

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

PAICE LLC, THE ABELL FOUNDATION, INC.,
Appellants

v.

FORD MOTOR COMPANY,
Appellee

2016-1412, 2016-1415

Appeals from the United States Patent and Trade-
mark Office, Patent Trial and Appeal Board in Nos.
IPR2014-00571, IPR2014-00579.

PAICE LLC, THE ABELL FOUNDATION, INC.,
Appellants

v.

FORD MOTOR COMPANY,
Appellee

2016-1745

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. IPR2014-00884.

Decided: March 7, 2017

RUFFIN B. CORDELL, Fish & Richardson, PC, Washington, DC, argued for appellants. Also represented by TIMOTHY W. RIFFE, LINDA KORDZIEL, DANIEL TISHMAN, BRIAN JAMES LIVEDALEN.

MATTHEW J. MOORE, Latham & Watkins LLP, Washington, DC, argued for appellee. Also represented by GABRIEL BELL; ANDREW B. TURNER, JOHN P. RONDINI, FRANK A. ANGILERI, SANGEETA G. SHAH, Brooks Kushman PC, Southfield, MI.

Before PROST, *Chief Judge*, SCHALL and STOLL,
Circuit Judges.

Opinion for the court filed PER CURIAM.

Opinion dissenting-in-part filed by *Circuit Judge*
STOLL.

PER CURIAM.

This is an appeal from final written decisions by the Patent Trial and Appeal Board in three inter partes review proceedings that invalidated various claims of Paice's patent relating to hybrid vehicle control strategies. Paice contends that the Board misconstrued two claim terms and lacked substantial evidence to support its obviousness findings. We disagree with Paice and affirm the Board's decisions.

PAICE LLC v. FORD MOTOR COMPANY

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BACKGROUND

In early 2014, Paice LLC and the Abell Foundation (collectively, "Paice") sued Ford Motor Company for infringement of several patents covering hybrid vehicle technology, including U.S. Patent No. 7,104,347. Hybrid cars, in general, contain both a gas-powered engine and one or more battery-powered electric motors that can be used in isolation or in tandem to propel the car. The '347 patent teaches a vehicle control strategy to reduce emissions that operates the engine only when it is efficient to do so and uses the motor to propel the vehicle in scenarios where the engine cannot operate efficiently. The efficient range for engine operation is determined, in part, based on the vehicle's instantaneous torque demands, or road load ("RL"). '347 patent col. 19 ll. 54–56, col. 12 ll. 38–43. Typically, this efficient range occurs when the vehicle's road load is a substantial percentage of the engine's maximum torque output ("MTO"), i.e., when the torque demand is greater than 30% of MTO. *Id.* at col. 20 ll. 52–60, col. 13 ll. 60–61.

The '347 patent teaches that the vehicle can operate in multiple different modes depending on its instantaneous torque requirements, the battery's state of charge, and other operating parameters. *Id.* at col. 19 ll. 54–56. Three possible operating modes include: 1) an electric mode used during low-speed driving in which the required torque is provided to the wheels only by the motor, *id.* at col. 35 l. 66 – col. 36 l. 7; 2) an engine mode used during highway cruising where the engine alone provides the required torque, *id.* at col. 36 ll. 23–39; and 3) a hybrid mode that is used when the torque required is above the engine's MTO and the motor provides the additional torque above that provided by the engine, *id.* at col. 36 ll. 40–46. Claim 1 is illustrative and recites:

1. A hybrid vehicle comprising:

an internal combustion engine controllably coupled to road wheels of said vehicle;

a first electric motor connected to said engine [a]nd operable to start the engine responsive to a control signal;

a second electric motor connected to road wheels of said vehicle, and operable as a motor, to apply torque to said wheels to propel said vehicle, and as a generator, for accepting torque from at least said wheels for generating current;

a battery, for providing current to said motors and accepting charging current from at least said second motor; and

a controller for controlling the flow of electrical and mechanical power between said engine, first and second motors, and wheels,

wherein said *controller starts and operates said engine when torque require[d] to be produced by said engine to propel the vehicle and/or to drive either one or both said electric motor(s) to charge said battery is at least equal to a setpoint (SP) above which said engine torque is efficiently produced, and wherein the torque produced by said engine when operated at said setpoint (SP) is substantially less than the maximum torque output (MTO) of said engine.*

Id. at col. 58 ll. 13–37 (emphasis added).

Following Paice's assertion of its patents against Ford in the district court, Ford filed a series of inter partes review petitions, three of which were instituted for the '347 patent: the 884, 571, and 579 petitions. The Board

construed the terms “setpoint” and “road load” in all three decisions, but each of the petitions addressed different combinations of prior art references. For example, the 884 petition invalidated claims 1, 7, and 10 of the ’347 patent as obvious in light of the Caraceni reference. *Ford Motor Co. v. Paice LLC*, IPR2014-884, 2015 WL 8536739, at *12 (PTAB Dec. 10, 2015) (“884 Board Decision”). In the 571 petition, the Board concluded that the Severinsky reference rendered obvious claims 23 and 36 and found that claims 1, 6, 7, 9, 15, and 21 would have been obvious over a combination of Severinsky and the Ehsani reference. *Ford Motor Co. v. Paice LLC*, IPR2014-571, 2015 WL 5782084, at *13 (PTAB Sept. 28, 2015) (“571 Board Decision”). Finally, the Board found claims 1, 7, 8, 18, 21, 23, and 37 would have been obvious over the collective teachings of the Bumby references in the 579 petition, which was combined with the 571 petition on appeal to this court. *Ford Motor Co. v. Paice LLC*, IPR2014-579, 2015 WL 5782085, at *17 (PTAB Sept. 28, 2015) (“579 Board Decision”).

Paice appeals from the Board’s final written decisions in all three petitions. We have jurisdiction pursuant to 35 U.S.C. § 141(a) and 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

Paice raises four main arguments on appeal. First, Paice asserts that the Board improperly construed “setpoint” and “road load” in the ’347 patent. Second, Paice faults the Board for concluding that Caraceni teaches certain disputed limitations of claims 1, 7, and 10. Paice next argues that the Board erred in concluding that Severinsky renders obvious claims 23 and 36 and that Severinsky in combination with Ehsani renders obvious claims 1, 6, 7, 9, 15, and 21. Finally, Paice challenges the Board’s conclusion that a POSA would have been motivated to combine the Bumby references and that they teach the limitations of claims 1, 7, 8, 18, 21, 23, and 37.

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