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Scott O. Ganaja, P.E.

Curriculum Vitae

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Mechanical Engineering Consultant

Scott Ganaja provides product development engineering support to manufacturers including mechanical design engineering, manufacturing engineering and prototyping services. He specializes in the design and manufacture of medical and exercise equipment as well as consumer products. Mr. Ganaja has experience as a forensic engineer and expert witness in litigation matters that involve product liability, patent infringement, and manufacturing disputes.

Professional Experience

Mechanical Engineer, President
PROgressiv Engineering, Inc., San Luis Obispo, CA 1989-present

- Design Engineering: Design of complex mechanical components and systems, stress analysis, motion analysis, material and process selection, optical engineering, heat transfer engineering, design review and patent liaision.
- Manufacturing Engineering: Manufacturing cost analysis, process control, quality control, and tool and die design. Production troubleshooting and liaision with domestic and off-shore manufacturers.
- Computer-Aided Design/Engineering (CAD/CAE): Generate computer models, renderings and 2D engineering drawings. Computer-assisted finite-element stress analysis (FEA). Motion simulation. Reverse engineering.
- Designed over 1,000 plastic parts and over 800 metal parts made by injection-molding, stamping, machining, extrusion, forming, welding, and other processes.
- Construct prototypes and models for testing and demonstration.
- Forensic Engineering: Failure analysis, product design and manufacturing analysis, and patent analysis.

Manufacturing Engineer
Swedlow Incorporated, Composites Division, Garden Grove, CA 1987-1989

Directed manufacturing processes for rocket, missile and aircraft components that were constructed using advanced composites. Coordinated production, estimating, tooling, and quality control.

Education

Bachelor of Science, Mechanical Engineering, Cal Poly, 1986
California Polytechnic State University, San Luis Obispo
Emphasis: Stress analysis, manufacturing processes, plastics, composites.

Forensic Engineering / Expert Witness

Bicycles / bicycle components	Consumer products
Exercise equipment	Mechanical systems
Medical / dental equipment	Plastic products
Carbon fiber products	

Products Liability – Analysis of product design and manufacturing defect claims. Address questions of misuse, assembly, maintenance, warnings, industry standards, and risk-utility. Perform failure analysis, testing, and accident reconstruction.

Intellectual Property – Analysis of patent infringement and invalidity claims for mechanical devices. Address questions of claim construction and obviousness.

Manufacturing Disputes – Address questions relating to manufacturing customs and practices, quality control, reverse engineering, domestic and off-shore manufacturing.

State and Federal Court trial experience.

Retained in over 170 cases; approximately 60% plaintiff and 40% defense.

Licenses

Registered Professional Mechanical Engineer, California, No. M27275

Registered Professional Manufacturing Engineer, California, No. MF4807

Certification and Training

Certified SolidWorks Associate, Dassault Systèmes. Plus over 6,000 hours of using SolidWorks computer-aided design (CAD) and analysis software.

Certified Bicycle Mechanic, United Bicycle Institute. Plus over 1,500 hours of repairing, assembling and maintaining bicycles.

"Professional Repair and Shop Operation", United Bicycle Institute. 80 hour training course.

"Pedestrian / Bicycle Crash Investigation", Institute of Police Technology and Management (IPTM). 40 hour training course.

Professional Affiliations

American Society of Mechanical Engineers (ASME), Member

Society of Manufacturing Engineers (SME), Senior Member

Society of Plastics Engineers (SPE), Senior Member

ASTM International (standards organization), Participating Member:
F08.10 Bicycles subcommittee
F08.30 Fitness Products subcommittee

Technical Presentations

"*Part Design for Machining*", Guest lecture, California Polytechnic State University, San Luis Obispo, Mechanical Engineering Department, 2003, 2004, 2010.

"*Plastic Part Design*", Guest lecture, California Polytechnic State University, San Luis Obispo, Mechanical Engineering Department, 2002, 2006, 2012.

"*Design for Metal Stamping*", Guest lecture, California Polytechnic State University, San Luis Obispo, Mechanical Engineering Department, 2011.

"*Plastic Part Design for Injection Molding*", Presentation, ICON Health and Fitness, Inc., R&D group, 1999.

"Carbon Fiber Bicycle Failures", Guest lecture, California Polytechnic State University, San Luis Obispo, Mechanical Engineering Department, 2014.

Product Development Engineering Examples

Medical and Dental Devices:

Cell-Freezing Devices – Consulted on the design of devices that precisely control heat flow during cryopreservation of biological materials.

Dental Laser – Consulted on the design of a hand-held laser used for gingival modification and similar soft-tissue dental surgery.

DVT / Cold Therapy Device – Consulted on the design of an electro-mechanical device used to reduce the occurrence of deep vein thrombosis as well as for reducing pain and swelling after orthopedic surgery.

Obstetrical Chair – Co-designed an electro-mechanical chair that raises the patient and rotates her rearward allowing for various birthing positions.

Positioning Arm – Engineered an articulating arm that allows manual multi-axis positioning of a hand-held dental device.

Oral Lesion Detection Device – Co-engineered a hand-held device that utilizes a narrow range of light, engineered optics, and autofluorescence for screening of oral cancer.

LED Light-Curing Devices – Co-engineered hand-held devices that use high-intensity blue light to rapidly cure composite dental fillings. Utilized engineered optics, high-power LEDs, and compact thermal management.

Special-Purpose Eye Drop Dispenser – Co-designed a device that gently administers a precisely metered dose of ophthalmic solution horizontally onto the user's eye.

Bicycling Products:

Trailing Arm for a Suspension Mountain Bicycle – Consulted on the design of a rear swing arm using advanced composites.

Mountain Bicycle Seatpost – Designed a lightweight 7005 aluminum seatpost.

Bicycle Saddle Positioning Device – Designed a slider mechanism that allows for saddle adjustments while in motion.

Carbon Fiber Bicycle Crank Arms – Engineered light and stiff crank arms designed for high performance as well as for manufacturability.

Bicycle Cargo Trailer – Engineered components for a rugged single-wheeled, easy to use, and maneuverable trailer for bicycles.

Pivoting Bicycle Trainer – Consulted on a bicycle trainer that pivots laterally allowing the rider to lean the bicycle to simulate unseated (out-of-the-saddle) pedaling.

Exercise Equipment:

Underwater Treadmill – Consulted on the design of an underwater treadmill that is used in institutional pools for post-surgical rehabilitation as well as for fitness.

Integrated Spurs – Engineered a spur system that is integrated into equestrian riding boots that eliminate traditional straps and provide more control for the rider.

Elliptical Strider – Consulted on the design of a walking-type exercise machine in which the user's feet follow an elliptical path rather than a linear or circular path.

Hiker/Treadmill – Consulted on the design of an institutional treadmill with the ability to vary its incline to over 25 degrees to simulate hiking as well as walking and jogging.

Strength Trainer – Consulted on the design of an institutional strength-training unit that includes weight stacks, cables, and adjustable pulley positions.

Adjustable Hand Weights – Co-designed hand weights that are adjustable from five to forty pounds through a button in the handle.

Throwing Training Aid – Engineered a portable electronic device which is worn on the arm that indicates when a baseball is thrown incorrectly.

Abdominal Exerciser – Co-designed and protoyped a contoured bar that uses elastic bands to provide resistance to torso twisting.

Illuminated In-line Skate Wheel – Engineered a clear skate wheel with molded-in LED lights that illuminate the wheel when it is rotating.

Consumer Products:

Massage Chair – Engineered a reclining chair with a mechanism that rolls up and down the user's back while massaging in circles.

Hole Digging Attachment – Co-engineered an attachment for string trimmers used to dig holes and turn soil. Used with gas-powered devices, capable of 12,000 RPM.

Ballhead for Photography – Co-engineered a professional-quality ballhead for use on tripods that allows photographers to precisely position and pan cameras.

Inflatable Location Marker – Engineered a single-use rescue device that utilizes high-pressure helium, a firing mechanism, and a location-indicating balloon.

Weather-Tight Pet Doors – Engineered double-walled, tight sealing, premium pet doors.

Marine Stereo Cover – Engineered a water and weather resistant accessory that allows a conventional car radio/CD player to be installed into a boat or similar environment.

Coin Roll Cutter – Co-designed a compact device that easily and safely slits coin roll wrappers simplifying removal of shrink-wrapped coins.

Manufacturing Engineering Examples

Involved in the production start-up of over 80 new products.

Vendor qualification – Examined manufacturing facilities and assessed the capabilities of part suppliers in the United States, Taiwan, South Korea, and China.

Developed proprietary molding, bonding, and assembly manufacturing processes.

Manufacturing Tools – Designed assembly and bonding fixtures, as well as inspection gages to increase quality and productivity on production lines.

Laser Testing Apparatus – Engineered a precision alignment mechanism for simultaneously testing 16 fiber-optic laser devices during manufacture.

Patents

15 United States Patents issued:

7,814,956 "Pet Door", October 19, 2010.

7,410,283 "Dental Light Guide", August 12, 2008.

6,733,290 "Dental Illumination Device", May 11, 2004.

6,610,036 "Eye Drop Dispensing System", August 26, 2003.

6,162,234 "Adjustable Button Cinch Anchor Orthopedic Fastener", December 19, 2000.

6,126,677 "Suture Fastener and Instrument", October 03, 2000.

6,125,574 “Fishing Line Fastener”, October 03, 2000.

6,116,573 “Packing System for Valves”, September 12, 2000.

5,964,388 “Coin Roll Wrapper Cutter”, October 12, 1999.

5,806,959 “Illuminated Skate Roller”, September 15, 1998.

5,664,830 “Child Safety Seat Assembly”, September 09, 1997.

5,582,127 “Rescue Device and Method”, December 10, 1996.

5,480,076 “Clothes Hanger with Retractable Arms”, January 02, 1996.

5,174,576 “Portable Golf Practice Mirror”, December 29, 1992.

5,149,034 “Saddle Positioning Device for Bicycles”, September 22, 1992.

Other patents pending.

Personal

Born in Los Angeles, California in 1961.

Mountain Bike Unit - Volunteer, multi-use trail patrol, National Parks Service, California State Parks, 1989-1994.

Mountain bike racing - National Off-Road Bicyclists Association (NORBA).1989-1996.

Motorcycle license - California class M1 license, since 1977.

Automotive - Altered the wheelbase of an early-model Ford Mustang.

First Aid and CPR Certified - American Red Cross, almost continously since 1982.

Adaptive ski instructor - Volunteer, California Handicapped Skiers, 1990-1994.