

My name is Charles J. VanAmburgh. I live at 635 Boston Avenue, Bridgeport, Connecticut. At the present time I am employed by The Remington Arms-Union Metallic Cartridge Company as an assistant ballistic engineer. I am 41 years of age, and my education was obtained in grammar school, supplemented by an attendance of four years, 1906-1910, at the Springfield Technical High School, Springfield, Mass. I took a mechanical course there. From that time to date I have specialized in the handling of firearms and ammunition, devoting particular attention to the experimental end of such work. For nine years I was employed at the Springfield Armory in the Experimental Department, having to do with tests and experiments with rifles, revolvers, pistols and machine guns. Such tests consisted in the adjustment of machine guns and other arms and required a minute study of the markings, chamber impressions, breech-block impressions, firing pin impressions, rifling marks and general manifestations found on bullets and fired cases, (shells), used in the different classes of firearms. The purposes of these tests were to determine the causes of mal-functions in firearms and reasons for determining their misbehavior under any and all conditions of firing. During that time I handled and fired many types of firearms, pistols, revolvers and machine guns as made by the Government and as submitted by inventors, and such as were obtained abroad by military representatives and brought to the Springfield Armory and there tested for the purpose of learning any features of

them which might be an improvement or lead to an improvement in the operation and design of the then existing types of weapons used in the various branches of the United States Service, Army, Navy, Marine Corps and National Guard. I was in the employ of the Government at that time as an assistant in the Experimental Department of the Springfield Armory at Springfield, Mass.

During the period of my employment at the Springfield Armory I was detailed on three occasions, one of which was as an inspector of ammunition at the works of the Remington Arms-Union Metallic Cartridge Company, Bridgeport, Conn., and on two occasions as an inspector of pistols and machine guns at the works of the Colts Patent Firearms Company, Hartford, Conn. My experience in such work led to a familiarity with the practice of measuring and gaging of shells, primers, bullets, and all components of small-arms ammunition, and also a familiarity with the methods of measuring and gaging scientifically with the best known instruments of the interiors of rifled arms and the operations employed in the manufacture of the barrels of all small arms as well as other components of rifles, revolvers and pistols.

At the request of the Ordnance Department in Washington, I accepted a permanent detail to Frankfort Arsenal, at Frankfort, in Philadelphia, Pennsylvania. I was there one year and my duties were as an assistant in the proof-house. Such duties consisted of firing to determine pressure, velocity and accuracy of cartridges used in the United States Army rifles, revolvers and pistols, also in making determinations of the ballistics

of powder samples of smokeless powders used in the above United States Army rifles, revolvers and pistols. During that time cartridges of makes other than used by the United States Services were tested to determine their ballistic properties; also firearms of many makes and kinds were submitted for critical examination. One of the arms which was a subject of daily test and observation was the United States Automatic Pistol which was and is made by the Colts Patent Firearms Company.

As my next employment I accepted a position as assistant proof-master with the New England Westinghouse Company at East Springfield, Mass. That company, during the war, was manufacturing rifles for the Russian Government. My specific duties with that company were, in person, making very important ballistic tests and experiments with rifles and cartridges, namely, in ascertaining velocities, pressures and accuracy as well as determining, experimentally, the serviceability and strength of samples of gun barrel steel submitted from time to time by contractors. My general duties were in directing the proof and accuracy testing of the Russian 3-Line Rifle.

During my service with the New England Westinghouse Company, I was transferred from their East Springfield plant to their branch plant in Meriden, Conn., where I had sole charge of the lay-out and testing for proof and accuracy of the Russian 3-Line Rifle.

In January of 1917, because of the fall of the Russian Government, work on the Russian rifle was suspended. The Meriden plant was purchased by the Colts Patent Firearms Company of Hartford, Conn. All buildings, machinery and employes re-

mained and work was taken up for the Colts Company on the United States Machine Rifle, Model 1918. The work on the United States Machine Rifle consisted of designing, testing fixtures and directing tests for pressure proofs of barrels and their accuracy and functioning. I remained with the Colts Company until May, 1918, when I accepted the tender of a commission in the United States Army as an instructor and the rank of Captain, for duty principally at the Small-arms Firing School at Camp Perry, Ohio. My duties as instructor in small-arms firing or marksmanship involved my transfer to various camps, including Camp Dodge, Iowa, training of troops for overseas duty, Camp Benning, Georgia, where I was detailed as an instructor at the School of Musketry. In January of 1919 the activities in marksmanship and musketry training in the United States Army, being no longer of prime importance because of the Armistice of November, 1918, were reduced gradually to a small scale. I was then detailed to the United States Ordnance Department and transferred to the New York Arsenal on Governors Island, New York Harbor. There I was directed to establish and direct a small-arms repair station for the overhauling, cleaning, repairing and packing of rifles, revolvers, automatic pistols and machine guns used during the war activities and then being turned in by units returning from overseas and being hastily demobilized. As a part of my duties while at this latter station I was designated as Small-arms Inspector for the Central Armament District, comprising a district extending from New York to the southern boundaries of Virginia, in which there were seven large training camps in each of which was maintain-

ed an ordnance unit whose duties it was necessary for me to direct and supervise by personal visits from the headquarters at the New York Arsenal.

The small-arms ordnance activities incident to the turning in of demobilized units were pretty well finished by September of 1919, at which time I requested and obtained my discharge from the army, to accept a position with the Remington Arms-U. M. C. Company, of Bridgeport, Conn.

I have remained with the Remington Company from that time to the present. My duties there have consisted of tests and experiments on arms and ammunition of all calibres and types. In connection with these tests it has been practically my daily duty to examine the rifling in the barrels of pistols and revolvers, to examine firing pins and breech blocks of such weapons, actually to fire such weapons with various types of cartridges, not only with our own make, but with that of all foreign and American makes; thereafter to preserve the bullets fired from such arms and the shells from which such bullets were fired, and to make a microscopical examination of the marks on such bullets and shells, and comparing such marks with the markings of the rifling, firing pins and breech blocks of the arms from which such bullets were fired.

It is necessary, in making particular determinations, to observe not only the markings on breech blocks and firing pins of fired shells, but also to observe and note any and all impressions made on the shell surface by any portion of the chamber walls of the barrel, and such scoring, gouging, or cutting as will occur through the action of ejectors, extractor hooks, and

other parts of the mechanism of rifles, revolvers and automatic pistols.

During the past twenty years I have specialized in marksmanship and have participated in many state and national contests. I have won the regimental championship, 5th Massachusetts, three times, the New England Aggregate, consisting of the highest total of all scores fired over a period of five days at the New England Tournament at Wakefield, Massachusetts, in the summer competition of the year 1907; the Pennsylvania Military Championship in August of 1915; second place in the National Championship, Camp Perry, Ohio, 1911. In 1920, I won the Governor's Cup, Camp Perry, Ohio, from a field of 1,400 competitors, comprising the best selected marksmen of the army, navy, marine corps, National Guard and civilian rifle clubs throughout the United States. In January, 1923, I was awarded a Distinguished Marksmans rating and decoration by the United States War Department for excellence in competitive marksmanship extending over the years mentioned.

During the years above set forth I have become familiar by almost daily use, with the examination of guns and ammunition under the microscope, with the use of micrometers and gage-checking instruments, and am familiar with the latest and most modern appliances for making accurate measurements on such arms and ammunition. I am also familiar with the modern methods of photography to record the marks and impressions of the most minute character on such arms and ammunition.

I have had no experience in testifying in court as an expert until called by the Government to testify in the cases of

Commonwealth v. Sacco and Vanzetti, in the court at Dedham in
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