

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FORD MOTOR COMPANY,
Petitioner,

v.

PAICE LLC & THE ABELL FOUNDATION, INC.,
Patent Owner.

Case IPR2015-00606
Patent 7,237,634 B2

Before SALLY C. MEDLEY, KALYAN K. DESHPANDE, and
CARL M. DEFRANCO, *Administrative Patent Judges*.

DEFRANCO, *Administrative Patent Judge*.

DECISION TO INSTITUTE
37 C.F.R. § 42.108

I. INTRODUCTION

This is a preliminary proceeding to decide the threshold question of whether *inter partes* review of U.S. Patent No. 7,237,634 B2 (“the ’634 patent”) should be instituted under 35 U.S.C. § 314(a). Specifically, Ford Motor Company (“Ford”) filed a Petition (“Pet.”) seeking *inter partes* review of claims 56–65, 68–77, 242–251, 268–277, 292, 293, and 298 of the ’634 patent, which is owned by Paice LLC & The Abell Foundation, Inc. (collectively, “Paice”). Paper 2. Paice filed a Preliminary Response (“Prelim. Resp.”), requesting that we deny institution of *inter partes* review. Papers 11, 12.¹ After considering the Petition and Preliminary Response, we conclude that Ford has demonstrated a reasonable likelihood of prevailing with respect to the challenged claims. Accordingly, we authorize institution of an *inter partes* review of claims 56–65, 68–77, 242–251, 268–277, 292, 293, and 298.

II. BACKGROUND

A. *The ’634 Patent*²

The ’634 patent describes a hybrid vehicle with an internal combustion engine, at least one electric motor, and a battery bank, all controlled by a microprocessor that directs the transfer of torque from the engine and/or motor to the drive wheels of the vehicle. Ex. 1151, 17:17–56, Fig. 4. The microprocessor “monitors the rate at which the operator

¹ The Preliminary Response was filed in both unredacted and redacted forms, along with a Motion to Seal (Paper 13).

² The ’634 patent is involved in several co-pending district court actions, including *Paice LLC v. Ford Motor Co.*, No. 1:14-cv-00492 (D. Md. filed Feb. 19, 2014), and *Paice LLC v. Hyundai Motor Co.*, No. 1:12-cv-00499 (D. Md. filed Feb. 16, 2012). Pet. 3.

depresses pedals [for acceleration and braking] as well as the degree to which [the pedals] are depressed.” *Id.* at 27:36–38. These “operator input commands” are provided to the microprocessor “as an indication that an amount of torque” from the engine “will shortly be required” to drive the vehicle. *Id.* at 27:26–27:57. The microprocessor then compares the vehicle’s torque requirement against a predefined setpoint and uses the results of the comparison to control the vehicle’s mode of operation, e.g., straight-electric, engine-only, or hybrid. *Id.* at 40:16–49. For instance, the microprocessor may utilize a control strategy that runs the engine only in a range of high fuel efficiency, such as when the torque required to drive the vehicle, or road load (RL), reaches a setpoint (SP) of approximately 30% of the engine’s maximum torque output (MTO). *Id.* at 20:61–67, 37:24–44; *see also id.* at 13:64–65 (“the engine is never operated at less than 30% of MTO, and is thus never operated inefficiently”). Operating the engine in this manner maximizes fuel efficiency and reduces pollutant emissions of the vehicle. *Id.* at 15:55–58.

B. The Challenged Claims

In the instant Petition, Ford challenges two independent claims—claims 292 and 298. But only one of the challenged claims, claim 293, depends from those independent claims. The remainder of the challenged claims depend from independent claims that are not challenged by the instant Petition, but are the subject of petitions in related cases on which *inter partes* review has been instituted. Specifically, challenged claims 56–65 depend from unchallenged claim 1, which is the subject of IPR2014-00904; challenged claims 68–77 depend from unchallenged claim 33, which is the subject of IPR2015-00722, -00787, and -00791; challenged claims

242–251 depend from unchallenged claim 241, which is the subject of IPR2015-00785, -00787, and -00801; and challenged claims 268–277 depend from unchallenged claim 267, which is the subject of IPR2015-00787 and -00801.

Common to the challenged claims is that they all relate to the electrical current and/or voltage supplied by the battery to the motor. For example, the challenged claims recite limitations along the lines of “a maximum DC voltage supplied from said battery is at least approximately 500 volts,” “a maximum current supplied from said battery is less than approximately 150 amperes,” and “a ratio of maximum DC voltage to maximum current supplied is at least 2.5.” In our analysis of the claims, we adopt the parties’ short-hand reference to these voltage and current-related limitations as the “electrical limitations.”

Claim 292 is illustrative of the claims being challenged:

292. A hybrid vehicle, comprising:

- a controller capable of accepting inputs indicative of vehicle operating parameters and providing control signals in response to a control program;
- a battery bank;
- an internal combustion engine operable to provide propulsive torque to road wheels of said vehicle;
- a first AC electric starting motor electrically coupled to said battery bank and mechanically coupled to said internal combustion engine, and responsive to commands from said controller for (a) accepting electrical energy from said battery bank and (b) providing electrical energy to said battery bank, such that said first electric motor can be controlled to (1) accept torque from said engine to charge said battery bank, and (2) accept energy from said battery bank to apply torque to said engine for starting said engine;

a second AC electric traction motor, electrically coupled to said battery bank and mechanically coupled to road wheels of said vehicle, and responsive to commands from said controller, for (a) accepting electrical energy from said battery bank and (b) providing electrical energy to said battery bank such that said second electric motor can be controlled to (1) accept energy from said battery bank to apply torque to said road wheels to propel said vehicle, and (2) accept torque from said road wheels to charge said battery bank;

a solid state inverter connected to the second AC motor for converting DC to AC and AC to DC;

wherein said controller is provided with signals responsive to the instantaneous road load experienced by said vehicle and to the state of charge of said battery bank, and controls operation of said engine and said first and second motors so that said vehicle is operated in a plurality of operating modes responsive to said signals; and

wherein energy originating at the battery is supplied to the solid state inverter at a DC voltage having a peak of at least 500 volts.

Ex. 1151, 86:13–51 (emphasis added).

C. *The Asserted Grounds of Unpatentability*

Ford asserts a single ground of unpatentability, namely, that the challenged claims are unpatentable under 35 U.S.C. § 103 as obvious over the combined teachings of the '455 PCT publication³ and Severinsky.⁴

Pet. 4–5.

III. ANALYSIS

In this preliminary proceeding, we decide whether Ford has made a threshold showing, supported by sufficient evidence, of a reasonable likelihood that the challenged claims are unpatentable. As our decision is

³ PCT International Publication No. WO 00/15455, pub. Mar. 23, 2000 (Ex. 1153).

⁴ U.S. Patent No. 5,343,970, iss. Sept. 6, 1994 (Ex. 1154).

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.