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Paper 6
Date: June 15, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THE NOCO COMPANY, INC.,
Petitioner,

v.

PILOT, INC.,
Patent Owner.

IPR2023-00167
Patent 11,235,673 B2

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

HEANEY, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes Review*
35 U.S.C. § 314

I. INTRODUCTION

The Noco Company, Inc. ("Petitioner") filed a petition to institute an *inter partes* review challenging claims 1–24 of U.S. Patent No. 11,235,673 B2 (Ex. 1001 ("the '673 patent")). Paper 1 ("Petition" or "Pet."). Pilot Inc. ("Patent Owner") did not file a Preliminary Response.

Institution of an *inter partes* review is authorized by statute when "the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a) (2018). Upon consideration of the Petition and the evidence of record, we determine the Petitioner has established a reasonable likelihood that it would prevail in showing the unpatentability of at least one claim challenged in the Petition. Accordingly, we institute an *inter partes* review of all claims and all grounds asserted in the Petition.[1]

A. Related Proceedings

The parties identify the following litigation involving the '673 patent: *Pilot, Inc. v. The NOCO Company, Inc.*, No. 2:22-cv-00389 (D. Ariz.). Pet. 75; Paper 3, 2. Petitioner also indicates that it filed a petition requesting review of U.S. Patent No. 11,124,077 in IPR2022-01237, which includes claims that are substantially similar to the claims of the '673 patent. Pet. 75.

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[1] *Guidance on the Impact of SAS on AIA Trial Proceedings* (Apr. 26, 2018), https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial; *see also SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

B. The '673 Patent

The '673 patent, titled "Automobile Charger," is directed to "a novel automobile charger with a safe power supply charging quickly." Ex. 1001, code (54), 1:24–25. The '673 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 electrode is connected with an automobile storage battery reversely, whether an automobile engine or storage battery has a reverse current, and whether the battery state is suitable for heavy power generation. *Id.* at 1:30–36. The '673 patent aims to solve these problems, and depicts one solution in Figure 1, reproduced below.

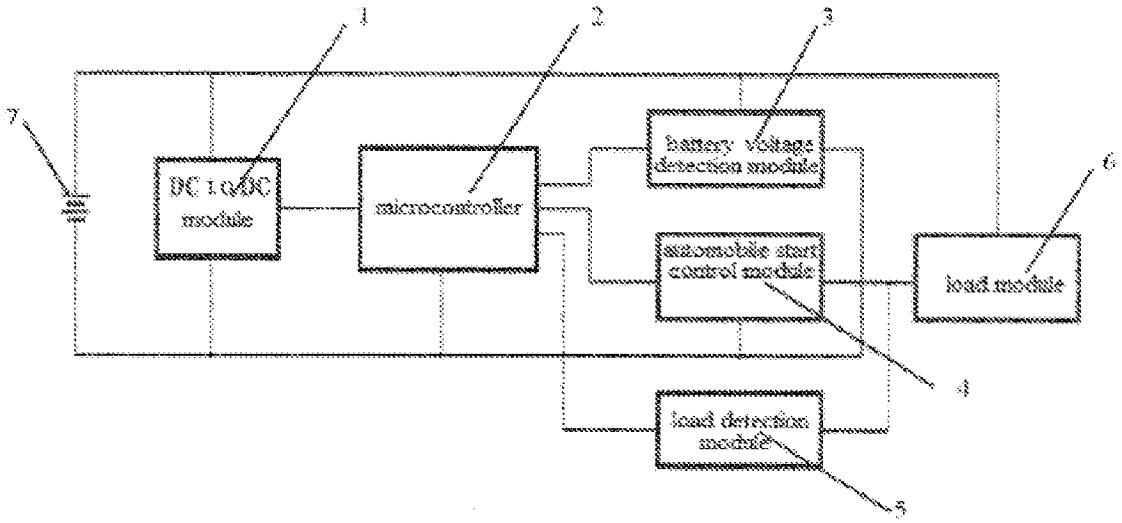

Figure 1 is a block diagram showing an embodiment of the automobile charger, including DC-to-DC module 1, microcontroller 2, voltage detection module 3, automobile start control module 4 (an electronic switch), load detection module 5, load module 6 (comprising the automobile battery and engine), and direct current power supply 7 (the jump starter battery). *Id.* at 2:32, 3:1–4, 3:35–37.

The '673 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, 4:16–21, 4:25–27. 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 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. *Id.* at 3:18–26. 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 4:22–24. 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 4:25–35.

The '673 patent further explains that the automobile start control module conducts the power supply for the load module through the microcontroller (Ex. 1001, 2:7–11), which collects relevant data to conduct the corresponding control (*id.* at 2:4–6). 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 2:25–30; *see also id.* at 4:36–38 ("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 '673 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, and 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, 2:7–49.

The '673 patent's Figure 2 (reproduced below) depicts a circuit diagram for an automobile charger:

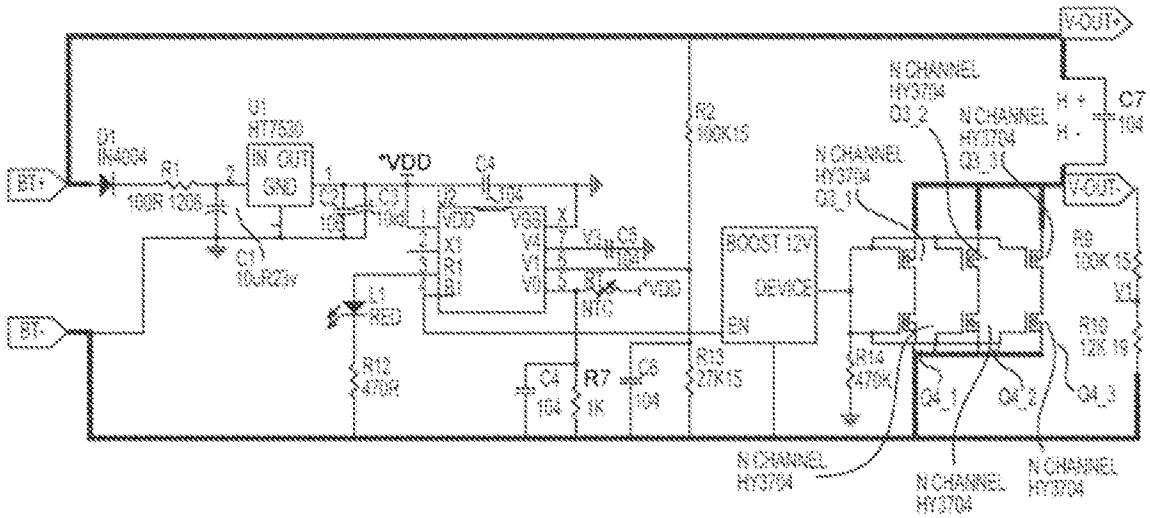

Figure 2

Figure 2 illustrates an automobile charger including microcontroller U2 and the modules illustrated in Figure 1, except the load module (the automobile storage battery and the automobile engine). *See* Ex. 1001, 2:64–65, 3:36–4:12, Figs. 1–2.

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