

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

PAICE LLC & THE ABELL FOUNDATION, INC.
Patent Owners

Inter Partes Review No.: IPR2020-00994

U.S. Patent No. 7,104,347 K2

REPLY DECLARATION OF DR. GREGORY W. DAVIS

BMW v. Paice, IPR2020-00994
BMW 1088

Table of Contents

I.	QUALIFICATIONS OF ONE OF ORDINARY SKILL IN THE ART	10
II.	CLAIMS 2 AND 24 ARE OBVIOUS OVER SEVERINSKY AND NII (GROUND 3A), AND OVER SEVERINSKY, EHSANI AND NII (GROUND 3B)	11
	A. Severinsky Discloses “ <i>vary[ing] said setpoint</i> ”	11
	B. A Skilled Artisan Would Have Been Motivated to Vary Severinsky’s Setpoint Based on Nii’s Pattern Information and Would Have Had a Reasonable Expectation of Success in Doing So	26
III.	CLAIM 24 IS OBVIOUS OVER SEVERINSKY AND GRAF (GROUND 1A), CLAIM 2 IS OBVIOUS OVER SEVERINSKY IN VIEW OF EHSANI AND GRAF (GROUND 2A), AND CLAIMS 24 AND 2 ARE OBVIOUS OVER BUMBY AND GRAF (GROUND 4A)	45
IV.	CLAIM 33 IS OBVIOUS OVER SEVERINSKY IN VIEW OF MA (GROUND 1B), CLAIM 11 IS OBVIOUS OVER SEVERINSKY IN VIEW OF EHSANI AND MA (GROUND 2B), AND CLAIMS 33 AND 11 ARE OBVIOUS OVER BUMBY IN VIEW OF MA (GROUND 4B)	47
V.	CLAIM 17 IS OBVIOUS OVER SEVERINSKY IN VIEW OF EHSANI (GROUND 2C) AND OVER BUMBY IN VIEW OF EHSANI (GROUND 4C)	69
	A. Severinsky and Ehsani Render Claim 17 Obvious	69
	B. Bumby and Ehsani Render Claim 17 Obvious	78
VI.	CLAIM 38 IS OBVIOUS OVER SEVERINSKY IN VIEW OF EHSANI (GROUND 1C) AND OVER BUMBY IN VIEW OF EHSANI (GROUND 4C)	80
	A. Severinsky and Ehsani Render Claim 38 Obvious	80
	B. Bumby and Ehsani Render Claim 38 Obvious	86
VII.	CONCLUSION	93

LIST OF EXHIBITS

Exhibit No.	Description of Exhibit
BMW1001	U.S. Patent No. 7,104,347, including <i>Inter Partes</i> Review Certificates issued as U.S. Patent No. 7,104,347 K1 and U.S. Patent No. 7,104,347 K2
BMW1002	USPTO Assignments on the Web for U.S. Patent No. 7,104,347 K2
BMW1003	<i>Ford Motor Co. v. Paice LLC</i> , IPR2014-00571, Paper 44, Final Written Decision (P.T.A.B. Sep. 28, 2015)
BMW1004	<i>Ford Motor Co. v. Paice LLC</i> , IPR2014-00579, Paper 45, Final Written Decision (P.T.A.B. Sep. 28, 2015)
BMW1005	<i>Paice LLC v. Ford Motor Co.</i> , Appeal Nos. 2016-1412, -1415, -1745, Doc. 46-2, Opinion (Fed. Cir. Mar. 7, 2017)
BMW1006	<i>Ford Motor Co. v. Paice LLC</i> , IPR2015-00794, Paper 31, Final Written Decision (P.T.A.B. Nov. 1, 2016)
BMW1007	<i>Paice LLC v. Ford Motor Co.</i> , Appeal Nos. 2017-1442, -1443, -1472, Doc. 59-2, Opinion (Fed. Cir. Feb. 1, 2018)
BMW1008	Declaration of Dr. Gregory W. Davis in Support of <i>Inter Partes</i> Review of U.S. Patent No. 7,104,347 K2
BMW1009	<i>Curriculum Vitae</i> of Dr. Gregory W. Davis
BMW1010	<i>Ford Motor Co. v. Paice LLC</i> , IPR2014-00795, Paper 31, Final Written Decision (P.T.A.B. Nov. 1, 2016)
BMW1011	<i>Ford Motor Co. v. Paice LLC</i> , IPR2014-00884, Paper 38, Final Written Decision (P.T.A.B. Dec. 10, 2015)
BMW1012	File History for U.S. Patent No. 7,104,347 K2
BMW1013	U.S. Patent No. 5,343,970 (“Severinsky” or “Severinsky ’970”)
BMW1014	Bumby, J.R. et al., “Computer modelling of the automotive energy requirements for internal combustion engine and battery electric-powered vehicles,” <i>IEE PROCEEDINGS</i> , Vol. 132, Pt. A, No. 5

BMW v. Paice, IPR2020-00994

BMW 1088

Exhibit No.	Description of Exhibit
	(Sep. 1985), 265-79 (“Bumby-I” or “Bumby I”)
BMW1015	Bumby, J.R. et al., “Optimisation and control of a hybrid electric car,” <i>IEE PROCEEDINGS</i> , Vol. 134, Pt. D, No. 6 (Nov. 1987), 373-87 (“Bumby-II” or “Bumby II”)
BMW1016	Bumby, J.R. et al., “A hybrid internal combustion engine/battery electric passenger car for petroleum displacement,” <i>Proceedings of the Institution of Mechanical Engineers, Part D: Journal of Automobile Engineering</i> , Vol. 202, No. D1 (Jan. 1988), 51-65 (“Bumby-III” or “Bumby III”)
BMW1017	Bumby, J.R. et al., “A test-bed facility for hybrid i c-engine/battery-electric road vehicle drive trains,” <i>Transactions of the Institute of Measurement and Control</i> , Vol. 10, No. 2 (Apr.-June 1988), 87-97 (“Bumby-IV” or “Bumby IV”)
BMW1018	Bumby, J.R. et al., “Integrated microprocessor control of a hybrid i.c. engine/battery-electric automotive power train,” <i>Transactions of the Institute of Measurement and Control</i> , Vol. 12, No. 3 (Jan. 1990), 128-46 (“Bumby-V” or “Bumby V”)
BMW1019	U.S. Patent No. 5,586,613 (“Ehsani”)
BMW1020	U.S. Patent No. 6,188,945 (“Graf”)
BMW1021	International Application Publication No. WO 92/15778 (“Ma”)
BMW1022	U.S. Patent No. 5,650,931 (“Nii”)
BMW1023	<i>Innovations in Design: 1993 Ford Hybrid Electric Vehicle Challenge</i> , Society of Automotive Engineers, SAE/SP-94/980, Davis, G.W. et al., “United States Naval Academy, AMPhibian” (Feb. 1994), 277-87
BMW1024	<i>1996 Future Car Challenge</i> , Society of Automotive Engineers, SAE/SP-97/1234, Swan, J. et al., “Design and Development of Hyades, a Parallel Hybrid Vehicle for the 1996 FutureCar Challenge” (Feb. 1997), 23-30
BMW1025	<i>1997 Future Car Challenge</i> , Society of Automotive Engineers,

BMW v. Paice, IPR2020-00994

BMW 1088

Exhibit No.	Description of Exhibit
	SAE/SP-98/1359, Swan, J. et al., "Design and Development of Hyades, a Parallel Hybrid Electric Vehicle for the 1997 FutureCar Challenge" (Feb. 1998), 29-39
BMW1026	U.S. Provisional Appl. No. 60/100,095 (Filed Sep. 11, 1998)
BMW1027	Wakefield, E.H., Ph.D., <i>History of the Electric Automobile – Hybrid Electric Vehicles</i> , Society of Automotive Engineers, SAE/SP-98/3420 (1998), 17-34 (Chapter 2: The History of the Petro-Electric Vehicle)
BMW1028	Unnewehr, L.E. et al., "Hybrid Vehicle for Fuel Economy," Society of Automotive Engineers, SAE/SP-76/0121 (1976)
BMW1029	Burke, A.F., "Hybrid/Electric Vehicle Design Options and Evaluations," Society of Automotive Engineers, SAE/SP-92/0447, International Congress & Exposition, Detroit, Michigan (Feb. 24-28, 1992)
BMW1030	Duoba, M, "Challenges for the Vehicle Tester in Characterizing Hybrid Electric Vehicles," 7 th CRC On Road Vehicle Emissions Workshop, San Diego, California (Apr. 9-11, 1997)
BMW1031	<i>Electric and Hybrid Vehicles Program, 18th Annual Report to Congress for Fiscal Year 1994</i> , U.S. Department of Energy (Apr. 1995)
BMW1032	Bates, B. et al., "Technology for Electric and Hybrid Vehicles," Society of Automotive Engineers, SAE/SP-98/1331 (Feb. 1998)
BMW1033	Stodolsky, F. et al., "Strategies in Electric and Hybrid Vehicle Design," Society of Automotive Engineers, SAE/SP-96/1156, Kozo, Y. et al., "Development of New Hybrid System – Dual System," SAE/SP-96/0231 (Feb. 1996), 25-33
BMW1034	Leschly, K.O., <i>Hybrid Vehicle Potential Assessment, Volume 7: Hybrid Vehicle Review</i> , U.S. Department of Energy (Sep. 30, 1979)
BMW1035	<i>Final Report Hybrid Heat Engine / Electric Systems Study</i> , Vol. 1:1-13, The Aerospace Corporation for the U.S. Environmental Protection Agency (June 1, 1971)

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.