ALPINE ENGINEERING & DESIGN, INC.

CURRICULUM VITAE

DAVID G. SMITH

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PROFILE

Experienced mechanical engineer (MS, PE) with seven issued patents. Award winning inventor. President of Alpine Engineering and Design, a mechanical engineering consulting company with clients around the United States ranging from individual inventors to Fortune 500 companies. Worked on the development of multiple successful products including among other things: forklifts, forklift attachments, conveyors, aerial lifts, garbage trucks, thrill rides, ziplines, trailers, oil and gas equipment, exercise equipment, manufacturing equipment and multiple consumer products.

Graduated Cum Laude with a bachelor's degree in mechanical engineering. Completed a master's of science degree in mechanical engineering and an MBA with an emphasis in product development. Licensed professional engineer (PE) and a certified safety professional in comprehensive practice (CSP). Certified trainer for boom lifts, scissor lifts, rough terrain and counterbalanced forklifts. Nearly two decades of experience in product development, patents, equipment safety and risk assessments.

Experienced expert witness having drafted hundreds of reports/declarations in patent and personal injury cases. Designed and built multiple custom testing devices to obtain data and evaluate opinions. Created multiple demonstratives to explain the mechanics and circumstances of accident sequences and patented devices. Testified in deposition 30+ times and multiple times in trial.

CERTIFICATIONS

- Professional Mechanical Engineer (PE)
  - Utah License # 8645497-2202
  - Idaho License #19657
- Certified Safety Professional (CSP)
  - Comprehensive Practice License #CSP-30707
- Certified Forklift Operator
- Certified Counterbalanced Forklift Operator Trainer
- Certified Rough Terrain Forklift Operator Trainer
- Certified Aerial Boom Lift Operator Trainer
- Certified Aerial Work Platform (Scissor Lift) Operator Trainer

EDUCATION

Master of Business Administration (MBA) 2009-2011
Marriott School of business | Brigham Young University
Emphasis in Product Development

Masters of Science - Mechanical Engineeering 2008-2011
Ira A. Fulton College of Engineering | Brigham Young University
Emphasis - Product Design, Mechanism Design,
Compliant Mechanisms, MEMS

Bachelor's of Science - Mechanical Engineering 2002-2007
Brigham Young University - Idaho
Cum Laude Graduate
Academic Scholarship
Boy Scouts of America Scholarship

CONSULTING FOCUS

Involved in hundreds of consulting projects. Major areas of focus and expertise include: aerial lifts, boom lifts, bucket trucks, cherry pickers, scissor lifts, trailers, end dumps, side dumps, belly dumps, flat beds, goose neck trailers, 5th wheel trailers, trailer safety chains, towing systems, tarping systems, refuse trucks, recycling trucks, rear loaders, side loaders, automated trucks, front loaders, automated side loaders, fall protection, exercise equipment, forklifts, forklift attachments, powered industrial trucks, and telehandlers, rough terrain forklifts, drilling equipment, oil and gas equipment, heavy equipment, construction equipment, conveyors, roller conveyors, belt conveyors, screw conveyors, auger conveyors, hydraulic equipment, manufacturing equipment, consumer products, chairs and seating, stability and tipping, plastic design, zip lines, thrill rides, designing to standards, and design for safety.

PATENTS

During his time at Alpine Engineering and Design, Inc., Mr. Smith has become familiar with patent prosecution and patent litigation. He has written multiple provisional patent applications, and has worked with attorneys in writing the specifications, creating drawings and drafting claims for utility patents on products he has helped design. As part of the product development process, he has performed patent searches, both for informational purposes and to lessen the likelihood that new developments would infringe other's intellectual property. Mr. Smith is listed as an inventor on seven issued patents.

- 9,387,788 - Combination Trailer
- 9,616,799 - Pneumatic Tank Trailer
- 9,758,083 – Pneumatic Tank Trailer
- 9,789,916 - Pneumatic Tank Trailer
- 10,206,495 - Vehicle Receiver Hitch-Supported Cargo Rack Transformable into a Picnic Table with Benches
- 10,683,176 – Material Placer
- 11,013,391 – Scraper Apparatus

EXPERT WITNESS

Mr. Smith has been retained as an expert on over 100 patent, and personal injury cases and has testified in a number of these. Mr. Smith has attended SEAK expert witness training and has experience and competency in the following areas:

Patent Invalidity/Non-infringement	Product Liability
Patent Infringement/Validity	Personal Injury
Prior Art Searching	Failure Reconstruction
Claim Construction	Safety

Mr. Smith has also been involved in multiple aspects of patent litigation including claim construction, prior art and patent searches, infringement/validity analyses and non-infringement/invalidity analyses on over 50 cases. Mr. Smith has worked on district court cases, IPR's, EPR's, and cases in the ITC. The following are a few of the categories of patent issues Mr. Smith has consulted on:

Trailers	Office Supplies
Agricultural Equipment	Food Processors
Trailer Tarping Systems	Blenders
Oil/Gas Drilling Equipment	Coffee and Tea makers
Weight Machines	Vacuum Cleaners
Athletic Equipment	Hospital Equipment
Archery Equipment	Cleaning Systems
Hinges	Car seat gap fillers
Seating/Chairs	Baby bottle warmers
Hand Tools	Cooler Latching Systems
Springs	Grills and Smokers

PEER REVIEWED PUBLICATIONS

- Off-axis Stiffness and Piezoresistive Sensing in Large-displacement Linear-motion MEMS (Brigham Young University, Master's Thesis, 2009)
- Piezoresistive Encoders for Ratcheting Actuation Systems (Sensors and Actuators A: Physical, Volume 165, Issue 2, February 2011)
- Design Optimization of a Linear-motion Large-displacement Micro Mechanism for High Off-axis Stiffness (ASME International Design Engineering Technical Conferences IDETC/CIE 2009)
- Metrics for Evaluation and Design of Large-displacement Linear-motion Compliant Mechanisms (Journal of Mechanical Design, 2012)

MAGAZINE AND WHITE PAPER PUBLICATIONS

- An Engineering Guide for Trailer Safety Chain Installation, Attachment and Use (White Paper, Linklock.net)
- Your Rear Impact Guard Questions Answered (Tracks Magazine, National Association of Trailer Manufacturers, September/October 2019)
- The Nuances of Advising on Product Liability Cases (Lawyer Monthly, January 2021)
- Community Highlights: Meet David Smith of Alpine Engineering and Design (Voyage Utah Magazine February 2022)

PODCASTS, BLOG ARTICLES, AND OTHER PUBLICATIONS

- Host of The Expert Witness Podcast
- 9 Ways Engineering Analysis Adds Value to Your Manufacturing Operations
- 100% Defense Verdict in Forklift Case – Reviewed by a Mechanical Engineering Expert Witness
- The Safety Cliff
- Take the Handcuffs Off of Your Safety Managers
- What is a Provisional Patent Application?
- 7 Unexpected Lessons from Preparing to Launch a Product on Kickstarter
- 9 Ways to Find Your Next Expert Witness on a Single Cup of Coffee
- How to Make Money Inventing… Without Going Broke First
- Expert Opinion: Improper Forklift Operation Kills Delivery Driver
- Expert Opinion: Efficiency Improvements Result in Tractor Operator's Death
- Expert Opinion: No, Ma'am! The Swing Set Was NOT Vandalized
- Expert Opinion: Defective Auger Conveyor Amputates Employees Arm
- Expert Opinion: Improper Forklift Operation Kills Deliver Driver
- Expert Opinion: Just Because it Can Be Done Without Injury Does Not Mean it is Safe
- Expert Opinion: Engineering Standards Buckling Under American's Ever Increasing Weight Gain
- Expert Opinion: Auger Conveyor Design Defect Amputates Employees Arm
- Expert Witnesses: Developing Effective Speaking Skills for Trial/Deposition Work
- At the Round Table With Mechanical Engineering Expert, David Smith
- Analysis of Belly Dump Trailer Failure
- Risk Assessment – The Often Forgotten Step in the Product Development Process
- The Case Within the Case – The Importance of Claim Construction in Patent Litigation
- Patent Expert Witness – Part of the Team or Puppet at Trial?
- Doubling Up – Two Fall Protection Standards Make it On OSHA's Top 10 List
- Know Before you Tow: Essential Safety Checks When Hooking Up Your Trailer
- The 7 Sins of Expert Witness Work