG-1-CON-2	
		Application Number			
Title of Invention		AUTOMOBILE CHARGER			
Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15/355409	Continuation of	14/569352	2014-12-12	9525297	2016-12-20
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					Add

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This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

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Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
201420212173.5	CN	2014-04-28	
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Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	8523WANG-1-CON-2
		Application Number	
Title of Invention	AUTOMOBILE CHARGER		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

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B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

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☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	8523WANG-1-CON-2
		Application Number	
Title of Invention	AUTOMOBILE CHARGER		

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Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant	1	Remove	
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
		Clear	
☒ Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor	
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor:			
If the Applicant is an Organization check here. ☒			
Organization Name	Pilot Inc.		
Mailing Address Information For Applicant:			
Address 1	13000 Temple Avenue		
Address 2			
City	City of Industry	State/Province	CA
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	8523WANG-1-CON-2
		Application Number	
Title of Invention	AUTOMOBILE CHARGER		

Assignee	1			
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
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Country i		Postal Code		
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Signature:

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This Application Data Sheet must be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/David B. Kellis/		Date (YYYY-MM-DD)	2018-03-16
First Name	David B.	Last Name	Kellis	Registration Number
				59377
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	8523WANG-1-CON-2
		Application Number	
Title of Invention	AUTOMOBILE CHARGER		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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AUTOMOBILE CHARGER

RELATED APPLICATIONS

[0001] This application claims the benefit of priority of Chinese application no. 201420212173. 5 filed April 28, 2014, the entire content of which is incorporated herein by reference.

BACKGROUND

[0002] The present disclosure relates to an automobile charging device, in particular relates to a novel automobile charger with a safe power supply charging quickly.

[0003] Automobile charging is a big issue of traveling by automobile for those automobile fans and businessmen, the maturity of the technology thereof is one of the critical factors restricting the application of the automobile charger. However, current automobile chargers have common problems of not able to automatically detect whether a load is connected, whether an electrode is connected with an automobile storage battery reversely, whether an automobile engine or the storage battery has a reverse current, whether the battery state is suitable for heavy current power generation and so on. Accordingly, the present disclosure provides a novel automobile charger with the safe power supply charging quickly to solve the problems mentioned above, thus making the automobile charging safe, quick, mature and propagable.

SUMMARY

[0004] A purpose of the present disclosure aims to provide a novel automobile charger with the safe power supply charging quickly, in order to solve the problems presented in the above background.

[0005] To achieve the purpose described above, the present disclosure provides the following technical solutions: a novel automobile charger comprises a direct current power supply, wherein a positive pole of the direct current power supply is connected with one end of a DC to DC module, one end of a battery voltage detection

module and one end of a load module simultaneously, while a negative pole of the direct current voltage is connected with the other end of the DC to DC module, one end of a microcontroller, one end of an automobile start control module and the other end of the battery voltage detection module simultaneously. A third end of the DC to DC module is connected with the other end of the microcontroller, and the other three ends of the microcontroller are connected with the third end of the battery voltage detection module, the other end of the automobile start control module and one end of the load detection module respectively, wherein the other end of the load detection module is connected with the third end of the automobile start control module and the other end of the load module simultaneously; the load module which comprises the automobile storage battery and the automobile engine is located on the end of the load module.

[0006] As a further solution of the present disclosure that: the DC to DC module provides a stable voltage for the microcontroller which collects relevant data to conduct the corresponding control. The battery voltage detection module conducts the measurement of the battery voltage, the automobile start control module conducts the power supply or the power outage for the load module through the microcontroller, and the load detection module which comprises the automobile storage battery or the automobile engine detects whether the load module is correctly connected.

[0007] As a further solution of the present disclosure that: the circuit employs an electronic switch to supply power to the load module, which can offer more protection for the product, or reduce the product size and the material cost.

[0008] As a further solution of the present disclosure that: the battery voltage detection module provides protection for the power supply battery to prevent damages caused by the discharging of the direct current power supply.

[0009] As a further solution of the present disclosure that: the load detection module prevents improper operations of the user.

[0010] As a further solution of the present disclosure that: in the standby mode, the microcontroller closes all outputs when the voltage of the direct current power supply is lower than that of the state being able to supply power and then recovers when it is higher than that of the state being able to supply power.

[0011] As a further solution of the present disclosure that: the automobile start control module is the electronic switch.

[0012] Compared to the prior art, the present disclosure has the beneficial effects that:

[0013] 1. The present disclosure employs the electronic switch to control the supply power for the load, this part can offer more protection for the product, and reduce the product size and the material cost.

[0014] 2. The battery detection of the present disclosure can provide low voltage protection to prevent damages caused by the over discharging of the battery.

[0015] 3. The load detection of the present disclosure can prevent improper operations by the user, such as reversed polarity, which causes damages to the automobile or the direct current power supply.

[0016] 4. The present disclosure employs the voltage backflow protection for abnormal load, wherein the automobile start line is closed to protect the battery when the abnormal voltage is detected.

[0017] 5. The present disclosure has a fast charging function, and can be installed fixedly or moved portably according to the use requirements of people.

[0018] 6. The automatic detection module of the present disclosure can automatically detects whether the load is connected, whether the electrode is connected with the automobile storage battery reversely, whether the automobile engine or the storage battery has reverse current, whether the battery state is suitable for heavy current power generation, thereby protecting the load and the circuit and thus has complete functions.

BRIEF DESCRIPTION OF DRAWINGS

[0019] Figure 1 is a block diagram for the principle of the emergency power supply of the safe intelligent automobile;

[0020] Figure 2 is a circuit diagram for the emergency power supply of the safe intelligent automobile.

[0021] In figures: 1-DC to DC module, 2-microcontroller, 3-battery voltage detection module, 4-automobile start control module, 5-load detection module, 6-load module, 7-direct current power supply.

DETAILED EMBODIMENTS

[0022] The technical solutions of the present disclosure will be described more clearly and fully in conjunction with drawings in the embodiments of the present disclosure, and obviously, the described embodiments are merely a part of the embodiments of the present disclosure, not all the embodiments. Based on the embodiments of the present disclosure, all the other embodiments obtained by the ordinary skilled in the art without creative labors belong to the scope claimed by the present disclosure.

[0023] Refer to figure 1, a novel automobile charger comprises a direct current power supply, wherein the positive pole of the direct current power supply is connected with one end or lead of the DC to DC module, one end of the battery voltage detection module and one end of the load module simultaneously, while the negative pole of the direct current voltage is connected with the other end of the DC to DC module, one end of the microcontroller, one end of the automobile start control module and the other end of the battery voltage detection module simultaneously. A third end of the DC to DC module is connected with the other end of the microcontroller, and the other three ends of the microcontroller are connected with the third end of the battery voltage detection module, the other end of the automobile start control module and one end of the load detection module respectively, wherein the other end of the load detection module is connected with the third end of the automobile start control module and the other end of the load module simultaneously; the load module which comprises the automobile storage battery and the automobile engine is located on the end of the load module.

[0024] Refer to figure 2, the DC to DC module comprises a diode D1, a resistor R1, capacitor C1, a HT7530 voltage stabilizing tube, capacitors C2 and C3, wherein the positive pole of the diode D1 is connected with the positive pole of the battery, the negative pole of the diode D1 is connected with one end of the capacitor C1 and an IN port of the HT7530 voltage stabilizing tube simultaneously through the resistor R1, and an OUT port of the HT7530 voltage stabilizing tube is connected with one end of the capacitor C2, one end of the capacitor C3 and a VDD port of the microcontroller U2, while the other end of the capacitor C1, the other end of the capacitor C2 and the other end of the capacitor C3 as well as a GND port of the HT7530 voltage stabilizing tube are grounded and connected with the negative pole of the battery simultaneously; a R1 port of the microcontroller U2 is connected with the negative pole of the battery through a light-

emitting diode L1 and a resistor R12 which are in series connection, a B1 port of the microcontroller U2 is connected with a EN port of the automobile start control module, a V0 port of the microcontroller U2 is connected with the negative pole of the battery through a capacitor C4 and a resistor R7 which are in parallel connection, the V0 port is also connected with the VDD port through a slide rheostat RT, a V1 port of the microcontroller U2 is also connected with the negative pole of the battery through a resistor R10, a capacitor C6 and a resistor R13 which are in parallel connection, the V1 port is connected with the positive pole of the battery through a resistor R2, and is also connected with the negative pole of the automobile storage battery and the automobile engine simultaneously through a resistor R9, wherein two ends of the automobile storage battery are in parallel connection with the capacitor C7, resistors R9, R10, a capacitor C6 and a resistor R13 to form the load detection module together, a V4 port of the microcontroller U2 is grounded through a capacitor C5, a VSS port of the microcontroller U2 and one end of the capacitor C4 are grounded simultaneously. The other end of the capacitor C4 is connected with the VDD port of the microcontroller U2, the resistors R2, R13 and capacitor C6 form the battery voltage detection module together, and a Drive port of the automobile start control module is connected with the automobile engine and one end of a resistor R14 simultaneously, wherein the other end of the resistor R14 is grounded.

[0025] The DC to DC module in the present disclosure provides the stable voltage for the microcontroller which collects relevant data to conduct the corresponding control. The battery voltage detection module conducts the measurement of the battery voltage, and the automobile start control module conducts the power supply or the power outage for the load module through the microcontroller, wherein the load detection module detects whether the load module is correctly connected.

[0026] The microcontroller in the present disclosure determines whether the automobile storage battery is connected with the automobile engine through the load detection module, wherein the automobile start control model is automatically activated and the battery starts to supply power to the load module when the load is correctly connected; the automobile start control model is automatically deactivated and the battery stops supplying power to the load module when assuming that the load is not connected or the positive and negative polarities are reversely connected. In the standby mode, the microcontroller closes all outputs when the battery voltage is lower than 9V, and recovers

the normal operation only when the battery voltage is larger than 10V; the automobile engine will generate the normal voltage to recharge the battery after the automobile starts, whereas the automobile start control module is deactivated immediately once the recharging voltage is larger than the voltage before that battery starts the power supply, to protect the battery from damages caused by charging with the normal voltage; the automobile start control module is the electronic switch, which can prevent the load from being reversely connected and recharging of the normal voltage, thus protecting the battery and prolonging lifespan.

[0027] The automobile engine will generate abnormal voltage to recharge the direct current power supply after the automobile starts, and the automobile start control module is deactivated immediately once the recharging voltage is larger than the voltage before the direct current power supply starts the power supply, to protect the direct current power supply from damages caused by charging with normal voltage charge.

[0028] It is obvious for the skilled people in the art that the present disclosure is not merely limited to the details of the above exemplary embodiments, and the present disclosure can be implemented in other specific forms without departing from the sprits or the basic features of the present disclosure. Thus, no matter to consider from which point of view, the embodiments should be considered as exemplary and non-limiting. The scope of the present disclosure is defined by the accompanying Claims rather than the above description, therefore it is intended that all the changes fallen within the meanings and scope of the equivalent elements of the Claims are contained in the present disclosure. Any drawing reference in the Claims should not be regarded as limiting the Claims involved.

[0029] Furthermore, it should be understood that although the specification is described according to the embodiments, but not every embodiment includes only an independent technical solution, this manner of description for the specification is only for clarity, therefore the skilled people in the art should take the Specification as a whole, and the technical solutions in various embodiments can be combined appropriately to form other implementations understandable for those skilled in the art.

CLAIMS

What is claimed is:

1. A novel automobile charger which comprises a direct current power supply, comprising:

a positive pole of the direct current power supply connected with a first lead of a DC to DC module, a first lead of a battery voltage detection module, and a first lead of a load module simultaneously,

a negative pole of the direct current voltage connected with a second lead of the DC to DC module, a first lead of a microcontroller, a first lead of an automobile start control module and a second lead of the battery voltage detection module simultaneously;

a third lead of the DC to DC module connected with a second lead of the microcontroller, and

three additional leads the microcontroller connected with a third lead of the battery voltage detection module, a second lead of the automobile start control module and the first lead of the load detection module respectively,

wherein a second lead of the load detection module is connected with the third end of the automobile start control module and second lead of the load module simultaneously;

the load module including an automobile storage battery and an automobile engine is located on one end of the automobile.

2. The novel automobile charger according to Claim 1, wherein

the DC to DC module includes a diode D1, a resistor R1, a capacitor C1, a HT7530 voltage stabilizing tube, and capacitors C2 and C3,

a positive pole of the diode D1 is connected with a positive pole of the battery,

a negative pole of the diode D1 is connected with a first lead of the capacitor C1 and

an IN port of the HT7530 voltage stabilizing tube through the resistor R1 simultaneously, and

an OUT port of the HT7530 voltage stabilizing tube is connected with a first lead of the capacitor C2, a first lead of the capacitor C3 and a VDD port of a microcontroller U2 simultaneously,

a second lead of the capacitor C1, a second lead of the capacitor C2 and a second lead of the capacitor C3 as well as a GND port of the HT7530 voltage stabilizing tube are grounded and connected with the negative pole of the battery simultaneously;

a R1 port of the microcontroller U2 is connected with a negative pole of the battery through a luminous diode L1 and a resistor R12 in series connection,

a B1 port of the microcontroller U2 is connected with a EN port of the automobile start control module,

a V0 port of the microcontroller U2 is connected with the negative pole of the battery through a capacitor C4 and a resistor R7 in parallel connection and also with the VDD port through a slide rheostat RT,

a V1 port of the microcontroller U2 is also connected with the negative pole of the battery through a resistor 10, a capacitor C6 and a resistor R13 in parallel connection,

the V1 port is connected with the positive pole of the battery through a resistor R2 and is also connected with the negative pole of the automobile storage battery and the automobile engine simultaneously through a resistor R9,

wherein two leads of the automobile storage battery are in parallel connection with the capacitor C7, the resistors R9, 10, the capacitor C6 and the resistor R13 together to form the load detection module,

a V4 port of the microcontroller U2 is grounded through a capacitor C5,

a VSS port of the microcontroller U2 and one end of the capacitor C4 are grounded; simultaneously,

the second lead of the capacitor C4 is connected with the VDD port of the microcontroller U2,

the resistor R2, capacitor C6 and resistor R13 form the battery voltage detection module together, and

a Drive port of the automobile start control module is connected with the automobile engine and one end of a resistor R14 simultaneously, wherein the other end of the resistor R14 is grounded.

3. The automobile charger according to Claim 1, wherein the DC to DC module is operably configured to provide a stable voltage for the microcontroller which collects relevant data to conduct corresponding control, and

the battery voltage detection module conducts the measurement of the battery voltage, the automobile start control module conducts power supply or power outage for the load module through the microcontroller, wherein the load detection module detects whether the load module is correctly connected.

4. The automobile charger according to Claim 1, further comprising the battery voltage detection module being operably configured to provide protection for the power supply battery.

5. The automobile charger according to Claim 1, further comprising programmatic instructions such that, when placed in a standby mode, the microcontroller closes all outputs when the voltage of the direct current power supply is lower than that of a state being able to supply power and then recovers when it is higher than the state being able to supply power.

6. The automobile charger according to Claim 1 wherein the automobile start control module is an electronic switch.

ABSTRACT

A novel automobile charger which comprise a direct current voltage, wherein a positive pole of the direct current voltage is connected with one end or lead of a DC to DC module, one end of a battery voltage detection module and one end of a load module simultaneously, while a negative pole of the battery is connected with the other end of the DC to DC module, one end of a microcontroller, one end of the automobile start control module and the other end of the battery voltage detection module simultaneously. A third end of the DC to DC module is connected with the other end of the microcontroller, the other three ends of which are connected with the third end of the battery voltage detection module, the other end of the automobile start control module and one end of the load detection module respectively. The other end of the load detection module is connected with the third end of the automobile start control module and the other end of the load module simultaneously.

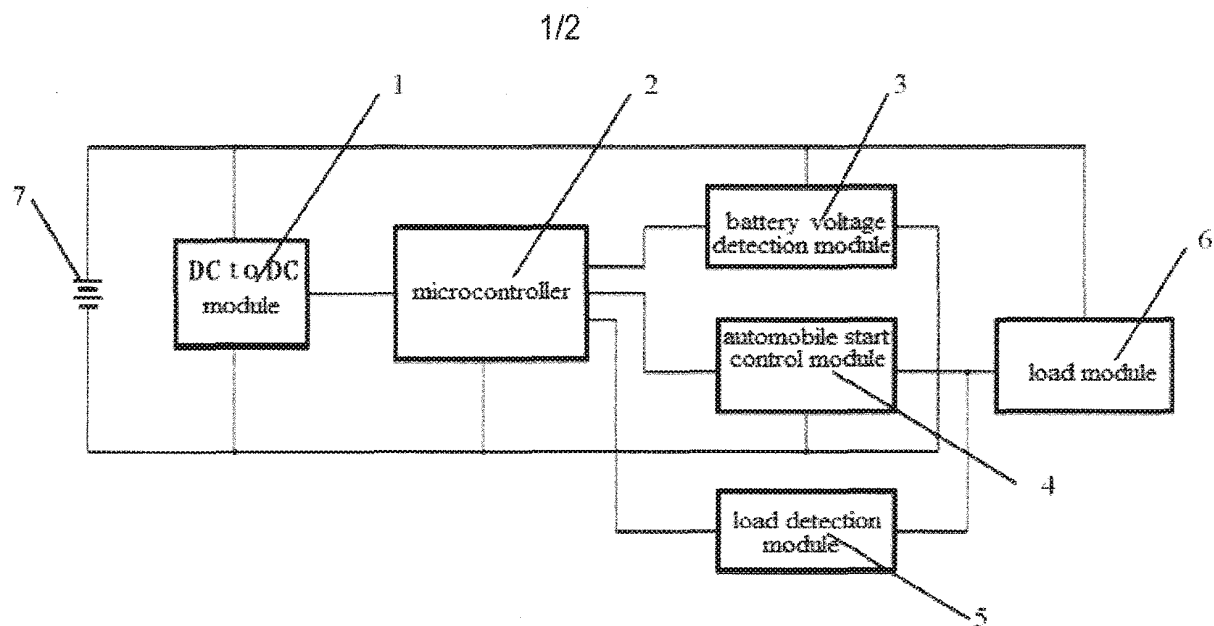


Figure 1

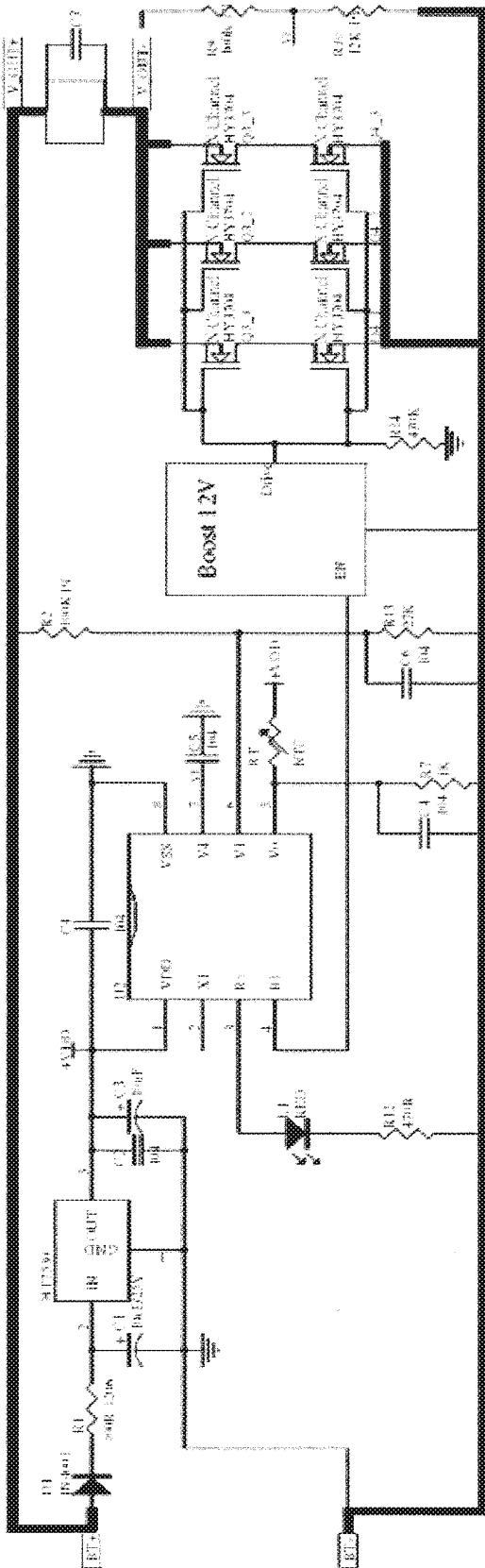
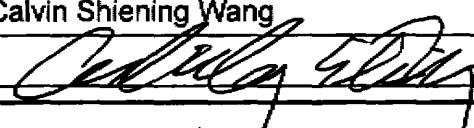


Figure 2

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	AUTOMOBILE CHARGER
As the below named inventor, I hereby declare that: This declaration is directed to: ☐ The attached application, or ☒ United States application or PCT international application number <u>14/569,352</u> filed on <u>December 12, 2014</u> The above-identified application was made or authorized to be made by me. I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. WARNING: Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.	
LEGAL NAME OF INVENTOR Inventor: <u>Calvin Shiening Wang</u> Date (Optional): <u>9/18/15</u> Signature: 	
Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.	

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
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