

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BAYERISCHE MOTOREN WERKE AKTIENGESELLSCHAFT & BMW
OF NORTH AMERICA, LLC,

Petitioner,

v.

PAICE LLC & THE ABELL FOUNDATION, INC.,

Patent Owner.

Case IPR2020-01299

Patent 8,630,761 B2

Before SALLY C. MEDLEY, KALYAN K. DESHPANDE, and
ARTHUR M. PESLAK, *Administrative Patent Judges*.

PESLAK, *Administrative Patent Judge*.

DECISION

Granting Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4(a)

I. INTRODUCTION

Bayerische Motoren Werke Aktiengesellschaft and BMW of North America, LLC (collectively “Petitioner” or “BMW”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–12 (the “challenged claims”) of U.S. Patent No. 8,630,761 B2 (Ex. 1001, “the ’761 Patent”). Patent Owner, Paice LLC and the Abell Foundation, Inc., timely filed a Preliminary Response (Paper 8, “Prelim. Resp.”).

We have authority, acting on the designation of the Director, to determine whether to institute an *inter partes* review under 35 U.S.C. § 314(a). *See also* 37 C.F.R § 42.4(a) (2018) (“The Board institutes the trial on behalf of the Director.”). Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the Petition shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Taking into account the Petition, the arguments presented in the Preliminary Response, as well as all supporting evidence, we conclude that the information presented in the Petition establishes that there is a reasonable likelihood that Petitioner would prevail in its challenge of at least one claim of the ’761 Patent as unpatentable. Pursuant to 35 U.S.C. § 314, we hereby institute an *inter partes* review of all challenged claims of the ’761 Patent on all grounds stated in the Petition.

Our factual findings, claim construction, and legal conclusions at this stage of the proceeding are based on the evidentiary record developed thus far. This decision to institute trial is not a final decision as to the unpatentability of the claims for which *inter partes* review is instituted. Our final decision will be based on the full record developed during trial.

A. Related Matters

The parties state that the '761 Patent is asserted in *Paice LLC et al. v. Bayerische Motoren Werke Aktiengesellschaft*, 1:19-cv-03348-SAG (D. Md.). Pet. 74; Paper 5, 2.

B. Real Parties in Interest

Petitioner and Patent Owner each identifies itself as the only real party in interest. Pet. 74; Paper 5, 2.

C. The '761 Patent (Ex. 1001)

The '761 Patent issued on January 14, 2014, and is entitled “Hybrid Vehicles.” Ex. 1001, codes (45), (54). The '761 Patent issued from U.S. Patent Application 13/573,728, filed on October 5, 2012, and claims priority through a series of applications to U.S. Provisional Patent Applications 60/100,095, filed on September 14, 1998, and 60/122,296, filed on March 1, 1999. *Id.* at codes (21), (22), (60).

The '761 Patent generally relates to hybrid vehicles “in which both an internal combustion engine and one or more electric motors are provided to supply torque to the driving wheels of the vehicle . . . [for] achieving substantially improved fuel economy and reduced pollutant emissions.” Ex. 1001, 1:16–24. The '761 Patent describes various modes of operation of the hybrid vehicle powertrain that are “controlled by microprocessor 48 [as] a function of the state of charge of the battery bank, the instantaneous road load, and time.” *Id.* at 35:61–66. The '761 Patent further describes that “microprocessor 48 controls the vehicle’s mode of operation at any given time in dependence on ‘recent history,’ as well as on the instantaneous road load and battery charge state.” *Id.* at 36:23–26.

Figure 6 of the '761 Patent, reproduced below, schematically illustrates an embodiment of the claimed invention.

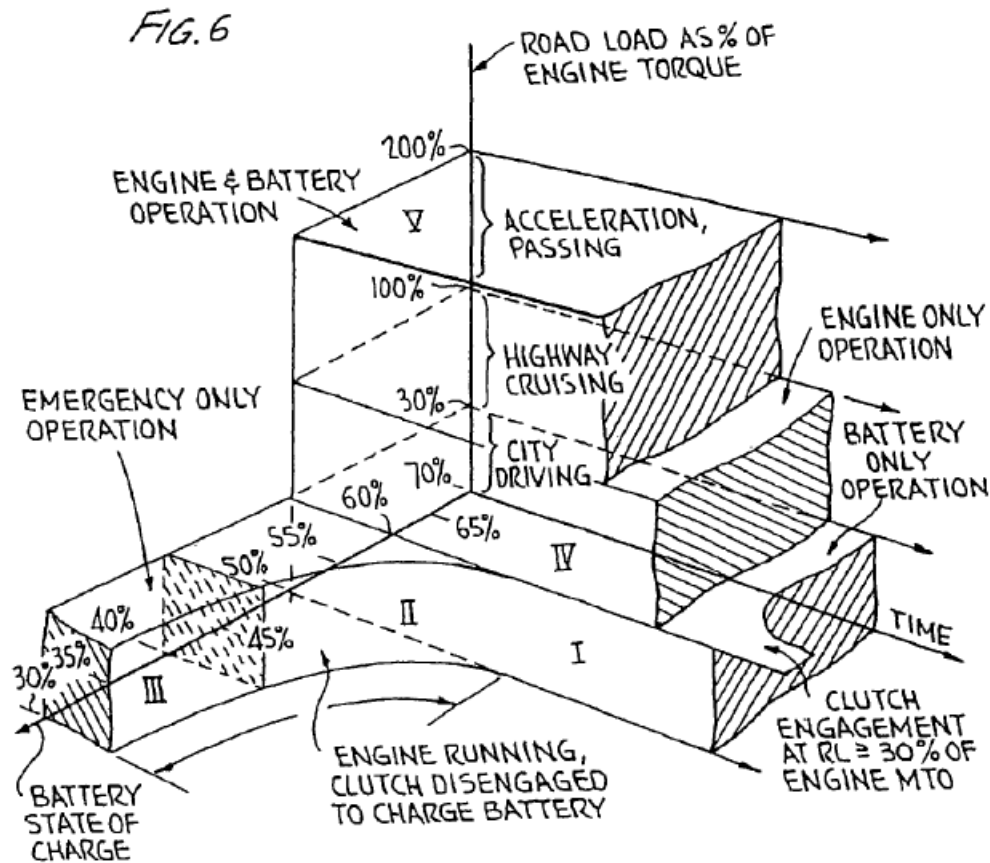


Figure 6 illustrates differing modes of vehicle powertrain operation, plotted on a three dimensional chart, illustrating that the mode of vehicle operation is a function of the state of charge of the battery bank, the instantaneous road load, and time. *Id.* at 21:53–57.

As shown in Figure 6, “during city driving (mode I), defined in this example as driving where the vehicle’s instantaneous torque requirements, or ‘road load’, is up to 30% of the engine’s maximum torque, the vehicle is operated as a ‘straight electric’ car.” *Id.* at 36:27–31. In mode I, “the clutch [is] disengaged and energy from the battery bank 22 [is] used to power traction motor 25 to propel the vehicle, as long as the battery remains

charged to between 50 and 70% of its full charge.” *Id.* at 36:31–34. “If the charge falls to below a given value . . . mode II is entered as indicated, the engine is started, and the starter motor 21 is operated as a generator to charge the battery to substantially full charge.” *Id.* at 36:34–39. Mode III permits operation of the vehicle as an electric car “when the battery falls to below 40% of full charge, for example, if there is a fault in the engine or charging system, but only on an emergency basis; such deep discharge is harmful to battery life.” *Id.* at 36:39–44. “During highway cruising, region IV, where the road load is between about 30% and 100% of the engine’s maximum torque output, the engine alone is used to propel the vehicle.” *Id.* at 36:45–47. “If the operator then calls for additional power, e.g. for acceleration or passing, region V is entered.” *Id.* at 37:3–4. There, “the microprocessor detects that the road load exceeds 100% of the engine’s maximum torque output, it controls inverter/charger 27 so that energy flows from battery bank 22 to traction motor 25, providing torque propelling the vehicle in addition to that provided by engine 40.” *Id.* at 37:3–9.

The above embodiment includes a controlled transition from low-speed operation to highway cruising at a transition point or set point (i.e., between operation in modes I and IV). *Id.* at 39:41–46. Using a constant set point, however, can sometimes lead to undesirable engine starting and shut-off, until extended highway cruising is attained. *Id.* at 39:63–66. To address this potential undesirable effect, the ’761 Patent uses the microprocessor to monitor the vehicle’s operation over a period of days or weeks and reset the set point in response to a repetitive driving pattern. *Id.* at 39:48–66. The ’761 Patent explains that by the microprocessor “monitoring the road load over time, and comparing it to different setpoints accordingly, much of this

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