PEDERSEN VERSUS THE UNITED STATES – GREAT EXPECTATIONS DENIED

by Stephen L. Sanetti

Background

In the aftermath of World War I, the U.S. Army Infantry and Cavalry Boards were established in part to investigate the possibility of adapting a self-loading semiautomatic rifle for general use. In 1919, Captain James L. Hatcher (brother of Colonel (later Major General (MG)) Julian S. Hatcher) was instructed by the Ordnance Department to investigate and possibly redesign the Bang Rifle, which had actually been tested before the war. This work proved fruitless, and work on this rifle was discontinued in 1922.[1]

Figure 1. John D. Pedersen with Pedersen Device.

John D. Pedersen was a trained engineer and inventor by profession (Figure 1). Much of his work was done on behalf of Remington, including his design of the Remington Model 10 and Model 17 pump-action shotguns, design of the Remington Model 51 automatic pistol and design of the Remington Model 12 and Model 14 pump action rifles. He designed a .45 caliber pistol for U.S. Navy trials which lost out to the Colt Model 1911 and invented the Pedersen Device (U.S. Pistol Model of 1918) which converted Model 1903 MK1 Springfield rifles to fire .30 caliber pistol cartridges semiautomatically. Thus, he was well-known to Ordnance Department personnel, and in 1923 he entered into a contract with the U.S. government to develop and construct a semiautomatic rifle. This contract was renewed annually and he perpetuated this work until 1931.

Fig 2. John C. Garand.

John C. Garand was a tool and gauge maker for Browne & Sharpe from 1908-1914 and became a foreman and machine designer for the Federal Screw Company (Figure 2). During World War I, he learned of machine gun tests being conducted by the U. S. Army, and in conjunction with the Naval Invention Bureau and the National Bureau of Standards, he created a machine gun which worked on the novel principle of primer setback when fired. Based upon this work, in 1919 he was sent by the Ordnance Department to the Springfield Armory to work on the design and construction of a semiautomatic rifle, with a salary of $3,500 per year. An Armory Shop Operations order specified that "*Mr. Garand will do his own drawing in the Experimental Dept*." He basically worked alone.

In marked contrast to Garand's rather modest annual civil service salary, Pedersen's contract provided him with a $10,000 annual salary and royalties of $1.28 for each of his rifles that might be manufactured.[1] In the beginning of 1924, he was given several rooms in which to work in the New Experimental Department Building at the Springfield Armory, together with a staff of draftsmen and clerical help. He also was furnished with an office and drafting room "like a private suite" set apart from others "to minimize all interruptions and distractions." This was justified by the terms of the contract which also gave Pedersen patent rights to any gun or cartridge he designed, "*and naturally he didn't want anyone looking over his shoulder until he had his patents applied for*."

"It can be understood that any man with such a background would command respect." Major General Julian S. Hatcher

The contrast between the rather generous accommodation provided to the famed John Pedersen versus the image we have of unknown government employee John Garand is marked, to be sure! Nevertheless, both men labored diligently on their respective designs. Throughout the 1920s and 1930s, both men produced and modified their own ingenious rifle designs, as suggested by repeated government tests. The Pedersen rifle took the early lead, as it seemed as though it was destined for early adoption; but its weakest point was its requirement for waxed ammunition to function properly. Ultimately, in 1936, Garand's final design was selected to become the U.S. Rifle, Caliber .30, M1.

What we have just covered is the story that most 20th century U.S. military firearms historians know well. But as in most things, the back story is filled with far more twists and turns, with personal slights and wrongs, real and imagined, replete with dueling inventors and their inventions. Above all, it is the heretofore untold story of John D. Pedersen's twenty years of seeking redress and vindication from the U.S. government's failure to recognize him as he saw himself – the true father of what should have been the M1 rifle insofar as it embodied concepts which he claimed to have invented, and the pecuniary loss which that failure entailed.

Setting the Stage for Conflict – the Battle to Adopt a New Service Rifle

Before Pedersen's employment, John Garand produced two different primer-actuated rifles in 1920 and 1921. Though generally satisfactory, tests conducted by the Ordnance Board suggested certain changes should be made. The portions of the 1921 War Department Requirements of a Semiautomatic Shoulder Rifle salient to this paper specified in part:

"The rifle must be of the self-loading type, adapted to function with the U.S. Cartridge, Caliber .30, Model of 1906." ...

"(d) The rifle must be so designed that the magazine may be fed from clips or chargers…The capacity of the magazine should be not less than five rounds, preferably ten, but not to exceed ten rounds."

Garand's 1921 Rifle embodied these features, being a primer-actuated rifle of .30-'06 caliber with a 10-shot internal magazine fed by conventional stripper clips. He revised this design somewhat in 1924, but it remained essentially the same as his 1921 design.

During this time, when Pedersen learned of the government's interest in development of a self-loading rifle, he was the Chief Designer at Remington. He pondered what in his mind would make the optimal rifle of this type, which included such items as its ideal caliber, operating system, magazine, sights and overall configuration. In a letter written ten years later to his attorney Chester ("Chet") Neal, he stated "*The first clip I hammered out by hand while at the (Remington) factory at Ilion. This was before I came to Springfield to engage in the work for the Government on the 1st of June 1923. This clip is non-reversible and carries the recess and shoulder under discussion*" (This refers to features he later claimed were copied in Garand's clip)

Pedersen then elaborated his ideas of an ideal cartridge for his semiautomatic rifle: "*…the preliminary form of the .276 cartridge. I made those while at Ilion by necking down some old 6mm Lee \] Navy cartridges, shortening them, and inserting pointed bullets from the 7mm Spanish (Mauser) cartridges*." He approached the U.S. Army Bureau of Ordnance in April 1923 with his ideas via an unsolicited proposal to produce a cartridge between .256 and .276 caliber, to be chambered in a conceptual semiautomatic rifle, both of his own design. He was given permission to contact Springfield Armory with his proposal, and after brief negotiations he was awarded his first annual contract of employment with Springfield on May 21, 1923.

Reacting to this proposal to the War Department by Pedersen, the Ordnance Department authorized the construction of an experimental rifle in a caliber smaller than .30. This was made because of excessive heating produced by extended firing of .30 caliber ammunition and weight of ammunition of that caliber. The rifle's caliber was to be near .30 but not less than 7 mm with a muzzle velocity of 2,450 feet per second or greater.

Quoting General Hatcher on this proposal:

"Mr. Pedersen pointed out that many of the difficulties surrounding the designing of a service autoloader would be resolved, or at least greatly reduced, if the cartridge were shorter, lighter, less heating, and had less recoil. He produced some figures indicating that 7mm, or .276-inch was the optimum caliber for a service self-loader. Moreover, he stated that he could produce a self-loader for this caliber that would meet all the characteristics laid down, and in addition be made on a new basic system that was neither gas-operated nor recoil-operated and that avoided the disadvantages of both these systems."

The contract provided desired specifications for a semiautomatic rifle and that "*the United States will furnish the necessary draftsmen, tool maker, and the work of laying out*" the cost of the rifle. It also provided an office, budget, staff, access to all the Armory's development and production facilities, Pedersen's annual salary of $10,000 (almost three times Garand's) and travel allowances, to be paid in monthly installments. It also gave him retained rights "*in any patents disclosed to the United States or any invention he may make, along with an exclusive license to the United Staes to manufacture and use such inventions which must be exercised within 6 months after satisfactory tests, and not later than 12 months after termination of the contractor*."

It further stated that "*this license of THIS ARM* (emphasis added) *to the United States to manufacture upon payment of royalties of $1.25 per gun up to a maximum of $400,000 for patent royalties, whereupon royalties would cease and the license to the inventor would become non-exclusive, meaning he could license its production world-wide*." Finally, it stated "*the name 'Pedersen' shall appear on each arm manufactured UNDER THIS AGREEMENT* (emphasis added). The emphasized language would have critical importance to his claims for remuneration in later years. (It bears repetition at this point that as a civil servant without an advantageous contract such as Pedersen's, Garand enjoyed none of these pecuniary benefits for the design work on his rifles. His sole compensation was his salary)

In 1924, while working on his rifle design, Pedersen worked with Radford Arsenal to develop his first limited production of the .276 Pedersen cartridge for his rifle. It had a relatively short neck, a bullet featuring a hollow nose area under its full metal jacket, and a wax lubricated case body necessitated by the delayed blowback

action of his rifle, which upon firing began to extract the cartridge case while significant chamber pressure remained against the case walls. That year, his contract was renewed under the same terms as his original 1923 contract.

Figure 3. .276 & .30-'06 (right) cartridges.

In 1924, the only items received at Frankford Arsenal from Pedersen were drawings and instructions for production of his experimental .276 cartridges (Figure 3). By March 31, 1925, Pedersen had submitted a complete description of his proposed rifle, as reported in the *Ordnance Digest of Proposed Activities* and was in the process of constructing parts for it. This report contained in part the following language:

'The Pedersen will maintain a much higher rate of fire than (the Garand) because it involves loading with a clip holding ten cartridges, the clip being inserted into the magazine without stripping. When the last cartridge is fired, the entire clip is automatically ejected. On account of the decreased power of the cartridge, it will not readily overheat from rapid fire."

(This excerpt contains what would later become the essence of Pedersen's claims against the United States - the .276 Pedersen cartridge produced by the U.S. government and certain features of the Garand-designed M1 rifle relating to the *en-bloc* clip)

Pedersen's first sample rifle was completed in late 1925 (Figure 4). Because the .276 cartridges were smaller than the .30-'06, ten cartridges in its clip could be loaded all at once instead of five. His first clips had a slanted bottom and could only be inserted into the rifle right side up. Furthermore, the novel breech action of his rifle required that the cartridges be coated with wax to ease their extraction from the rifle when firing. The first of these characteristics could be remedied in time; but waxing of the cartridges was essential to proper function of the design.

However, the Pedersen Rifle was extremely well received. Quoting General Hatcher again:

"It was a very finished-looking article, with all features such as the sights, and so on, worked out to the last detail, and in a form which fitted military requirements better than they ever had before been suited. There was no cut-and-try about the gun. It worked well and looked good."

Meanwhile, John Garand continued his development work on his primer-actuated .30-'06 semiautomatic rifle, which utilized a box magazine. Unfortunately for this design, in 1925, Army Ordnance changed this ammunition from the .30 M1906 cartridge (which contained a fast-burning powder) to the .30 M1 Ball cartridge (which contained a slower burning powder and a crimped-in primer).[14] Tests proved this new ammunition to be incompatible with Garand's design, so back to the drawing board he went.

Throughout 1925, Pedersen's semiautomatic rifle was taking shape (Figure 5). Designed around his proprietary .276 cartridge, it contained a number of novel features such as its delayed blowback toggle operated action and a staggered column double row non-reversable *en-block* clip. By November 1925, it was ready for demonstration. A November 16, 1925, memo from Pedersen to the Commanding Officer of Springfield Armory requested immediate delivery of 1,500 .276 cartridges for testing; which was followed up by a November 23, 1925 memo from Springfield Armory to the Commanding Officer of Frankford Arsenal for 16,500 .276 cartridges by year's end.

On December 14, 1925, The Office of the Chief of Ordnance wrote to the Commanding Officer of Springfield Armory: "*Very pleased with the demonstration of the Pedersen rifle, and it is hoped later to give a demonstration before the Infantry Board. Before this demonstration, this Office has several minor improvements to recommend*." These included modifying the rear sight elevation lock, requesting drawings of it in .30 caliber and observing that a .30 caliber mockup "*would be useful*", and noting that this would again be for demonstration only, not testing.

The next day, a War Department memo which reflected the observations of some members present at the demonstration was sent to the Infantry and Aircraft Armament Division. They included their belief that the cartridge case might need to be redesigned, as it had a short neck which required a bullet of inefficient shape; that the blowback action showed considerable residual gas pressure when firing; and that the rear sight needed a more positive lock and an aperture like that of the M1917 Rifle.

Figure 4. 1st Pedersen Rifle & clip.

Figure 5. Pedersen T1 Rifle.

Figure 6. Early Pedersen ammunition.

On January 7, 1926, Pedersen made a lengthy reply to the Commanding Officer of the Springfield Armory, including his belief that the short case neck was adequate to support the bullet; that the .276 bullet shape was superior and gave better ballistic performance than the .30 caliber; that the cartridge only produced 47,000 psi upon discharge, giving a greater safety factor than the M1903 cartridge; that its blowback action avoided any chance of broken locking lugs; that the slight gas leakage when firing indicated that breech pressure had dropped to a safe level and that the rear sight worked properly.

On May 10,1926 Pedersen's .276 rifle prototype was tested by the Chiefs of the Infantry and Cavalry Boards with highly favorable results, and on May 23, 1926, the Springfield Armory was ordered to produce 20 Pedersen rifles in caliber .276 for further testing.[15] On May 20, 1926, Pedersen filed his patent for hard wax lubricated ammunition, intended to make the cartridge cases more waterproof and to facilitate extraction (Figure 6).

On June 1, 1926, Pedersen's contract was renewed for another year, with the following modification:

"Whereas the semiautomatic shoulder arm delivered under Contract dated 6/1/25 has successfully passed Ordnance functioning tests and was demonstrated before the Infantry and Cavalry Boards: Article I-For one year, he shall actively engage in supervision of work necessary for the construction and

delivery of 10 semiautomatic rifles for extended tests by the Infantry Board and 10 semiautomatic rifles for extended tests by the Cavalry Board, and he shall engage in the improvement of the design of semiautomatic rifles already delivered. Contractor agrees to give his best efforts to complete production of the 20 rifles and to submit an improved design within one year of January 6, 1926."

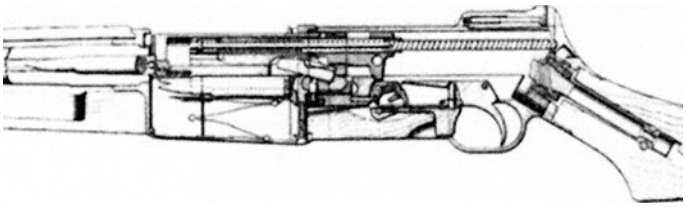

Figure 7. Garand box magazine rifle.

Meanwhile, the Infantry was conducting separate tests in June of 1926 of a Garand .30 caliber primer-actuated rifle, which was essentially his older design of 1921. It still utilized an internal box magazine loaded with 5-shot stripper clips, which the Infantry Board regarded as too slow (Figure 7). "*The magazine used in the Pedersen Rifle is a great improvement and gives superior speed. In view of the favorable results of the Ordnance Tests of the Pedersen Rifle dated May 10, 2026, and the demonstration witnessed by the Infantry Board January 25 to 27, 1926, a through test of this rifle should be made by the Infantry Board before making its final recommendation relative to the adoption of a semiautomatic shoulder rifle.*"

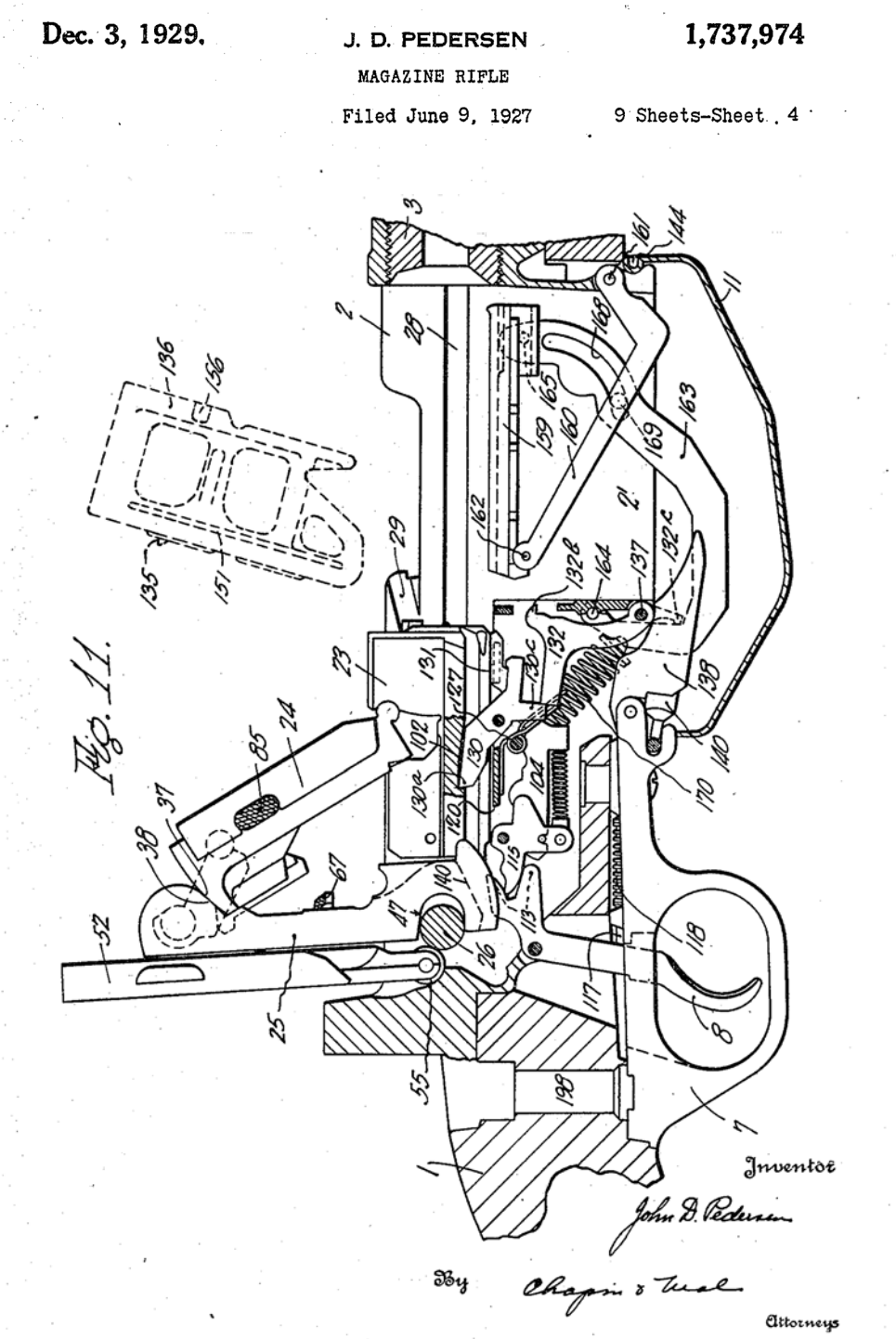

Figure 8. Pedersen patent application drawings (Patent 1,737,974 filed June 9, 1927; awarded December 3, 1929).

The Board's recommendations included:

a. Perfect the Pedersen semiautomatic rifle for test by the Infantry Board as soon as practicable.

b. Correct the objectionable features of the Garand…and have it ready for test by the Infantry Board in comparison with the .276 Pedersen.

c. (omitted)

d. Make a thorough study to determine the best method of charging the magazine of the semiautomatic rifle with the service .30 caliber cartridge as well as with the .276.[8]

Garand must have been dismayed by all the foregoing. Not only did his primer-actuated design not function with the newest .30 caliber ammunition, but the Infantry Board clearly also did not like its conventional stripper clip-fed magazine, nor were they even certain which caliber cartridge around which he should design his next rifle. On July 29, 1926, the Ordnance Committee, considering the Infantry Board report just cited, stated: "*The Committee believes tactical tests are in order to determine…whether caliber .276 or .30 is desired. Recommend construction of one caliber .30 semiautomatic rifle of Garand design*." [9]

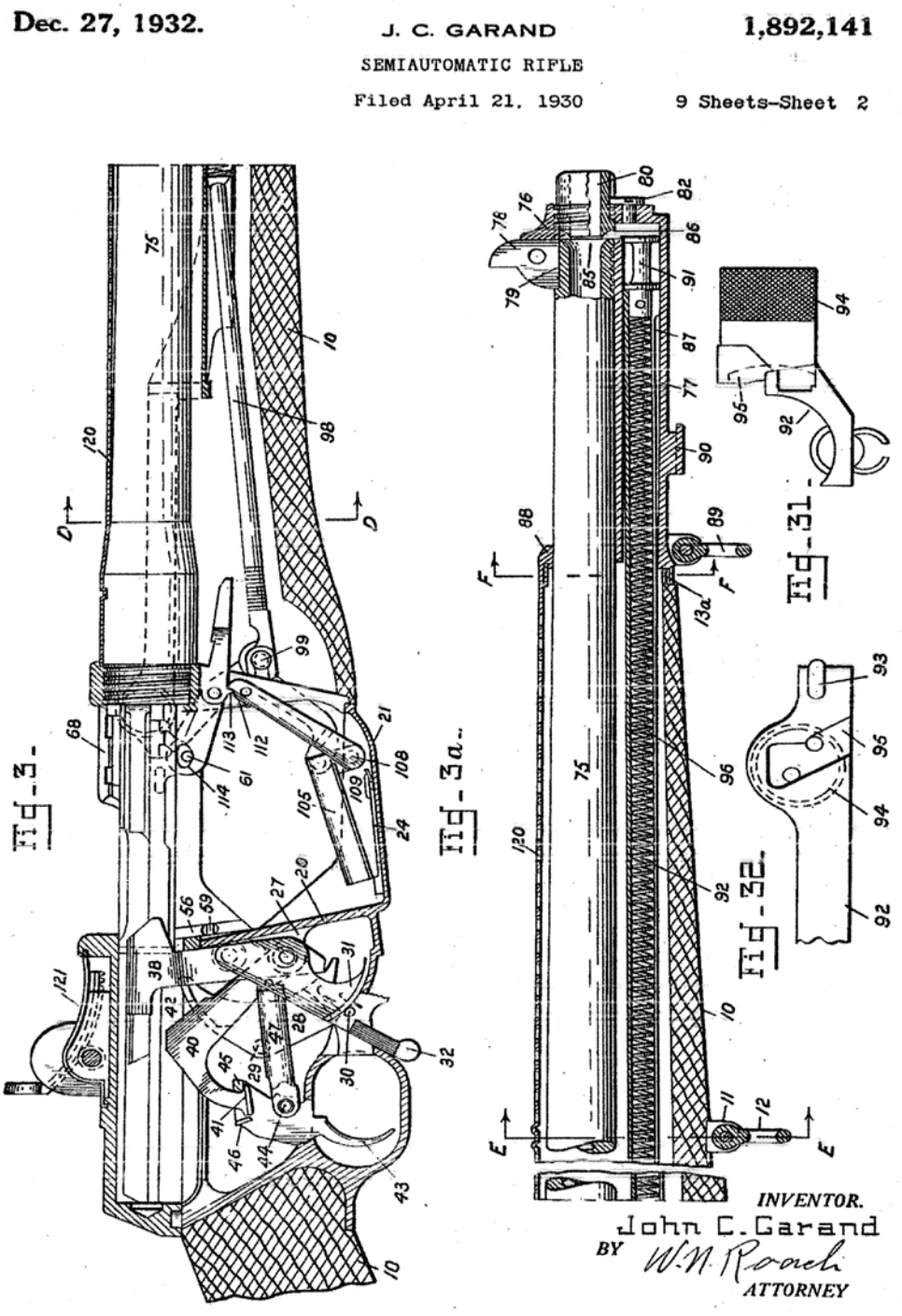

Figure 9. Garand 1st gas operated rifle, U.S. patent 1,892,141 awarded December 27, 1932.

With that reprieve, Garand considered various operating systems before settling on gas operation for his next .30 caliber design and got to work. But the Army had not decided upon its desired caliber, impressed by the .276 but having reservations about the need for lubricated ammunition. Pedersen belatedly filed a patent application for his "Magazine Rifle" on June 9, 1927, with all salient features of his rifle included, well after it had been shown to Army officials and tested favorably by them (Figure 8). The *en-bloc* clip shown in the patent was of non- reversable design. (This patent was granted on December 3, 1929.)

On December 5, 1927, the Ordnance Committee recommended the manufacture of a .276 Garand semiautomatic rifle similar to the one .30 caliber gas operated rifle he had developed at their request. The .276 cartridge case was to be designed, and ammunition test lots to be made, by Frankford Arsenal.

In early 1928, the Semiautomatic Rifle Board was created, testing the .276 Pedersen, the .30 caliber Garand and five other rifles. Both the Infantry and Cavalry Boards recommended the T1E3 Pedersen in caliber .276 to be the new service rifle, while Garand was advised to continue developing a .276 semiautomatic rifle utilizing an *en-bloc* clip. Garand discontinued work on his gas-operated.30 caliber rifle and started work on the manufacture of .276 rifles, using a reversible *en-bloc* clip of his own design, and in many respects developed what would later be adopted as the M1 Rifle, except for its caliber (Figure 9).[11]

Pedersen had taken note of this, of course, and began to voice objections to what he claimed was the misappropriation of his *en-bloc* clip. On April 30, 1928, the Infantry Board reported on additional tests of the Pedersen rifle, favorably commenting on its speed of loading and firing, but was not ready to abandon the .30 caliber cartridge without further tests.

After comparative wounding and ballistics tests of the .276 and .30 caliber cartridges, on September 21, 1928, the Semiautomatic Rifle Board stated: "*It is recommended that a rifle of .276 inch be adopted as the standard caliber for the semiautomatic shoulder rifle to replace the standard shoulder rifle caliber .30, M1903*." And on October 1, 1928, the War Department issued a circular inviting inventors to submit rifles for tests on July 1, 1929, setting forth conditions including "*The rifle must be of a self-loading type adapted to function with cartridges of caliber .276 to be furnished by the Ordnance Department*." Pursuant to this direction, on February 21, 1929, the Ordnance Department was ordered to discontinue development of a .30 caliber Garand rifle because the .276 caliber had been approved. On July 24, 1928, Pedersen's patent application for the .276 cartridge was approved.

Now begin the patent competitions of the inventors and the various claims and counterclaims made by each. Garand filed his first patent application for his rifle and clip (#365,205) under the government Employees Act of April 1928 on May 22, 1929. Pedersen promptly followed suit and filed his patent application on August 2, 1929 (#383,030) under his contract with the War Department.

On July 1, 1929, six guns were submitted for testing by the Semiautomatic Rifle Board. They included submissions by Brauning, Colt, Holek, Thompson, Pedersen, Garand, and Rheinmetall. The .276 Pedersen was the rifle already commented favorably upon by the Infantry Board and recommended for adoption. It had a non-reversible *en-bloc* clip that could only be inserted one way into the rifle, and its retarded blowback action required wax-coated ammunition. The .276 Garand was his gas operated rifle utilizing a 10 shot reversible *en-bloc* clip which could be inserted either side up into the rifle.

While the .276 Pedersen rifle had been recommended for adoption by the Infantry Board in 1928[2], back to the drawing board went Garand, redesigning his rifle for the .276 cartridge in time for the new "Semiautomatic Rifle Board" competitive tests of several rifles in July of 1929. These tests narrowed the field to just Pedersen's and Garand's rifles, and the Board recommended some minor modifications to Garand's submission before re-testing by the Infantry Board at Fort Benning later that year. The Board concluded "*That of the semiautomatic weapons tested by the Board, two of them, the caliber .276 U.S. Model T3 (Garand) and the caliber .276 U.S. Model T1 (Pedersen) are superior to any of the others in general suitability for service use. The points of superiority are:*

U.S. Rifle, Caliber .276, T3 Garand	U.S. Rifle, Caliber .276, T1, Pedersen
Good appearance	Good appearance
Good system of feeding	Good system of feeding
Short receiver	Short receiver
High rate of fire	High rate of fire
Good cooling	Good cooling
Good sights	Good sights
Strong	Strong
10-round clip	10-round clip
Few parts	
Does not require lubricated ammunition	
Easy to dismount	
Within the weight limit"[20]	

"The Board found the Garand to be superior to the Pedersen in the following particulars: it does not require lubricated ammunition; it is lighter; it has fewer parts; it is simpler; it will be easier to manufacture, it has a greater range of power to operate the mechanism, the War Department would not have to pay any royalty." [21]

The Board recommended that its proceedings be referred to the Chief of Ordnance with instructions to proceed with the manufacture of not to exceed twenty Garand semiautomatic rifles T3 caliber .276, and to proceed with the construction of a Garand semiautomatic rifle caliber .30, to weigh not more than 8 3/4 pounds, which, when completed, to be submitted to this Board for consideration. (Recall that work on the .30 caliber Garand had been discontinued on February 21, 1929, in favor of the .276.)

Pedersen's January 3,1930 contract provisions[22] reflect a different relationship with the Ordnance Department, and portions bear setting forth here at length:

"WHEREAS the design and manufacture of an improved type of semiautomatic arm embodying certain necessary or desired changes in the type already delivered was begun under the contract dated August 27, 1928 and the contract dated January 2, 1929, but not completed thereunder.

NOW THEREFORE,

Article I—The Contractor agrees to disclose to the United States the work already done toward inventing, designing, and manufacturing the improved type of semiautomatic shoulder arm to meet such specifications. The United States agrees to supply the contractor with 5,000 cartridges, caliber .276, ceresin wax coated by what is known as the No.2 lubricating process, together with improved parts.

Article II—The Contractor agrees to complete the design and building of the improved type of semiautomatic shoulder arm without further expense to the United States except as provided in Article III and deliver one complete form of said arm not later than December 31, 1930.

Article III—Upon completion…the Contractor shall receive $1,000.

Article IV—The Contractor retains all rights but permits the United States to manufacture THIS ARM (emphasis added) under an exclusive license upon payment of $1.25 per gun up to a maximum of $400,000, but if the United States has not entered routine manufacture by December 31, 2034, the license becomes non-exclusive.

Article V—The name "PEDERSEN" shall appear on each arm manufactured by the United States UNDER THIS AGREEMENT (emphasis added).

Article X—If the Contractor fails to prosecute properly the manufacture or delivery of these articles, the Chief of Ordnance can terminate this contract.

Article XI—The Contractor agrees not to create any liens or encumbrances against the United States under this contract.

Article XII—All disputes are to be referred to the Chief of Ordnance for resolution.

Things were coming to a head. In 1930, Pedersen's contract to produce a semiautomatic rifle was cancelled. The 1931 test report stated that the Garand was" *the best semiautomatic rifle…tested to date", and that "a rifle of caliber .276 is preferrable to one of caliber .30 for use as a basic infantry weapon*." [23]

Figure 10. General Douglas Mac Arthur in 1930's uniform.

The Semiautomatic Rifle Board met in 1932 and again recommended both the caliber of .276 and the Garand rifle as "best meeting military requirements." All that was required at this point would have been for the War Department to approve the report and inform the Ordnance Department to proceed with putting the latest .276 caliber Garand rifle into limited production. But such was not to be. On February 25, 1932, the Adjutant General of the United States, acting upon the personal disapproval of the report by Chief of Staff of the Army Douglas MacArthur, (Figure 10), sent a War Department letter to the Board which included the following language:

"Approval of the action recommended in this caser would seem to definitely commit the American Army to caliber .276. It is not considered that this is wise or desirable. We have already in our war accumulations, as well as our current affairs, committed ourselves to the larger .30 caliber…Make no further obligations with reference to the development of the caliber .276 semiautomatic shoulder rifle…Intensify the effort that is being made on the development of the semiautomatic shoulder rifle caliber .30. This should be accomplished—by immediate mechanical test of the present .30 caliber rifle model…(and) by manufacture of approximately seventy-seven rifles for extended test if warranted by experimental test." [24]

Garand had built exactly one .30 caliber semiautomatic rifle, which had been tested and experienced some parts failure during the 1931 tests. From February to March of 1932, Garand made the required minor changes, and his rifle performed satisfactorily. Accordingly, in March 1932, the order was given to Springfield Armory to produce eighty Garand rifles, to be designated U.S. Semiautomatic Rifle, Caliber .30, T1E2. While they were being manufactured, their designation was formally changed to U.S. Rifle, Caliber .30, M1.

Interestingly, based upon "suggestions" by Army Chief of Staff Douglas MacArthur, the decision to switch to the .276 cartridge was reversed, necessitating Garand to submit his rifle yet again in .30 caliber and undergo additional tests, which ultimately resulted in its formal adaptation as the U.S. Rifle, Caliber .30, M1 in 1936. The battle to adopt the first U.S. semiautomatic rifle for its armed forces finally had been decided—and it would not be the Pedersen.

Pedersen had previously arranged for approximately 200 Pedersen Rifles to be manufactured as sales samples by Vickers-Armstrong in England, but despite his global efforts, no government was sufficiently interested in adapting his rifle for its military. And here is where most discussions of John D. Pedersen usually stop. His story doesn't end there, however. It is beyond the scope of this paper to detail his other business ventures, such as his unsuccessful World War II Irwin-Pedersen manufacturing concern. The remaining content will deal with his claims of government misappropriation of his patent and contract rights for his inventions of the .276 Pedersen Rifle, cartridge, and his *en-bloc* clip over a 20-year period.

Patent Battles – Round One

Let us return to 1929. Attorney Neal had attended a conference with Ordnance Department officials held in Washington in December of 1929, where he made clear that Pedersen's position was that full royalties under his contract would be due on *any* gun employing *any* of Pedersen's patents, including the clip. But the Ordnance Department's view was that, at the time of signature of Pedersen's January 3, 1930 contract, the $1.25 per gun royalty would only be payable for guns embodying Pedersen's *complete* design, with no royalties due for other guns (Garand's, for instance), even though they might employ one or more of Pedersen's patented features, including the clip. But this limiting language was NOT included in Pedersen's contract signed that day, nor any subsequent annual contracts, so Pedersen would be free to claim that what guns would carry the royalty obligation would be determined by the contract as originally written.[25]

Neal stated that no attempt was made to reconcile these conflicting positions at that time of signature of the 1930 contract because there would have been no need to do so if the Pedersen gun was adopted (as they all thought it would be from the tests and favorable comments). However, if the Garand gun was adopted, the danger was that the government could cancel Pedersen's contract and leave him only the right to sue in the Court of Claims for patent infringement or breach of his employment contract. Which is in essence what occurred.

In 1930, patents for both the Garand and Pedersen rifles were granted. Garand's patent was filed for first and granted first. But U.S. patent law at that time awarded priority of invention not to the first to file for or the first to patent, as is the law in the United States today, but to the first to prove he had made the invention ("first to invent"). A month later, Garand filed a new patent application for his reversible *en-bloc* clip and filed a claim for "patent interference" against Pedersen. That is defined as a claim between two inventors when the subject matter of a claim of one party would, if prior art, have anticipated or rendered obvious the subject matter of a claim of the opposing party, and vice versa. In other words, two people claiming the same invention in their patents.

On October 1 of that year, Pedersen filed a new patent application for his own reversible *en-bloc* clip, claiming it covered all of Garand's reversible clip claims. Pedersen would repeatedly state that he was the first to invent the double column *en-bloc* clip with an internal shoulder to properly feed cartridges, and maintained that the main features and novelty of his non-reversible double row *en-bloc* clip were its spring-pressed sides and shoulders near the upper guiding ears.[27] He stated he would establish his priority of invention by way of drawings and notes, and claimed that Garand and the U.S. government simply misappropriated his invention. Garand claimed the two clips were different, and that Pedersen's claim interfered with his patent rights which belonged to the government, setting the stage for almost twenty years of disputes and legal actions.

Pedersen felt certain that he could win the "first to invent" race and thereby invalidate Garand's earlier filed patent under then-current patent law. He based that on his 1923 clip sketches. Furthermore, when his .276 rifle was tested favorably at Forts Riley and Benning in 1927-28, Garand's rifle still used the older 5-shot stripper clip system, and Pedersen claimed to have first seen Garand's double row en-bloc clip sketch in the office of the Chief of Ordnance on January 1, 1928. "*I think that in November or December 1927, certain Ordnance officers instructed Garand to design a rifle using my double row clip*." [28] Pedersen claimed that the shoulders engaging the next to the top cartridge in the clip and its reversible feature, in connection with base grooves for the cartridge rims, were his invented features (Figure 11). In a letter to Neal, he stated that Garand had no conception of a double row *en-bloc* clip until January 1928, and after the prompt by those officers, he simply took Pedersen's clip, made minor variations, and patented it.[29]

On January 29, 1931, in a conference between the Patent Examiner and attorneys for both parties, the original interference claims were dropped, and the main contention of interference became based upon the "holding shoulder" feature of the clip which positioned the next to the top cartridge for feeding. On May 11, 1931, Pedersen's patent claims in Application #491,914 covering a double stack *en-bloc* clip with spring pressed sidewalls were allowed.

On May 22, 1931, the patent interference case was decided in favor of Pedersen by the Patent Examiner. He found that Pedersen's "*conception of invention was on November 22, 1924," "prior to any date of Garand's*," and that Pedersen had made a "successful reduction to practice" of his invention as of May 5, 1926. He further found that Garand had not established his conception of invention prior to July 1926. He also found no concealment or suppression of invention by Pedersen and awarded priority of invention to Pedersen. Garand and the U.S. government appealed this decision to the U.S. Board of Patent Appeals.

Back to the Tests

Meanwhile, the Pedersen rifle had attracted much attention because it was the first semiautomatic rifle which had received a recommendation for adaption by the Infantry Board in 1928, and on that basis the British firm of Vickers-Armstrong became interested in manufacturing this gun. As John Pedersen had retained worldwide patent rights to his rifle under his contract with the government, this was permitted, and he went to England in 1930 to assist with tooling up for their manufacture. In April of 1931, Major Hatcher strongly suggested that Pedersen and his rifles be present for the upcoming tests at Fort Benning, lest Garand win the tests by default, but Pedersen could not be persuaded to attend, even after some delays were occasioned. Ultimately, Vickers-Pedersen manufactured 200 .276 rifles to be used as demonstrators for foreign sales efforts.

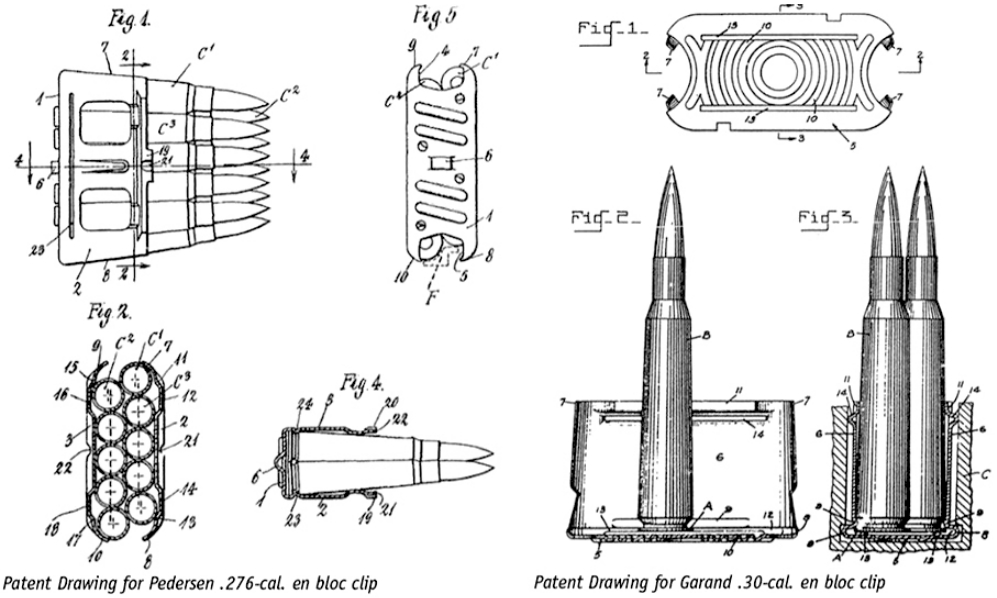

Figure 11. New Pedersen and Garand clips.

In the spring of 1931, twenty Garand .276 rifles were sent to the Infantry and Cavalry Boards for testing, and twenty Pedersen .276 rifles were again submitted for testing alongside them. The Infantry Board results can be summarized as follows: the Garand was the best semiautomatic rifle tested to date, more hits per pound of ammunition were obtained by the Garand, fire superiority was developed more quickly with the Garand, a semiautomatic rifle is a desirable substitute for the bolt action Springfield, gas operation of the mechanism is satisfactory and that caliber .276 was superior to caliber .30 for use in the basic infantry weapon. On August 29, 1931, the Cavalry Board reported similar results and also preferred the .276 caliber over the .30.[30]

The Semiautomatic Rifle Board met yet again between October 9, 1931, to January 4, 1932, and its final report included a comparative study of the Pedersen and Garand .276 semiautomatic rifles. It found that the Garand clip was not perfect, but the Pedersen required lubricated ammunition, had poor trigger pull, and its upward breaking mechanism exposed the rifle to fouling. On that date, the Board's findings were approved, recommending that a semiautomatic rifle would be desirable for adoption and that its caliber should be fixed at .276.

It also concluded that the Garand best met military requirements, that 125 Garand rifles be manufactured for service use for a one-year period and after that period the Board should reconvene with a view to recommending the Garand for final adoption. This essentially eliminated the Pedersen rifle from further consideration. Pending this extended service test of the .276 caliber Garand, parallel development of a .30 caliber semiautomatic rifle was to be continued. Pedersen had claimed that "*I have within the past six months discovered a way to make my rifle handle the .30 caliber US cartridge in a mechanism similar to that of my present rifle. It will be shorter, lighter, have fewer parts, and use unlubricated ammunition…and I can produce one or two models in a year's time*," [31] but no such rifle was ever forthcoming. It would have taken complete redesign and extensive retooling and testing to accomplish this feat.

Patent Battles – Round Two

Meanwhile, the patent struggles continued. In April of 1932, testimony in Garand's interference appeal was taken before the U.S. Board of Patent Appeals. Garand stated that he first made an *en-bloc* clip in early 1926. Major James Hatcher testified that he saw it between January and July of 1926 and that the shoulder on Garand's clip did not act in the same way as the shoulder in the Pedersen clip, as it was not a stop shoulder, and the top cartridge of the lower row was not pressed into the recess below the shoulder. Pedersen's rifle patent, originally filed on November 29, 1930, was granted on July 12, 1932. On May 24, 1933, the Board of Patent Appeals and the Patent Examiner again ruled in Pedersen's favor, formally dissolved all patent interference claims except to determine who first invented the shoulder near the back of the clip. On July 15, 1933, Garand filed an appeal of the adverse decision of the Board of Patent Appeals to the U.S. Court of Customs and Patent Appeals.

Garand's appellate brief filed on December 27, 1934, described how his clip shoulder was struck into the path of the cartridge from the side of his clip; whereas Pedersen's clip shoulder was struck out of the path of cartridge movement. Moreover, Pedersen's patent application was filed three months after his filing and 15 months after he drafted his patent application in August of 1928. Finally, he complained that the Patent Examiner had awarded Pedersen a "date of conception" of his invention of November 11, 1924 and its "reduction to practice" of May 15, 1926 – but Pedersen's first written description of the holding shoulder wasn't until August 2, 1929.

It took over two years to create the tools, fixtures and gauges required to manufacture the M1 Rifle on a volume production basis. In May, 1934, a total of 75 rifles were sent to the Infantry and Cavalry Boards for extended service testing under field conditions, which disclosed the need for additional minor changes. The changes were made, and the rifles were again submitted to the Infantry and Cavalry Boards in May, 1935. In October, 1935, both Boards unanimously recommended its adoption to replace the M1903 Springfield. It was cleared for procurement on November 7, 1935, and its standardization was approved by the Adjutant General as the standard Service Rifle on January 9, 1936.[32]

The Pedersen rifle would have required a total redesign to attempt to create a .30 caliber version, with no guarantees as to how its novel mechanism might function with the substantially more powerful .30 caliber ammunition, or how much time such attempted redesign might take. He could take some consolation in the fact that even though on April 15, 1935, at Garand's request, the U.S. Court of Customs and Patent Appeals reviewed the decision of the U.S. Board of Appeals of the U.S. Patent Office, it affirmed the decision of the Examiner of Interferences, awarding priority of invention to Pedersen on all counts. In particular regarding the clip, the decision held that Pedersen's invention covered "*the side of said clip engaging the lower row of said stack (of cartridges), having a shoulder near its forward edge and below its top edge for abutting the upmost cartridge of said lower row.*"

Another question presented to the Court was "Did Pedersen abandon, suppress, or conceal his invention and thereby forfeit his patent rights as to Garand," since Garand was the first to file for a patent on a substantially similar invention? The Court held that he did not, because there was no evidence that he required his clip be kept confidential during the tests, and no Army personnel were under his direction. He was under contract with the U.S. government, not a co-employee with the Army officers. "It would be absurd to say because the government required that the test be held confidential by Army personnel, that Pedersen concealed and suppressed his invention." Pedersen's May 15 brief in opposition reminded the Court that his clip was disclosed to all participants during the Aberdeen tests before he ever saw a Garand clip.

Garand also argued that the Pedersen non-reversible clip manufactured and tested in May 1926 did not disclose this invention; but Pedersen's contemporaneous drawings disclosed to the Court and photographs of the clips tested did show the described features, according to the Court, and under patent law at that time, mere drawings could be sufficient evidence of invention.

Garand did not claim that Pedersen's clip did not function as described, so witnesses for Garand who so testified could not be considered by the Court in its decision. "*The device must be considered operative, so Garand cannot claim that Pedersen did not disclose an operative device*". The Court of Customs and Patent Appeals concluded "*the drawings and the clip speak for themselves—they embody the invention at issue*." The Garand's petition for rehearing was denied on October 30, 1935.

Upon final conclusion of Garand's unsuccessful claim of interference, the next day, October 31, 1935, saw Pedersen's clip patent #2,017,988 granted. Springfield Armory was so notified, and it seemed that Pedersen was winning the patent war. But he lost the procurement war with the government's formal adoption of the M1 Garand rifle as its service arm on January 9, 1936. And Garand's clip patent was finally awarded in July, 1938.

Pedersen's belief throughout was that since the government had royalty-free control of both Garand and his inventions, it imposed confidentiality on the testing and subsequently (through Garand) charged Pedersen with suppression of his invention, attempting to invalidate his patents, so that the government could use Garand's subsequent invention free of royalties that otherwise would be due to Pedersen under his government contract.

Figure 12. Vickers-Armstrong Pedersen Rifle.

M1 Garand Adopted – No Sales, No Royalties, and Contract Litigation

With the U. S. government's adoption of the Garand rifle as the U.S. Rifle, Caliber .30. M1 in 1936, Pedersen attempted to sell his latest design, as manufactured by the Vickers- Pedersen company in England, to a number of foreign governments (Figure 12). It embodied his reversible *en-bloc* clip and other improvements as suggested by the tests to which it had been subjected. These included The United Kingdom, China and Portugal. It was, however, not adopted by any country with, ironically, Japan showing the most interest prior to rejecting it.

On October 20, 1938, Pedersen wrote the Chief of Ordnance that some of the features of the Garand Rifle were covered by his patents, and formally requested royalties under his 1930 contract for the number of M1 rifles already made. On April 20, 1939, Pedersen's final annual contract with the U.S. government was cancelled effective June 30, 1939, and never renewed. On April 26, 1939, Pedersen again demanded payment and was again refused.

Also in that year, Pedersen offered to the U.S. government yet another rifle, which was virtually his conception of an improved M1 Garand rifle. It was gas operated with a rotating bolt, and one Model GX example used a Pedersen *en-bloc* clip, while the other GY Model was virtually identical to the first but actually utilized an M1 Garand clip! He claimed it to be easier to manufacture than the M1 Garand, but a glance at it seemingly belies that claim. The Ordnance Department looked at it and informed Pedersen that they would not be interested in testing it unless he agreed to pay all expenses occasioned by the manufacture of test guns and pay for the costs of testing it himself. Needless to say, he did not take them up on this offer.

On January 3, 1940, Pedersen submitted four payment vouchers in the amount of $16,280.00 to the Comptroller General of the United States for royalties "*relative to the inventing and designing of an improved semiautomatic shoulder rifle*" (the M1) under his 1930 contract. These royalties were calculated based upon a claim of $1.25 per gun for the 13,024 M1 Rifles manufactured between 1935-1939. They were disallowed by the Comptroller General on January 10, 1940, in a lengthy opinion which can be summarized as follows:

> *"The record shows the rifle designed by you was not adopted by the United States Army as standard equipment, instead, a rifle identified as the M1, semi-automatic, has been accepted and is now considered as standard equipment of the United States Army…and since the semiautomatic rifle designed by you was not approved or accepted by the Government as standard equipment, there is no authority for payment of the amount claimed."* [33]

On April 30, 1940, the Assistant Secretary of War wrote Pedersen that, "*The government is not infringing on any known valid patents…There would therefore be no basis for entering into any royalty agreement*."

On May 6, 1940, Pedersen formally instituted suit No. 45182 in the U.S. Court of Claims for compensation he claimed was due to him under his contract for all 2,500 semiautomatic M1 Garand rifles that had been manufactured subsequent to June 30, 1939, the date the U.S. government cancelled his contract. He claimed that they were "his gun" since they utilized his clip, and further that they violated his employment contract with the government because the name PEDERSEN did not appear on any of "his guns" as required by the contract. The government denied all claims, and litigation ensued.

On May 23, 1940, he formally instituted another suit No. 45196 in the U.S Court of Claims for royalties for alleged breach of his patent license contract for the use of his inventions in all semiautomatic M1 Garand rifles manufactured prior to June 30, 1939, the date of cancellation of his contract. Also in 1940, he founded the Pedersen Arms Corporation and entered into negotiations with the British Purchasing Commission to create facilities for, and to manufacture, 2,000 British No. 4 MK I rifles per day. These negotiations ceased upon the passage of the Lend-Lease Act in March, 1941. Litigation proceeded into discovery during 1941, and his prior settlement proposal was formally rejected by the Secretary of War. An additional offer by Pedersen to settle all his claims for a total of $400,000 was also rejected in 1942.

In 1942, he formed the Irwin-Pedersen Corporation in order to become a contract producer of M1 Carbines and components for the war effort. In 1943, inspired by a patriotic desire not to cost the government time or money during the conflict and to avoid conflicting with his newly-formed Irwin-Pedersen Company's attempt to produce M1 Carbines for the government, he unilaterally proposed that all aspects of the pending litigation should be put on hold for the duration of the war. This request was promptly accepted by the government.

Despite his claim that the M1 Garand rifle was too difficult to produce on a full production basis and his attempt to promote "his" GX and GY versions of the M1 Rifle to demonstrate his production facility, this company failed to produce even a single Irwin-Pedersen M1 Carbine acceptable to the Ordnance Department, out of a total of over 2,500 produced by 1943.

With the end of the war in 1945, his litigation against the United States resumed. The two lawsuits were consolidated on June 14, 1946. The Commissioner of the U.S. Court of Claims reported his preliminary findings on January 14, 1947, holding that none of Pedersen's rifle patents had been infringed, but some aspects of the Pedersen clip were infringed by Garand. The parties agreed to defer presentation on the amount of damages pending final determination of the issues of patent validity and infringement.[34]

On February 11, 1947, Pedersen filed exceptions to the Commissioner's Report and requested additional findings of fact regarding his earlier invention of the Pedersen Rifle. Garand in turn also requested additional findings of fact on February 27, 1947, to the effect that the Pedersen rifle was not used when the government adopted the M1 rifle, a totally different gun with a completely different operating mechanism, and that Pedersen's clip was anticipated by prior art and not the type used by Garand. The cases then proceeded to briefing and a formal trial before the full U.S. Court of Claims.

On October 6, 1947, the Court found as follows:

- Pedersen did not invent the symmetrical or reversible clip
- Neither did he invent a movable follower to position cartridges
- The relevant claims of his patent were invalid for want of invention
- The Pedersen Rifle was NOT adopted by the Army

- The M1 Garand rifle which was adopted was NOT the Pedersen Rifle in appearance, structure, operation, or in any validly patented detail
- Pedersen was not entitled to recover either royalties under his contract, or compensation for the use of his patented inventions

The Court concluded:

> *"We think that the evidence shows that the plaintiff designed and constructed an excellent rifle which probably would have been adopted by the Army if the Garand Rifle had not appeared about the same time and seemed preferrable to the Army. But since it did seem to the Army to be a preferrable weapon, it was the duty of the Army, and no violation of the plaintiff's rights, to adopt and use it. The plaintiff's petitions will be dismissed."* [35]

So Pedersen lost on all counts and ultimately appealed to the U.S. Supreme Court, filing a Petition for a Writ of Certiorari on January 6, 1948. One of the questions he put to the Court was, "*Can the Court of Claims, by disregarding all evidence of invention, in effect just seize the petitioner's inventions for public use, without just compensation?*" [36]

His Petition for Certiorari was denied without comment by the Supreme Court on March 15, 1948.[37] Thus ended twenty years of heated dispute over with which rifle we would fight the next world war and beyond, and who was its actual inventor. It must have been most disappointing to Pedersen to have had the Court of Claims first hold that his patents were indeed valid, only to have their applicability later denied by the same court as irrelevant for "want of invention." It is clear that the two rifles are substantially different in operation, yet it is similarly clear that the Army liked Pedersen's *en-bloc* clip concept, and it can be argued that it at least pointed the way toward Garand's successful application of the concept.

Figure 13. Pedersen Rifle with action open and toggle up.

Conclusion

Patent and contract issues aside, it is a perennially interesting question whether the Army chose the correct rifle, choice of caliber aside. The M1 Garand Rifle certainly proved itself in both the field and the factory – it was indeed manufacturable, as shown by the over 4.5 million M1's produced by the Springfield Armory alone during the war. The *en-bloc* clip favored by the Army and utilized in both designs had both advocates and detractors. The necessity of waxed ammunition weighed considerably against the Pedersen, the excessive heat experienced in the tropical conditions of the Pacific battles adding to the questionability of these cartridges. A bigger consideration would be the exposed condition of the complex Pedersen toggle action when locked open, as it would be every time a magazine was emptied and ejected (Figure 13). One can imagine the unfortunate circumstances of a soldier or Marine who had just dropped or exposed his rifle to sand, mud, snow or all manner of debris introduced into the many intricate internal surfaces of Pedersen's action. As no nation ever adopted any version of the Pedersen rifle, we will never know how it would have performed under actual combat conditions.

Figure 14. Pedersen in later life.

John D. Pedersen (Figure 14) died of a heart attack while traveling in 1951, just three years after the litigation ended. His star was bright in his earlier career when he designed many successful

firearms for Remington, and the U.S. Army adopted his Pedersen Device to convert Springfield Model 1903 Rifles to semiautomatic operation in 1918. He was considered by many to be the premier American firearms designer after John Browning passed away in 1926, but his Pedersen .276 Rifle came out second best to the M1 Garand, and he never seemed to accept that. Indeed, his initial red carpet treatment at Springfield Armory and the later souring of that relationship, his failure to get his rifle adopted by any nation, the government's refusal to pay him royalties for what he claimed were his inventions, his resorting to claiming the M1 Rifle was actually "his" design and his subsequent failures in his sales and manufacturing endeavors, reveal a trail of great expectations of a gifted inventor that were never fully realized.

Acknowledgements

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