

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

FORD MOTOR COMPANY,  
Petitioner,

v.

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

---

Case IPR2015-00800  
Patent 7,237,634 B2

---

Before JAMESON LEE, SALLY C. MEDLEY, and  
CARL M. DEFRANCO, *Administrative Patent Judges*.

LEE, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

## I. INTRODUCTION

### A. Background

Ford Motor Company (“Petitioner”) filed a Petition (Paper 1, “Pet.”) for *inter partes* review of U.S. Patent No. 7,237,634 B2 (Ex. 1901, “the ’634 patent”). The Petition challenges the patentability of claims 80, 91, 92, 95, 96, 99, 100, 102, 106, 114, 125, 126, 129, 132, 133, 135, 161, 172, 215, 226, 230, 233, and 234 of the ’634 patent. In an Initial Decision, we instituted *inter partes* review of six claims, i.e., claims 161, 172, 215, 226, 230, and 234, but declined to institute review of the other sixteen challenged claims. Paper 12 (“Dec. Inst.”).

Paice LLC and The Abell Foundation, Inc. (“Patent Owner”) filed a Patent Owner Response (Paper 15, “PO Response”), and Petitioner filed a Reply (Paper 19, “Reply”).<sup>1</sup> Oral hearing was held on June 29, 2016. A transcript of the oral hearing is included in the record. Paper 31 (“Tr.”). Neither party filed a motion to exclude evidence.

For reasons discussed below, we (1) dismiss the *inter partes* review with respect to claims 161 and 215, and (2) determine that Petitioner has shown by a preponderance of the evidence that each of claims 172, 226, 230, and 234 is unpatentable.

---

<sup>1</sup> In addition, Patent Owner filed a Motion for Observation on Cross-Examination (Paper 23) and Petitioner filed a Response to Motion for Observation on Cross-Examination (Paper 26), both of which have been considered.

IPR2015-00800  
Patent 7,237,634 B2

B. Related Matters

Petitioner and Patent Owner collectively identify the following civil actions in which the '634 patent has been asserted: (1) *Paice LLC et al. v. Ford Motor Company*, Case No. 1-14-cv-00492 (D. Md.); (2) *Paice LLC et al. v. Hyundai Motor America, et al.*, Case No. 1:2012-cv-00499 (D. Md.). Papers 1, 5. The '634 patent also is the patent involved in the following *inter partes* review proceedings: IPR2014-00904, IPR2014-01416, IPR2015-00606, IPR2015-00722, IPR2015-00758, IPR2015-00784, IPR2015-00785, IPR2015-00787, IPR2015-00790, IPR2015-00791, IPR2015-00799, and IPR2015-00801.

C. The '634 Patent

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 torque transfer between the engine, the motor, and the drive wheels of the vehicle. Ex. 1901, 17:17–56, Fig. 4. The microprocessor compares the vehicle's torque requirements and the engine's torque output 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. The microprocessor utilizes a hybrid control strategy that operates the engine only in a range of high fuel efficiency, which occurs when the instantaneous 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; *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 a range above the setpoint but substantially less than the maximum torque output maximizes fuel efficiency and reduces pollutant emissions of the vehicle. *Id.* at 15:55–58.

Independent claims 161 and 215 are illustrative, and are reproduced below.

161. A method for controlling a hybrid vehicle, comprising:

determining instantaneous road load (RL) required to propel the hybrid vehicle responsive to an operator command;

wherein the hybrid vehicle is operated in a plurality of operating modes corresponding to values for the RL and a setpoint (SP);

operating at least one first electric motor to propel the hybrid vehicle when the RL required to do so is less than the SP;

wherein said operating the at least one first electric motor to drive the hybrid vehicle composes a low-load operation mode I;

operating an internal combustion engine of the hybrid vehicle to propel the hybrid vehicle when the RL required to do so is between the SP and a maximum torque output (MTO) of the engine, wherein the engine is operable to efficiently produce torque above the SP, and wherein the SP is substantially less than the MTO;

wherein said operating the internal combustion engine of the hybrid vehicle to propel the hybrid vehicle composes a high-way cruising operation mode IV;

operating both the at least one first electric motor and the engine to propel the hybrid vehicle when the torque RL required to do so is more than the MTO;

wherein said operating both the at least one first electric motor and the engine to propel the hybrid vehicle composes an acceleration operation mode V;

receiving operator input specifying a change in required torque to be applied to wheels of the hybrid vehicle; and

if the received operator input specifies a rapid increase in the required torque, changing operation from operating mode I directly to operating mode V.

*Id.* at 73:42–74:9.

215. A method for controlling a hybrid vehicle, comprising:

determining instantaneous road load (RL) required to propel the hybrid vehicle responsive to an operator command;

operating at least one electric motor to propel the hybrid vehicle when the RL required to do so is less than a setpoint (SP);

operating an internal combustion engine of the hybrid vehicle to propel the hybrid vehicle when the RL required to do so is between the SP and a maximum torque output (MTO) of the engine, wherein the engine is operable to efficiently produce torque above the SP, and wherein the SP is substantially less than the MTO; and

operating both the at least one electric motor and the engine to propel the hybrid vehicle when the torque RL required to do so is more than the MTO; and

# 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.