

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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FORD MOTOR COMPANY,  
Petitioner,

v.

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

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Case IPR2014-00852  
Patent 7,455,134 B2

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

MEDLEY, *Administrative Patent Judge*.

DECISION

Denying Institution of *Inter Partes* Review  
*37 C.F.R. § 42.108*

I. INTRODUCTION

Petitioner, Ford Motor Company, filed a Petition requesting an *inter partes* review of claims 1–3, 5, 6, 19, 27, 40, and 58 of U.S. Patent No. 7,455,134 B2 (Ex. 1101, “the ’134 patent”). Paper 2 (“Pet.”). Patent

Owner, Paice LLC & The Abell Foundation, Inc., filed a Preliminary Response in both unredacted and redacted form. Papers 7 and 8 (“Prelim. Resp.”).<sup>1</sup> Patent Owner also filed a Motion to Seal. Paper 9 (“Mot. to Seal.”). We have jurisdiction under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless . . . 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.”

Upon consideration of the Petition and the Preliminary Response, we conclude that there is not a reasonable likelihood that Petitioner would prevail in challenging any of claims 1–3, 5, 6, 19, 27, 40, and 58 as unpatentable. Accordingly, pursuant to 35 U.S.C. § 314(a), we do not authorize an *inter partes* review to be instituted.

#### A. *Related Proceedings*

The ’134 patent is involved in *Paice, LLC v. Ford Motor Company*, No. 1-14-cv-00492, filed on February 19, 2014, in the United States District Court for the District of Maryland. Pet. 1. Petitioner filed an earlier Petition for *inter partes* review of the ’134 patent, but we did not institute trial. *Ford Motor Company v. Paice LLC & The Abell Foundation, Inc.*, Case IPR2014-00568 (PTAB Sept. 8, 2014) (Paper 12).

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<sup>1</sup> Citations are to the redacted version of the Patent Owner Preliminary Response (Paper 8, “Prelim. Resp.”). Patent Owner marked Paper 8 for “Parties and Board Only.” The paper will be made publicly available in due course.

B. The '134 Patent (Ex. 1101)

The '134 patent describes a hybrid vehicle with an internal combustion engine, a traction motor, a starter motor, and a battery bank, all controlled by a microprocessor. Ex. 1101, Abs. Figure 4, reproduced below, shows a block diagram of a hybrid vehicle. *Id.* at Fig. 4.

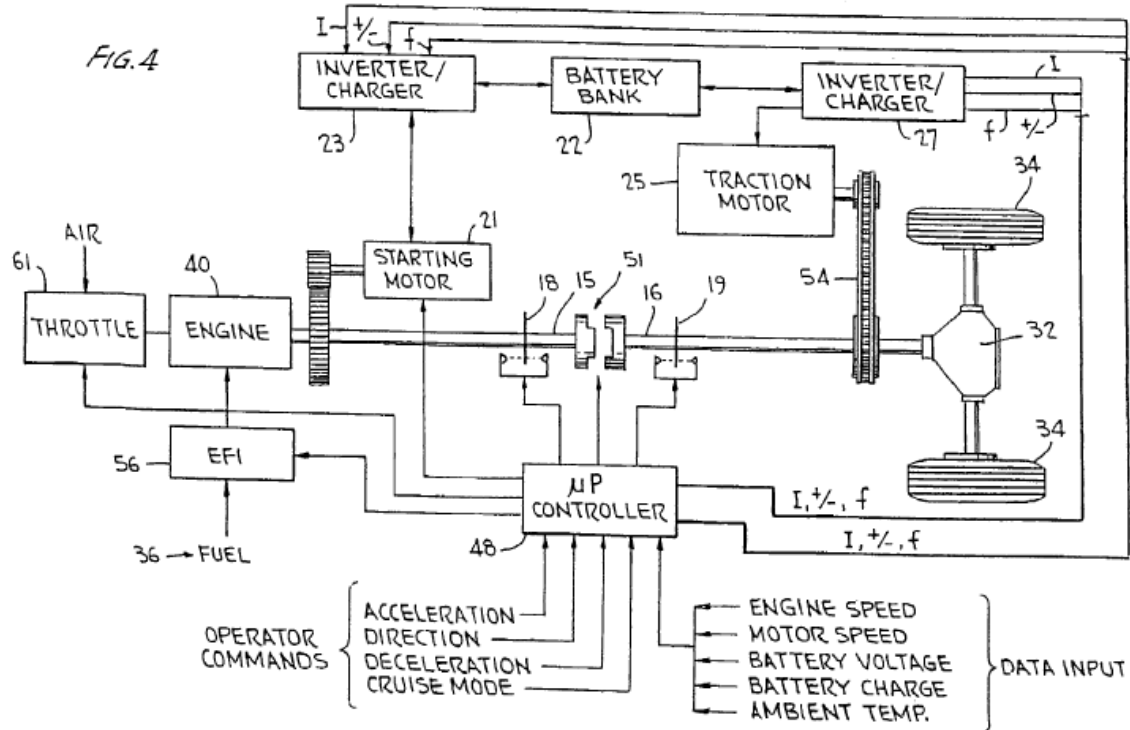


Figure 4 illustrates a block diagram of a hybrid vehicle.

The hybrid vehicle includes two wheels 34 operable to propel the vehicle, traction motor 25, starting motor 21, and engine 40 coupled to starting motor 21. *Id.* Inverter/charger 27 is coupled to traction motor 25 and inverter/charger 23 is coupled to starting motor 21. *Id.* Battery bank 22 is coupled to inverter/charger 23, as well as inverter/charger 27. Controller 48 controls the operation of engine 40 and motors 21 and 25. *Id.* The components of the vehicle “are to be sized so that the ratio between

battery voltage under load to peak current is at least about 2.5, and preferably is at least 3.5 to 4:1.” *Id.* at 50:5–9.

### C. Claims

Petitioner challenges independent claim 1 and dependent claims 2, 3, 5, 6, 19, 27, and 40, which depend directly from claim 1. Petitioner also challenges independent claim 58. Claim 1 reads:

1. A hybrid vehicle, comprising:
  - at least two wheels, operable to receive power to propel said hybrid vehicle;
  - a first alternating current (AC) electric motor, operable to provide power to said at least two wheels to propel said hybrid vehicle;
  - a second AC electric motor;
  - an engine coupled to said second electric motor, operable to provide power to said at least two wheels to propel the hybrid vehicle, and/or to said second electric motor to drive the second electric motor to generate electric power;
  - a first alternating current-direct current (AC-DC) converter having an AC side coupled to said first electric motor, operable to accept AC or DC current and convert the current to DC or AC current respectively;
  - a second AC-DC converter coupled to said second electric motor, at least operable to accept AC current and convert the current to DC;
  - an electrical storage device coupled to a DC side of said AC-DC converters, wherein the electrical storage device is operable to store DC energy received from said AC-DC converters and provide DC energy to at least said first AC-DC converter for providing power to at least said first electric motor; and
  - a controller, operable to start and stop the engine to minimize fuel consumption;
  - wherein a ratio of maximum DC voltage on the DC side of at least said first AC-DC converter coupled to said first electric motor to current supplied from said electrical storage

device to at least said first AC-DC converter, when maximum current is so supplied, is at least 2.5.

*Id.* at 56:43–57:7.

#### *D. Asserted Grounds of Unpatentability*

Petitioner contends that claims 1–3, 5, 6, 19, 27, 40, and 58 of the '134 patent are unpatentable under 35 U.S.C. §§ 102 and 103 based on the following specific grounds:

<b>Reference[s]</b>	<b>Basis</b>	<b>Challenged Claim[s]</b>
Ehsani <sup>2</sup> and Ehsani NPL <sup>3</sup>	§ 103	1–3, 5, and 6
Ehsani, Ehsani NPL, and Vittone <sup>4</sup>	§ 103	40
Ehsani	§ 103	58
Kawakatsu <sup>5</sup> and Ehsani	§ 103	1–3, 5, 6, 19, and 58
Kawakatsu, Ehsani, and Yamaguchi <sup>6</sup>	§ 103	27

## II. ANALYSIS

### *A. Claim Construction*

As a step in our analysis for determining whether to institute a review, we determine the meaning of the claims for purposes of this decision. In an

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<sup>2</sup> U.S. Patent No. 5,586,613, issued Dec. 24, 1996 (Ex. 1103) (“Ehsani”).

<sup>3</sup> Yimin Gao et al., *The Energy Flow Management and Battery Energy Capacity Determination for the Drive Train and Electrically Peaking Hybrid Vehicle*, SAE 972647 (1997) (Ex. 1106) (“Ehsani NPL”).

<sup>4</sup> Oreste Vittone et al., *Fiat Conceptual Approach to Hybrid Car Design*, 12th International Electric Vehicle Symposium (1994) (Ex. 1107) (“Vittone”).

<sup>5</sup> U.S. Patent No. 4,335,429, issued June 15, 1982 (Ex. 1104) (“Kawakatsu”).

<sup>6</sup> U.S. Patent No. 5,865,263, filed Feb. 23, 1996, issued Feb. 2, 1999 (Ex. 1105) (“Yamaguchi”).

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