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Engineering & Scientific Consulting

Lee A. Swanger, Ph.D., P.E.

Principal Engineer & Office Director | Materials & Corrosion Engineering
4101 Southwest 71st Ave | Miami, FL 33155
(305) 661-1000 tel | lswanger@exponent.com

Professional Profile

Dr. Swanger is the Director of Exponent's Miami, Florida, office. His consulting work centers on the application of the principles of mechanical engineering, metallurgical and materials engineering, thermodynamics, and design engineering to issues related to incidents involving performance of engineered products and systems, accident reconstruction, and failure or fracture of system components. He also consults on issues of patent infringement and patent validity in the mechanical and materials arts. More specifically, Dr. Swanger's experience includes the analysis of machinery dynamics and kinetics as exemplified by internal combustion engines of both piston and turbine configuration, as well as related compressor designs. His materials and metallurgical experience includes alloy applications, heat treatment, electrochemistry and corrosion, welding and brazing, and materials testing. He applies his combined expertise in both mechanical engineering and materials/metallurgical engineering to issues of fatigue and fracture, and mechanical joining via threaded fasteners.

Applications of these disciplines include systems in nuclear and fossil power plants, components of transportation systems on land, sea, and air, industrial manufacturing processes, components of commercial and residential buildings, materials used in the petroleum and chemical industries, machinery and processes for vapor degreasing and dry cleaning, and consumer products including sports equipment and kitchen appliances.

Dr. Swanger has a particular interest in engine design and performance, with an emphasis on combustion, operational stresses, lubrication and bearing design and performance. He received a U.S. Patent for his engine bearing material and fabrication process.

Academic Credentials & Professional Honors

Ph.D., Materials Science and Engineering, Stanford University, *with distinction*, 1972

M.B.A., Marketing/Finance, Cleveland State University, 1982

M.S., Materials Science and Engineering, Stanford University, 1969

B.S., Metallurgy, Case Institute of Technology, *with highest honors*, 1968

Hertz Foundation Graduate Fellowship, 1970-1972

Member, Board of Directors of the Fannie and John Hertz Foundation

Licenses and Certifications

Licensed Professional Engineer, Alabama, #29848-E

Licensed Professional Mechanical Engineer, California, #M23275

Licensed Professional Engineer, Florida, #37207

Licensed Professional Engineer, Georgia, #PE036205

Licensed Metallurgical Engineer, Louisiana, #34064

Licensed Professional Engineer, Mississippi, #25349

Licensed Professional Engineer, New York, #93691

Licensed Professional Metallurgical Engineer, Ohio, #44024

Licensed Professional Engineer, Virginia, #15492

Licensed Mechanical Engineer, Wyoming, #11899

Prior Experience

Adjunct Professor, Mechanical Engineering Department, University of Miami, 1999-2008

Director of Research and Development, Engine Parts Division, Imperial Clevite, 1979-1983

Lecturer, Mechanical Engineering Department, Cleveland State University, 1978-1982

Project Manager, Gould Labs for Materials Research, Gould Inc., 1975-1979

Associate Sr. Research Metallurgist, General Motors Research Labs, 1973-1975

Patents

Patent 4,333,215: Bearing Material and Method of Making, issued June 8, 1982.

Publications

Rogers G, Swanger L, Wells C. The Role of testing programs in verifying structural integrity of medium speed diesel generator components. Institute for Electrical and Electronics Engineers Transaction on Nuclear Science 1985; NS-32(1), February.

Swanger L. Inhomogeneous thermodynamics and spinodal decomposition. Ph.D. Dissertation, Stanford University, August 1972.

Swanger L, Rhines W. On the necessary conditions for homogeneous nucleation of gas bubbles in liquids. Journal of Crystal Growth 1972; 12:323-326.

Barnett D, Swanger L. The elastic energy of a straight dislocation in an infinite anisotropic elastic medium. Physica Status Solidi (B) 1971; 48:419-428, 1971.

Swanger L, Cooper A, Gupta P. Computer simulation of one-dimensional spinodal decomposition. Acta

Metallurgica 1970; 18:9-14.

Presentations

Swanger L. Expert witnesses in patent infringement litigation. Presented to Cleveland Ad-Hoc Patent Litigators Council, Cleveland, OH, December 2004.

Swanger L. Early assessment of product liability claims, the role of the engineering consultant. Presented to TriMas Litigation Conference, Detroit, MI, June 2002.

Swanger L. How to solve your bearings' problems. Presented at Joint Emergency Diesel Generator Owners Group Conference, Chicago, IL, June 1997.

Swanger L, Vogler M, Rau S. Investigation of the reliability of solid aluminum main bearings in emergency diesel generators. 9th International Conference on Structural Mechanics in Reactor Technology, Volume D, Lausanne, Switzerland, August 1987.

Johnston P, Shusto L, Swanger L. Analysis of diesel engine crankshaft torsional vibrations. 9th International Conference on Structural Mechanics in Reactor Technology, Volume D, Lausanne, Switzerland, August 1987.

Swanger L. Advanced techniques of accident investigation. Presented at Occupational Safety and Health Administration Training Institute, Des Plaines, IL, March, June, and September 1986.

Swanger L, Harris D, Johnston P, Derbalian G. Advanced methods for diesel component life prediction. Society for Automotive Engineers Paper 860885, Marine Propulsion Technology Conference, Washington, DC, May 1986.

McCarthy R, McCarthy G, Swanger L. Reliability and service life of steel truck wheels. Annual Reliability and Maintainability Symposium, Las Vegas, NV, January 1986.

Rogers G, Wells C, Swanger L. Design analysis of emergency diesel generator components to establish reliability under operating conditions. 8th International Conference on Structural Mechanics in Reactor Technology, Brussels, Belgium, August 1985.

Swanger L. Bearing materials update. Presented to Society of Automotive Engineers Off-Highway Conference, Milwaukee, WI, September 1981.

Swanger L. Developments in bearings and pistons. Presented at O Motor no Futuro (The Engine of the Future), Sao Paulo, Brazil, September 1980.

Swanger L. Selection of crankshaft materials for optimum bearing performance. Presented to Society of Manufacturing Engineers Conference, CM80-392, Los Angeles, CA, June 1980.

Swanger L. Heavy duty bearings: Materials and process. Presented at Carnegie-Mellon University, Pittsburgh, PA, March 1980.

Reports

Swanger L. Rule 26 Report of Lee A. Swanger In the Matter of Darrell W. Hartman v. Caterpillar Inc., et. al., May 28, 2010.

Swanger L. Rule 26 Report of Lee A. Swanger In the Matter of Innovative Fuel Products, LLC vs. BP Products North America Inc., December 23, 2010.

Swanger L. Report of Lee A. Swanger In the Matter of Questar Gas Management Co. v. Waukesha and Stewart & Stevenson, March 13, 2009.

Swanger L. Expert Report of Lee A. Swanger, Ph.D. P.E. Regarding Invalidity of U.S. Patent No. 6,979,117 and U.S. Patent No. 7, 281,842, K-TEC, Inc. vs. Vita-Mix Corporation, January 15, 2010.

Swanger L. Expert Report on Patent Infringement Pursuant to Rule 26(A)(2)(B) by Lee A. Swanger, Ph.D., P.E., Vita-Mix Corporation vs. Basic Holding, Inc., Focus Products Group, LLC, Focus Electrics, LLC, and West Bend Housewares, LLC, December 17, 2007.

Swanger L. Expert Report on Rebuttal of "Expert Report of Majid Rashidi, Ph.D., P.E." Dec. 17, 2007 Regarding the Invalidity of U.S. Patent No. 5,302,021 and "Expert Report of Thomas F. Smegal, Jr." Dec. 13, 2007 Regarding Inequitable Conduct During Prosecution of U. S. Patent No. 5,302,021, Pursuant To Rule 26(A)(2)(B) by Lee A. Swanger, Ph.D., P.E., Vita-Mix Corporation vs. Basic Holding, Inc. f/k/a Back to Basics Products, Inc., Focus Products Group, LLC, Focus Electrics, LLC, and West Bend Housewares, LLC, January 7, 2008.

Swanger L. Rule 26 Report of Lee A. Swanger In the Matter of Horton, Inc. v. NSK Corporation, Inc., American Arbitration Association Case No. 65 181 Y 00320 05, October 9, 2006.

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Swanger L. Expert Report on Patent Infringement Pursuant To Rule 26(A)(2)(B) by Lee A. Swanger, Ph.D., P.E., Fellowes, Inc. vs. Michilin Prosperity Company Ltd. & Intek America, Inc., January 26, 2007.

Swanger L. Expert Report on Rebuttal of January 26, 2007 "Expert Report of Elliot L. Stern, Ph.D., On The Invalidity of U.S. Patent Nos. 6,260,780 And 7,040,559" Pursuant To Rule 26(A)(2)(B) by Lee A. Swanger, Ph.D., P.E., Fellowes, Inc. vs. Michilin Prosperity Company Ltd. & Intek America, Inc., February 26, 2007.

Swanger L. Report of Lee A. Swanger Responsive to Judge Tarnow's Order of June 5, 2006, James W. Jaikins v. Caterpillar, Inc., Case No. 04-73404, December 3, 2006.

Swanger L. Bearing and Valve Investigation, Wartsila 18V46 - DG-02, Central Electrica Talnique, El Salvador, Prepared for: Inversiones Energéticas S.A. de C.V., September 22, 2009.

Swanger L. Hydrodynamic Crankshaft Bearings in Nordberg Emergency Diesel Generators, Prepared for Engineering Staff, Brunswick Nuclear Plant, Progress Energy, Southport, NC, February 17, 2011.

Swanger L. Rule 26 Report of Lee A. Swanger In the Matter of Douglas P. DeMasi v. United States of America, Case No. 3:09-cv-868-J-32JRK, October 14, 2010.

Swanger L. Response to Expert Report of Michael Thuma Pursuant to Rule 26(A)(2)(B) By Lee A. Swanger, Ph.D., P.E., Sunbeam Products, Inc. d/b/a Jarden Consumer Solutions vs. Homeland Housewares, LLC, et al., Case No. 3:09-CV-00791 REP, October 18, 2010.

Swanger L, McDaniel D. Nordberg ductile iron piston evaluation. Prepared for Progress Energy Brunswick Nuclear Station, January 5, 2006.

Swanger L. Report of Lee A. Swanger, Ph.D., P.E. In the Matter of Verve L.L.C. v Crane Cams, et. al. Reference U.S. Patent 4,850,315, January 24, 2005.

Swanger L. Report of Lee A. Swanger In the Matter of Vine Street, L.L.C. v. James R. Keeling et. al. Rule 26 report regarding Perchloroethylene Dry Cleaning machine function, Eastern District of Texas,

September 10, 2004.

Swanger L. Declaration of Lee A. Swanger, Ph.D., P.E. re: U.S. Patent 6,071,062. PODS, Inc. v. Porta Stor, Inc. et. al., September 9, 2004.

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Swanger L. Report of Lee A. Swanger, Ph.D., P.E. In the Matter of Air Turbine Technology v. Atlas Copco. Reference U.S. Patent 5,439,346, November 21, 2002.

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Swanger L, Davy R, Eberly P, Waters L. Teledyne continental camshaft and lifter performance: The influence of lubricating oil on surface conditions. Technical Report to Special Masters in Gross v. Mobil, November 1996.

Johnston P, Shusto L, Swanger L. Evaluation of diesel generator Number 1 at Brunswick Nuclear Plant. Failure Analysis Associates, Inc., Technical Report, January 1993.

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