IN THE UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF ILLINOIS

CALEB BARNETT, et al., Plaintiffs,	Case No. 3:23-cv-209-SPM **designated Lead Case
v.)
KWAME RAOUL, et al., Defendants,)))
DANE HARREL, et al., Plaintiffs,) Case No. 3:23-cv-141-SPM)
V.)
KWAME RAOUL, et al., Defendants,)))
JEREMY W. LANGLEY, et al., Plaintiffs,) Case No. 3:23-cv-192-SPM)
V.)
BRENDAN KELLY, et al., Defendants,)))
FEDERAL FIREARMS LICENSEES OF ILLINOIS, et al., Plaintiffs,	Case No. 3:23-cv-215-SPM)
v.))
JAY ROBERT "J.B." PRITZKER, et al., Defendants.)))

DECLARATION OF JAMES RONKAINEN

- I, James Ronkainen, declare as follows:
- 1. I am at least 18 years old and have personal knowledge of the statements contained in this Declaration.

2. The statements contained in my expert rebuttal report that I authored in this case, dated June 10, 2024, and attached hereto as **Exhibit A**, including any clarifications provided during my subsequent deposition, are true and accurate.

3. If called to testify at trial in this case, I would testify to the matters set forth in my expert report and elaborated on in my sworn deposition testimony provided in the above-captioned cases. My testimony would be consistent with all of the statements in the report and deposition (and any errata sheet), which included a complete statement of all opinions expressed, the basis and reasons for such opinions, the facts and data considered by me in forming said opinions, discussion about and identification of my qualifications as an expert witness (including any publication I may have authored in the previous 10 years and any cases during the previous 4 years where I may have testified as an expert at trial or by deposition), and a statement of compensation paid to me for study and testimony in this matter.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on September 13, 2024 within the United States.

/s/ James Ronkainen
James Ronkainen
Declarant

Rebuttal Report of James Ronkainen

Barnett et al. v. Raoul et al., Case No. 3:23-cv-209-SPM (S.D. of Illinois)

Professional Qualifications and Experience in the Firearms Industry:

I am a mechanical engineer by education and training (BME with honors, University of Minnesota, 1985) with over 39 years of experience in the firearms industry. I am the owner of Boundary Oak Enterprises, LLC, a business I established in 2017 to provide contract firearms design/engineering services with the firearms industry as well as litigation support. Litigation support activities are for firearms and ammunition related court cases, including corporate representative and expert witness services in both state and federal court. My CV is attached to this report.

Prior to establishing Boundary Oak Enterprises, LLC, I was responsible for overseeing ARtype platforms / semiautomatic Modern Sporting Rifle (MSR) new product development at Remington Arms Company, LLC (and its parent company, Remington Outdoor Company, Inc., formerly known as Freedom Group, Inc.) from 2013 to 2016, as the Director of Military/Law Enforcement/Modern Sporting Rifles New Product Development. At that time, Remington owned and I oversaw new product development for the commercial MSR brands Bushmaster, Defense Procurement Manufacturing Services (DPMS), and Advanced Armament Corporation (AAC), in addition to Remington. My teams developed many new and innovative MSR platforms and subsystems such as the DPMS G2 MSR platform, a new 2-stage trigger system, carbon fiber handguards and specialized MSRs for target and competitive shooting sports—all civilian commercial applications.

Before assuming responsibility for commercial MSR New Product Development, I was the Director of Military and Law Enforcement Product Development for Remington from 2008 until 2013. My team was responsible for developing small arms systems to compete for various U.S. governmental agency solicitations and US and foreign military solicitations, including U.S. Special Forces and Army programs.

Before moving into the Director position, I was a firearms design engineer for Remington from 1990 through 2008 with 9 issued U.S. and numerous foreign utility patents. From 1985 to 1990, I was a Field Engineer with DuPont, working at three different locations within the company to gain exposure and experience to different facets of the company. My first Field Engineering assignment, from 1985 through 1986, was with Remington, a wholly owned subsidiary of DuPont at that time.

In the past four years, I have provided testimony in the following matters as either a corporate witness or as a firearms expert:

- Olinick v. Remington, federal district court in Pennsylvania
- Scott v. Remington, federal district court in Alabama

- Clay v. Remington, state court in Alabama
- Teague v. Remington, federal district court in Montana

My compensation rate for the present matter is \$275 /hour for my work on this report, \$375/hour for testimony, and \$150/hour for travel.

Opinions and Bases:

As discussed above, I spent most of my career employed by one of the largest firearms manufacturers in the United States, Remington, working for it and its family of companies/brands. During my time in the firearms industry, demand and sales of commercial MSRs climbed markedly and steadily. Federally licensed firearms manufacturers (FFLs), Remington included, followed this trend and, specifically, the civilian/consumer demand for these lawful products. I was involved in the innovation of the MSR designs that took place at Remington, and at its brands / affiliate companies, Bushmaster and DPMS (and to a lesser extent ACC), entities that focused solely on the manufacture and sale of MSR platform rifles. The MSR platform is a natural fit with the rifle portions of 3-gun competition, target shooting, and for hunting, especially varmints, predators, and, depending on caliber, also big game. Along with suitability for home and self-defense, these shooting activities in turn drove innovation in the MSR marketplace on the manufacturer side, to include developing new features and calibers that offered performance advantages to users of all types and to be customizable to meet personal needs.

Some of the many innovations in MSR design include modifying the gas system design to work reliably with cartridges besides .223 Rem/5.56x45 NATO and .308 Win/7.62x51 NATO. New cartridges such as the high velocity, flat shooting .204 Ruger were adapted to permit the ethical and reliable harvesting of predators and varmints using AR15-type platform MSRs. The .30 Rem AR cartridge was developed to ethically and reliably harvest deer sized big game using AR15-type platform MSRs and the .450 Bushmaster was created as a straight-walled cartridge to meet the requirements of states that do not permit the use of bottlenecked cartridges for taking big game with centerfire rifles. Many of these caliber additions and innovations had the added purpose to serve the demand for use of AR15 and AR10 platform MSRs for self and home defense purposes per the choice of the individual buying the rifle to meet their individual needs. I oversaw firsthand such developments and innovations at Remington and its multiple affiliates/brands that manufactured MSRs (Bushmaster, DPMS, AAC). This innovation occurred to serve the demand that existed in the growing consumer marketplace that relied on MSRs to suit individual persons' needs. We invested millions of dollars and countless hours because of the high demand from the private commercial sector.

Innovations were not limited to only the adaptation of existing MSR platforms for new cartridges, but also included the creation of new MSR platforms that offered functional and performance advantages over prior designs. For instance, the DPMS Gen II reduced the size of

the platform needed for .308 Win/7.62x51 NATO size cartridges from the larger AR10 platform size to something nearer to the AR15 in overall size and weight while not compromising on reliability. The modularity and adaptability of the AR platform was an ideal starting point for manufacturers, like Remington, Bushmaster and DPMS. Our capabilities to design and build such rifles to reliably perform and meet users' expectations was an important factor in the growth of these product lines.

Design innovation was not limited to the creation of new MSR-style platforms, but also included important subsystems within the original AR-based platforms. New trigger groups, handguards, and controls were designed to address perceived performance issues with the existing subsystem designs. Such features can be beneficial to multiple different lawful uses of such rifles, including home and self-defense, competition shooting, and hunting. For example, new 2-stage triggers with better tactile feel and more consistent trigger pull forces enhanced the inherent accuracy of the AR platforms for target and hunting uses. New grip, stock, and handguard designs improved the ergonomics of MSRs, allowing them to be customized to suit the user's specific ergonomic needs, which has performance and reliability advantages for all uses of such firearms, including hunting, sport shooting, and for self or home defense. Stag Arms introduced AR-type platforms designed and made available for left-handed shooters, allowing fired shells to not eject across and toward the left-handed user's face and eyes. The AR-type platform was particularly well suited to innovate and add ambidextrous features, including for the safety mechanism. Gas piston operating systems such as the Remington RGP, Bushmaster ACR, and Adams Arms piston system improved the reliability of MSRs by keeping gunpowder combustion gases out of the upper receiver and bolt group, greatly reducing fouling from combustion gas residue inside these critical components of the operating system. Such innovations enhanced the reliability and safety for the user.

I have reviewed the report of the State's expert, Ms. Allen, who attempts to minimize that rifles are suitably used for defense purposes. E.g., Allen Report ¶¶ 31-36. The innovations and designs discussed above refute that MSRs (including, for example, of my company's brands, Remington/Bushmaster/DPMS), are not suitable or are otherwise not widely chosen for self and home defense use. I was directly involved in analyzing, designing and manufacturing rifles that were well suited for such a personal choice.

I have also reviewed the report submitted by the State's expert, Mr. Klarevas. Mr. Klarevas's suggestion that MSR production volumes did not result in significant quantities of MSRs being produced for the civilian marketplace is wrong. See Klarevas Report pp. 7-21. During my tenure as the Director of MSR New Product Development for Remington, DPMS and Bushmaster, MSR production volumes for lawful sales to civilians stayed robust year over year. ATF AFMER data for DPMS and Bushmaster confirms this point. Overall, the market has been consistent or expanding, not contracting on the whole. It should be noted that manufacturing facility

consolidations affected the continuity of the AFMER data during 2011 for Bushmaster and during 2015 for DPMS as their independent FFLs transitioned to Remington FFLs at the new production facilities.

As a family of companies, with Remington as the head, we reviewed the marketplace and our competitors. Other manufacturers experienced similar growth during this timeframe, which confirmed that this was a market-wide sales expansion and not a phenomenon experienced only by Remington/Bushmaster/DPMS. The AFMER data alone confirms that my companies, e.g., Bushmaster and DPMS, respectively, produced 302,530 and 848,311 for a total of 1,150,841 MSRs during the period for which such data directly attributable to each company was available. Further, after Bushmaster's production facility in Windham, Maine, was closed, production was consolidated with Remington (sometime in or around 2011), hundreds of thousands of "Bushmaster" brand MSRs were manufactured thereafter at Remington's manufacturing facilities in Ilion, New York, during my tenure with the company. These MSRs were produced for sales to law abiding citizens of the United States, not a military entity. DPMS continued to manufacture and sell rifles under its own FFL until approximately 2011 when it was merged with Remington, at which point its FFL was changed to Remington Arms but it conducted business at the same physical address in St. Cloud, Minnesota, hence why DPMS's production was still separately tracked. In approximately 2015, Remington consolidated commercial MSR production for all of their brands/affiliates at a new facility in Huntsville, Alabama, where hundreds of thousands of Remington, Bushmaster, and DPMS brand MSRs were manufactured during and after my tenure with the company. For added perspective, see the chart below regarding a limited segment of Bushmaster and DPMS production for certain years.

	AMFER Production Volumes									
	Bushmaster				DPMS					
			Exported	Exported				Exported	Exported	
	Pistols	Rifles	Pistols	Rifles	Total	Pistols	Rifles	Pistols	Rifles	Total
2007	518	57744	518	471	57273	0	58674	0	405	58269
2008	0	83036	0	449	83036	0	94553	0	0	94553
2009	0	83382	0	4973	83382	0	83129	0	0	83129
2010	103	40679	1	310	40782	0	46891	0	0	46891
2011	0	38057	0	0	38057	0	79557	0	779	78778
2012	NA	NA	NA	NA	NA	0	144220	0	9	144211
2013	NA	NA	NA	NA	NA	0	212920	0	0	212920
2014	NA	NA	NA	NA	NA	0	79118	0	13	79105
2015	NA	NA	NA	NA	NA	0	50475	0	20	50455

While not directly available in the AMFER, Bushmaster brand MSR production continued and increased significantly in 2012 onward, as demand and production increased similar to DPMS's production for these years. As demonstrated in yearly product catalogs, Remington also introduced its own brand's line of MSRs, the R15 and R25, during my tenure. Indeed, scores of other companies besides mine were significantly involved in this consumer MSR marketplace,

including two publicly traded companies, Smith & Wesson and Sturm Ruger, which we viewed as competitors. Numerous other smaller companies are also part of this marketplace.

I too have reviewed the report of the State's expert, Mr. Andrew. Mr. Andrew's suggests that MSRs are a "small fraction of firearms in private possession in the United States[.]" See Andrew Report ¶ 37. This conclusion is contrary to my own personal experience in the manufacture and sale of MSRs in the United States over last two decades. For instance, the product offerings from company's family of brands (Remington, Bushmaster and DPMS) underscore that we had a firm understanding that MSRs were a significant portion of our sales to consumers/civilians. And we knew that we had but a share of the overall firearms market. (See Gun Digests.)

Finally, I have reviewed the report of the State's expert, Mr. Yurgealitis. Yurgealitis and Andrew offer conclusions such as:

- AR and AK type rifles are basically identical copies of military firearms, especially considering the after-market devices that are readily available to firearms owners to enable increased rates of fire. See Yurgealitis Report PP 115-116, 124.
- AR-15s are military-grade weapons designed to be used in war zones. See Andrew Report PP 26-41.
- The AR-15s semi-automatic capabilities, not the automatic capabilities, make it a valuable weapon for deadly war-zone combat. See Andrew Report P 34.

All three conclusions are wrong. While civilian MSRs and military rifles may cosmetically appear similar, there are significant mechanical differences between the platforms due to the end user requirements in each market. Rifles intended for military use are:

- Almost always select-fire (capable of firing semi-automatically (1 trigger pull = 1 shot fired) as well as fully automatically (1 trigger pull = gun fires repeatedly until the trigger is released or the magazine is empty).
- Have an extensive list of specifications and standards from the customer that the firearms must meet related to strength, ability to operate reliably under extreme conditions, accuracy, expected useful life that MSRs for the civilian market are not required to meet.

When and where appropriate, the knowledge and technologies gained designing and testing military/law enforcement rifles can find its way back into commercial/consumer/civilian MSRs. For example, ferritic nitrocarburization—a kind of barrel surface treatment technology—is used to extend the useful life of the gun barrel and improve corrosion protection beyond that offered by standard chrome plating, on military-grade rifles. This surface treatment technology is now used on some high-end commercial MSRs to provide the same benefits to the consumer as those experienced by the soldier. Nickel boron treatment of the bolt carrier group to increase

the time between cleanings without sacrificing reliability is another technology that has found use in certain civilian MSRs. Ambidextrous controls (selector, charging handle, magazine release and bolt release) were all requirements and performance enhancing features from some military grade rifles that are now available for use on civilian MSRs configured for 3-gun competition and also enhance the useability for users who may require different ergonomics. These same benefits enhance the reliability to use such MSRs in defensive circumstances. But these types of enhancements do not make civilian MSRs acceptable for military use. We recognized this at Remington.

Notably, at Remington, we had an entirely separate division devoted to military firearms development and production (Remington Defense) to meet the distinct needs of the separate military market. We did not consider military grade rifles to be MSRs. My design engineers developed firearm designs that were tailored to meet the requirements of solicitations from the U.S. military (Special Forces as well as the larger individual services) and U.S. governmental agencies (e.g., FBI, Secret Service, etc.). The entity developing the solicitation normally provided some advanced notice of its content so that potential respondents could develop products tailored to meet the solicitation's requirements. Using the prerelease information for the solicitation, my teams designed, built, and tested product designs responsive to the solicitation requirements to ensure they met all of the baseline requirements. Once the solicitation was officially released (with a firm due date for delivery), my teams would fine tune the firearm designs to comply with any unanticipated/unannounced changes from the prerelease information. All deliverables for the solicitations had to physically be in the solicitor's possession prior by the stated firm delivery date and time in order to even be considered; late deliveries, regardless of the reason, were not accepted. Deliverables for the solicitation normally included the requested quantity of firearms, a lengthy written proposal, and ammunition, when required.

All Remington Defense production took place in a secured area of the manufacturing facility in Ilion, New York, separated from commercial production, even after all private commercial MSR production was moved to Huntsville, Alabama. Testing of the assembled firearms was done in the Ilion Test Gallery by Remington Defense personnel to ensure testing was conducted to the contract specified standards and so that non-conforming firearms were properly identified for repair. Some larger military contracts required first article testing of the product be conducted in the presence of the government entity. In sum, military grade firearms, which were select fire, are not the same as commercial MSRs. Tellingly, the military did not solicit commercial MSRs, which are semiautomatic.

Materials Reviewed:

- Expert reports of Louis Klarevas, Lucy Allen, Phil Andrew, and James Yurgealitis
- Product catalogs of Remington, Bushmaster, DPMS, and AAC

- Bureau of Alcohol Tobacco and Firearms (BATF) ANNUAL FIREARMS MANUFACTURING AND EXPORT REPORTS (AFMER)
- Gun Digest Annual Editions, 2002 through 2023

Dated: June 10, 2024

/s/ James W. Ronkainen
James W. Ronkainen

JAMES W. RONKAINEN HODGENVILLE, KY

EXPERIENCE:

1/17 - Owner, Chief Engineer

Present Boundary Oak Enterprises, LLC, Hodgenville, KY

Started Boundary Oak Enterprises for the purpose of providing both consulting and contract product design engineering services, primarily for the firearms industry. Provide litigation support for firearms and ammunition related cases, including expert witness.

1/16 - Director, DoD/Military/LE and MSR Product Development

6/16 Remington Arms – Research & Development Center, Huntsville, AL

Directed nine engineers in the development of firearms for Remington Defense, and Modern Sporting Rifles for Bushmaster, DPMS, Remington, and AAC brands for the Remington Outdoor Company, Inc. Mentored teams for technical and program management.

- Transitioned leadership responsibilities to new manager ahead of my retirement from Remington.
- Oversaw the closure, move, cleanup and sale of the Elizabethtown facility for Remington.

12/13 – Director, DoD/Military/LE and MSR Product Development

12/15 Remington Arms – Research & Development Technical Center, Elizabethtown, KY/Ilion, NY/Huntsville, AL

Directed eleven engineers at three locations in the development of firearms for the Remington Defense, and Modern Sporting Rifles for Bushmaster, DPMS, and Remington brands for Remington Outdoor Company, Inc. Mentored teams for technical and program management.

- Led commonization effort to allow use of common parts across all Remington Outdoor Company's Modern Sporting Rifle product lines. Team reviewed 600+ drawings and brought up to current drawing standards.
- Responsible party (RP) for Remington's Elizabethtown site FFL. Responsibilities included filing paperwork with BATFE and accounting for all inventoried items.
- Member of team responsible for quarterly safe gun handling training and certification of all Elizabethtown R&D Center personnel.

3/13- Director, DoD/Military/LE, Advanced Armament Corporation, and MSR Product Development

12/13 Remington Arms – Research & Development Technical Center, Elizabethtown, KY/Lawrenceville, GA/ Ilion, NY

Directed fifteen engineers at three locations in the development of firearms for the Remington Defense, silencers, firearms, and muzzle devices for AAC, and Modern Sporting Rifles for Bushmaster, DPMS, and Remington brands for Remington Outdoor Company, Inc. Mentored teams for technical and program management.

- Assumed responsibility for all Modern Sporting Rifle new product development programs within Remington Outdoor Company.
- Oversaw complex product acceptance testing in support of foreign military contracts won by Remington. Led team to investigate and address root cause of any issues identified in testing.

1/11- Director, DoD/Military/LE and Advanced Armament Corporation Product Development

3/13 Remington Arms – Research & Development Technical Center, Elizabethtown, KY/Lawrenceville, GA

Directed 8 engineers at two locations in the development of firearms for the Remington Defense/Law Enforcement and silencers, firearms, and muzzle devices for AAC for Remington Outdoor Company, Inc. Mentored teams for technical and program management. Programs and accomplishments include:

- Precision Sniper Rifle (PSR), an improved version of the MSR; won USSOCOM's sniper rifle competition.
- Introduced RPDS' discipline to AAC's new product development process. Worked through backlog of late and delayed AAC new product development programs, organizing/culling as needed to support business goals.
- Initiated development of the R10 to compete in the US Army's CSASS program.

11/08 - Director, DoD/Military Products Development

1/11 Remington Arms – Research & Development Technical Center, Elizabethtown, KY/Windham, ME

Built, directed and mentored team of four engineers in development and testing of firearms for DoD and Military Products Division of Remington Arms Company, Inc. and team at Bushmaster Firearms International, Inc. to meet the stringent DoD and Federal Agency performance and safety requirements. Products developed included:

- Modular Sniper Rifle (MSR), a novel multi-caliber sniper rifle platform; won classified SF sniper rifle competition.
- Remington Gas Piston (RGP) carbine rifle, a novel gas piston operated carbine for the US Army's Individual Carbine (IC) competition to replace the M4. *Co-inventor on three patents for this platform.*
- Adaptive Combat Rifle (ACR), a licensed, novel, gas piston carbine design originally developed in conjunction with Bushmaster for the US Army's Individual Carbine (IC) to replace the M4. BFI's ACR design was extensively modified by Remington to reduce weight and improve reliability – ultimately submitted as Remington's candidate for IC competition.
- Wrote and supported creation the technical sections for program proposals submitted for all DoD competitions.
- Co-developed and formalized Remington Product Development System (RPDS) with team to ensure smoother implementation of new product designs into production.
- Received Remington's Golden Trigger Award in recognition for lifetime contributions to Remington firearms product development.

3/98 - Staff Engineer

11/08 Remington Arms - Research & Development Technical Center, Elizabethtown, KY

- Designed 338 Lapua-capable titanium version of the Model 700 for DARPA program.
- Design engineer for VersaMax trigger plate assembly. Reverse engineered and modified competitor's design to avoid patent infringement while maintaining safety and performance. Design responsibility passed to another design teammate upon promotion to Director of DoD/LE Product Development.
- Design engineer and program manager for X-Mark Pro (XMP) and X-Mark Pro Externally Adjustable trigger assembly programs, new-from-scratch trigger assembly designs for Remington's Model 700 and Seven bolt action rifles. Oversaw extensive developmental testing to ensure the safety and performance of this critical rifle component. Worked closely with implementation team to put new design into production.
- Manufacturing engineering consultant in support of KRISS Super V SMG JSSAP program with Gamma Defense and Transformational Defense Industries.
- Program manager and lead mechanical engineer for the Model 700 EtronXTM, a novel electronically initiated firing means for the Model 700 platform. Oversaw extensive developmental testing of the new firearm and ammunition technology to ensure safety, reliability, and performance. *Inventor/co-inventor on four patents for EtronXTM related firearms technology*.
- Develop and track project schedules and budgets for all assigned programs.
- Provided engineering support for litigation related matters.
- Responsible for capital equipment justification, purchase, implementation and training.
- Trained in Six Sigma/Design of Experiments

1/95 - Senior Research Engineer

2/98 Remington Arms - Research and Development Technical Center, Elizabethtown, KY

- Developed and tracked project schedules and budgets for assigned programs.
- Co-developed R&D project status reporting and budget tracking system.
- Led team to develop and implement formal engineering change system for Elizabethtown Technical Center.
- Assistant system administrator for CAD system at Elizabethtown Technical Center.
- Program manager for Model 870 SuperMag. Assisted with developmental testing to ensure safety and performance of new design.

8/90 - Senior Research Engineer

12/94 Remington Arms - Firearms R&D, Ilion, NY

Responsible for design and development of firearms projects, especially bolt action centerfire rifle programs. Specific products designed and developed during this time period include:

- <u>Model 700 DM Family</u> Designed detachable magazine (DM) variant of the Model 700. Design included detachable magazine, bottom metal, stock, and receiver to ensure reliable feeding. Oversaw developmental testing to ensure safety and reliability of the new design. Oversaw implementation of product into production. *Received patent for novel magazine spring design*.
- <u>Model 700 SS</u> Created corrosion resistant version of the Model 700 through material and surface treatment changes to original carbon steel design. Oversaw extensive developmental testing to ensure safety, integrity and reliability of new design. Assisted with implementation of design into production.
- Model 700 VS Implemented lightweight composite stock co-developed with outside vendor for Model 700 Varmint Synthetic
 (VS) rifle to improve accuracy and reducing weight. Oversaw developmental testing to ensure safety and performance of new
 design.
- <u>Model Seven Youth</u> Designed new youth stock for Model Seven for a true youth scaled product offering. Oversaw developmental testing of new design to ensure safety and performance.

3/89 - Field Services Engineer

7/90 E.I. DuPont - Engineering Development Laboratory, Wilmington, DE

Responsible for design, development, and project management of various engineering projects related to advanced composite materials and processing systems for patented LDF™ stretch-formed composites. Developed and executed novel engineering equipment designs, schedules, and budgets for assigned programs.

1/87 - Field Services Engineer

2/89 E.I. DuPont - Imaging Systems Department, Newark, DE

Team member and co-lead design engineer for Cromalin™ CAT toning cassette. Responsible for design and implementation of new product design in manufacturing. Team took new product concept from inception to full production in 11 months. Lead Field Engineer for site.

5/85 - Field Services Engineer

12/86 E.I. DuPont - Remington Arms - Firearms R&D, Ilion, NY

Member of Model 11-87 development team. Responsible for test oversight and drafting. Also was a member of the Model 870 and 7400 Product Improvement Teams.

EDUCATION:

Bachelor of Mechanical Engineering (BME) with Distinction, University of Minnesota, March 1985.

PROFESSIONAL AFFILIATIONS:

American Society of Mechanical Engineers (ASME) – 1984 – present Tau Beta Pi, $MN\alpha$ – 1984 – present National Shooting Sports Foundation (NSSF) – 2019 – present Association of United States Army (AUSA) – 2009 - present

PATENTS:

Co-inventor US patent 5,551,180 "Firearm Bolt Lock Mechanism"
Inventor US patent 5,664,355 "Detachable Ammunition Magazine"
Co-inventor US patent 5,755,056 "Electronic Firearm and Process for Controlling an Electronic Firearm"
Co-inventor US patent 5,806,226 "Bolt Assembly for Electronic Firearm"
Inventor US patent 5,987,798 "Bolt Assembly for Electronic Firearm"
Co-inventor US patent RE38794 "Electronic Firearm and Process for Controlling an Electronic Firearm"
Co-inventor US patent 8,061,260 "Gas Plug Retention and Removal Device"
Co-inventor US patent D661,364 "Gas Block"
Co-inventor US patent 8,539,708 "Barrel Mounting and Retention Mechanism"
Various foreign patents

PUBLICATIONS:

None.