

## The Thompson Sub-Machine Gun

*By Peter Antill*



Model M1928 (with what seems to be a Russian-made drum magazine!). Courtesy of Bill Gibson,

### Overview

This weapon, designed by John T. Thompson, was the original 'gangster gun' (and had nicknames such as the 'Chicago Typewriter' and 'The Chopper'), rising to fame during the 'Roaring' Twenties and used by such notables as Al Capone and John Dillinger. Originally it operated a form of blowback system, fired the .45 ACP cartridge and had a 50- or 100-round drum magazine but was modified over the course of its life. While one of the first firearms in Auxiliary Unit service, over time, many were replaced by the Sten Gun.

### History

The Thompson SMG, made famous through its widespread use during the Prohibition Era in the United States (the 'Roaring '20s), was invented in 1919 by John T. Thompson (1860 - 1940). In 1904, Thompson and Col. Louis A. LaGarde conducted tests to find the most appropriate calibre for handgun ammunition. These tests included firing rounds into live cattle at slaughterhouses and human cadavers from medical schools. They found that larger, slower velocity ammunition caused more damage than higher velocity, smaller calibres and so helped develop the .45 ACP rimless cartridge, which was adopted first, in the Colt M1911 semi-automatic pistol designed by John Browning and eventually, in the Thompson SMG.

It was during Thompson's career in the military, around the time of the Spanish-American War (1898) that he met 2nd Lt. John H. Parker, who had learned that Thompson's unit, based in Tampa, Florida, had fifteen Gatling guns with no orders as to how they were to be deployed. Parker not only wanted to use them in the war, but also planned to create a new Gatling gun detachment and prove the effectiveness of rapid-fire weapons (an ambitious undertaking, given that the US Army had been reluctant to even upgrade its antique single-shot Springfield rifle).

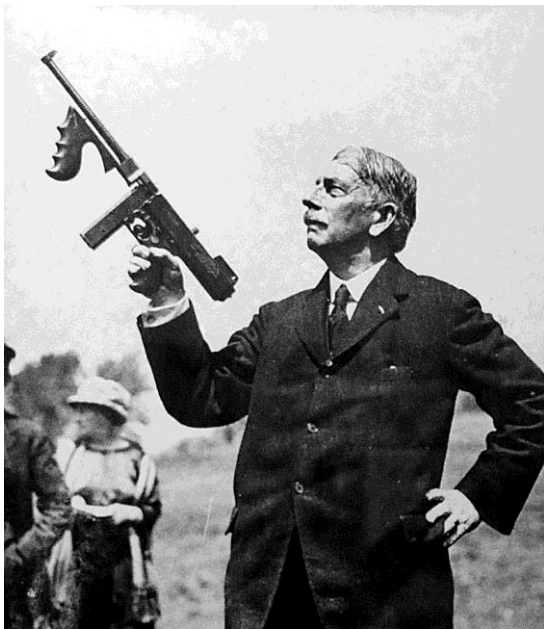
Thompson was very receptive to Parker's idea and not only gave him the guns but a large supply of ammunition. Parker went onto make a name for himself at the Battle of San Juan Hill but Thompson decided to try and correct the sorry state of American small arms. He was the first Army Ordnance Department officer to recognise the need for fully automatic pistols and rifles. As the years went by, Thompson grew tired of fighting the Army about the need to adopt automatic weapons, so he surprised everyone and retired in 1914, on the eve of the Great War. He took a job at the Remington Arms Corporation managing the construction of the world's largest rifle factory at Eddystone, Pennsylvania, built to support the war in Europe. At its height, it produced 2,000 rifles a day. These included the .303in Pattern 1914 Enfield for the British Army and the 7.62mm Mosin Nagant rifle for the Russian Army.

With success in managing the Eddystone Factory, Thompson decided to continue his quest for a fully automatic weapon, attempting to design and build a weapon in his spare time, using his own capital and then submit it to the Army as a civilian inventor. Thompson hoped that his weapon would not only shorten the war in Europe but also earn him a lot of money. There were three main designs at the time, none of which quite met his requirements. The recoil system was mainly used in medium and heavy machineguns, however, there were many moving parts and reliability could be a problem. The gas system had the same drawbacks as the recoil system but whereas in the recoil system, it is the barrel's rearward movement that cycles the weapon, in the gas system a hole is tapped in the barrel which bleeds gas off after a round is fired, to drive a piston that cycles the system. The third design is the blowback system, mainly used in semi-automatic handguns and relies on the propellant gas pressure to literally 'blow' the bolt rearward. This action powers the sequence of ejecting the spent cartridge and chambering a new one. This type of weapon is pretty simple as they do not have a locking breech, but depend on the forward inertia of a heavy bolt, driven by a recoil spring, to keep the breech closed at the point of maximum pressure. Such a system would seem to be ideal for a lightweight, fully automatic weapon due to the lack of moving parts, reliability and its simplicity, but in practice it's only usable with low-powered pistol ammunition, as high-powered rifle ammunition creates very high chamber pressures, overcoming the inertia in the bolt and blowing it back prematurely.

To build a personal sub-machinegun, Thompson had to find a way of making a simple but effective breech lock. For over a year, this technical problem was insurmountable, until he came across Patent No. 1,131,319 at the US Patent Office - "A Breech Closure for Firearms", granted to a retired US Navy Commander, John B. Blish. The 'Blish Lock' was a breech locking mechanism that could be used with a blowback system. It delayed the blowback of the bolt until the chamber pressure had dropped to an acceptable level. Thompson could now produce his gun - he had realised that few would accept a pure blowback system and it would help sales to say that the Blish Lock held the chamber closed until pressure dropped to a safe level. The design came from the observations Blish had on large naval guns, where guns firing relatively light charges tended to have their breech blocks unscrew and fly open, while those that had relatively large charges tended to remain shut. Blish concluded that certain metals had a tendency to adhere to each other when subjected to very high pressure, with a force that was greater than just normal friction. This principle of metal adherence has since become known as the Blish Principle. In late 1915, Thompson contacted Blish, who was excited to learn about Thompson's work and was positive that the lock would be suitable. Thompson worked out an arrangement where he would use the lock in exchange for a percentage of stock in the company Thompson was planning to start. Thompson found financial backing for his company from the Tobacco tycoon, Thomas F. Ryan and in 1916,

Auto Ordnance Corporation was founded. Ryan was given a controlling interest in the company with around 18,000 out of 40,000 shares, while Blish was given 1,500 for the use of his patent and another 10,000 divided up amongst Thompson's family.

Theodore H. Eickhoff and George E. Goll joined the company, which initially had to contract out all of the prototypes and machine work to a company Thompson knew, the Warner & Swasey Co. Eventually, AOC moved into office space in the Meriam Building on Euclid Avenue, Cleveland, Ohio and the machining operations at the Sabin Machine Company on Carnegie Avenue. With over a year of testing, it was found that the lock would only work with the .45 ACP round and so dropping the idea of an automatic rifle (in 30-06), Thompson decided to concentrate on a small, lightweight, personal machinegun and by the summer 1918, all the major design difficulties had been solved. The Annihilator I as it was codenamed could empty a 20-round magazine in less than a second but the first shipment of prototypes destined for Europe arrived at the docks in New York City on 11 November 1918. With the First World War effectively over, what would the company do? In 1919, Thompson gave the company the mission of adapting the weapon for non-military applications. Thompson also wanted to call the weapon something that would distinguish it from its larger, more cumbersome brethren. They considered the names 'autogun' and 'machine pistol' (a name that would find favour in later years) but finally chose 'sub-machinegun'. At a meeting of the AOC Board of Directors, the weapon was officially classified as a sub-machinegun and to honour the man responsible for its creation, it was named the Thompson Sub-Machine gun.



Thompson with his new gun. (Jamie C)

With hostilities over, the company realised that significant sales to the military were unlikely, but they continued nonetheless to try and attract both the US Army and the US Navy, hoping that the weapon would be accepted as standard issue. The first public demonstration of the weapon was in August 1920 at the National Matches held in Camp Perry, Ohio and everyone who saw it was amazed at its rate of fire - 1,500 rounds per minute, emptying a drum of 100 rounds in about four seconds. Pleased with the public reaction to the new sub-machinegun, Thompson approached the Colt Firearms Co. with a proposal to manufacture it under license.

Thompson hoped that the Colt name, along with its ties to the military, would help get it accepted into service. However, the unexpected happened - Colt was so impressed with the weapon after a thorough evaluation, it offered to purchase all the rights to the weapon for a cool \$1,000,000. However, Ryan advised that if the weapon was worth one million dollars to Colt, it was worth more than that to AOC. The Colt offer was rejected and a contract signed for the production of 15,000 firing mechanisms (\$680,705) as well as spare parts (\$9,105). Contracts were also signed with the Remington Arms Co. for walnut butt stocks, pistol grips and foregrips (\$65,456) and the Lyman Gun Sight Corporation for adjustable sights (\$69,063) and after 1926, the Cutts Compensator. AOC then shut down its R&D operation in Cleveland and moved it to a rented building on Colt's grounds to oversee production. The first guns came off the production line towards the end of March 1921. These weapons were given to AOC salesmen and demonstrated to the US Army and US Marine Corps, as well as various armed forces across Europe. Despite an enthusiastic response, initial sales were low. The weapon was clearly ahead of its time, but unfortunately, most of the major powers were seeking a peace dividend and were substantially reducing their defence spending, leaving tight budgets that gave little room to buy semi-experimental weapons with no combat record. Even the US Army was more disposed to ignore the bargain-basement price of \$225 and pay \$650 for a Lewis Gun.

Given this low demand, AOC refocused their efforts on Local and State Law Enforcement. They took advantage of the public's concern over gangsters who would 'hit-and-run' - robbing a bank then driving away as quickly as possible, often exchanging gunfire with the Police. A number were also bought by the IRA (around 500) in 1921. Even with sales to the Police Departments of New York City, Boston and San Francisco as well as the State Police of Pennsylvania, Massachusetts, West Virginia, Connecticut and Michigan, sales to this sector were still lower than expected. With just over 3,000 units sold by 1925, AOC resorted to advertising the Thompson sub-machinegun as the solution to most of the problems one would need a firearm to solve. It is hard to believe, but in those days, almost anyone could purchase such a weapon if they had \$225, either by mail order or popping into a gun shop or sporting goods store. In fact, it wouldn't be until 1934 that machineguns and various other classes of firearms or accessories, such as suppressors, short-barrelled rifles and shotguns were placed under strict Federal regulation with the National Firearms Act (NFA). In the meantime, AOC quickly became aware of the damage these weapons could do if they got into the wrong hands and so formulated an agreement with its dealers to restrict sales to only those parties that were on the right side of the law. Unfortunately, not all of its dealers abided with this agreement. Stepping back a bit, a major turning point in American history is 16 January 1920 which saw the enactment of the Volstead Act, whereby the US Government banned the import, manufacture and sale of alcoholic drinks. Criminals quickly realised the profit potential of providing the public with the alcohol it craved, bringing them into direct conflict with local, state and federal law enforcement. It also provided a foundation for the establishment of organised crime in the USA. To protect their operations, the gangsters bought the Thompson sub-machinegun and eventually, a number of gangsters became associated with the weapon, such as Al Capone, John Dillinger and 'Machine Gun' Kelly. It is interesting that, even though the Thompson could be sold to anyone on the open market, they commanded high prices in the criminal underworld, commanding anywhere between \$1,000 and \$2,000 apiece, probably due to the crackdown on unscrupulous dealers.

Ironically, it was about this time that the Thompson was finally accepted for service by an official branch of the United States Armed Forces. The US Coast Guard began issuing weapons to patrols sailing off the East Coast while the US Post Office bought a consignment

to equip the US Marines protecting the mail trucks which were frequent targets for heists. In 1927, these same guns were used by the US Marines in the jungles of Nicaragua, so successfully that the Corps bought another 200. The popularity of the Thompson and its usefulness in close quarter fighting led the Corps to adopt the Thompson in 1930, years ahead of the Army. In 1928, the Navy re-evaluated the weapon and decided to adopt it on their gunboats, if the company addressed two issues - the rate of fire (which was judged to be too high) and the vertical foregrip (which was judged to be too delicate for service use and would complicate training as none of their other weapons featured a foregrip). The company responded and replaced the vertical foregrip with a straight horizontal one, while reducing the strength of the spring and increasing the weight of the actuator, thus dropping the rate of fire down to about 600 rounds per minute. The new Navy model was designated the 'US Navy Model of 1928', the number 8 being stamped over the 1 on the Model 1921 guns that were converted. Finally, in March 1932, AOC finally managed to persuade the US Army to adopt their weapon as a 'non-essential limited procurement' for use in armoured vehicles belonging to the cavalry. This was upgraded in 1936 from 'limited' to 'standard' and in 1938 it received an official designation of 'Submachine Gun, Caliber .45 M1928A1'. Although the Army orders were important for AOC, they were only small - the company still had 4,000 of the original 15,000 guns in stock and AOC was in trouble financially. By 1939, things were looking bleak for AOC, with a power struggle to gain control of the company resulting in a change of management and sales of the weapon continuing to be sluggish.



A Thompson M1928 (above) and an M1A1 below (Author's Collection).

All this was about to change however, with first, Germany's invasion of Poland on 1 September 1939 and second, the British and French declaration of war on 3 September. This led to the French placing an order for 3,000 units on 1 November 1939 (worth \$750,000) and the British making enquiries over a similar order. This would mean AOC could finally sell off their remaining inventory of Colt-manufactured weapons but would also mean them having to make new ones. They tried to interest Colt but the company were fully committed to making other weapons (such as the Browning Automatic Rifle) and had not forgotten the bad publicity that had come from all those Thompsons, with the Colt logo on them, winding up in the hands of gangsters, and so turned down the offer. AOC then signed a contract with the Savage Arms Company of Utica, NY. Very soon, the war created an overwhelming demand for sub-machineguns, fuelled by the large-scale use of such weapons as the

Maschinen Pistole (MP) 38 and 40 by the Wehrmacht during the early campaigns. Between February and December 1940, the company received orders from France for another 3,000 units (March), from the US Army for 20,450 (December) and a total of thirteen orders from the UK for a total of 107,500 weapons (totalling \$21,502,758). Knowing that the demand would only increase, AOC leased an old brake relining plant in Bridgeport, Connecticut in August 1940. Converting it to produce Thompsons, the first weapons started rolling off the production lines a year later (August 1941) just in time for a massive order from the US Army for 319,000 guns. In fact, AOC only built the upper and lower receivers and assembled the weapons at Bridgeport, all the other components were manufactured by sub-contractors, including Savage Arms. By February 1942, AOC had delivered its 500,000th weapon. By the summer of that year, the combined output from both AOC's and Savage's plants totalled 90,000 guns per month. By the time production stopped in late 1944 (to make way for the M3 and M3A1 sub-machineguns) over 1,750,000 Thompsons had been produced, with spare parts to make an estimated 250,000 weapons. Most of these were made at the Savage facility (approximately 1,250,000) which can be identified as they have an 'S' prefix before the serial number on the left side of the upper receiver, compared to the 'A.O.' prefix on the weapons coming from AOC's Bridgeport plant.



A Corporal in the East Surrey Regiment, 1940. (By War Office Official Photographer Mr Puttnam. This is photograph H5680 from the collections of the Imperial War Museum

After the start of the Second World War, the US Army finally realised that it needed a sub-machinegun and that, in reality, the Thompson was already approaching obsolescence. When compared to other SMGs, such as the MP38 and 40, it was heavier, harder to mass-produce and more costly, but it did have one enormous advantage - it was the only such weapon being mass-produced in any Allied country. While the US Government started to look around at alternatives that could be made faster and cheaper, the Thompson, to give it credit, evolved. The weapon had already changed once, from the M1928 to the M1928A1, the version bought by the US Navy. However, more was to come. The finely machined Lyman sight was removed and replaced by a simple L-shaped battle sight, later protected by 'ears' to stop it snagging on soldiers' uniforms and equipment. Then, the fancy checkering on the fire selector, safety switch and the actuator knob was removed, as were the finely finished barrel fins. Savage however, went even further. They took out the Blish lock (which incidentally,



had proven to be unnecessary in a sub-machinegun) and converted it to a straight blowback design. This removed the need for the separate Actuator and 'H' piece, and allowed the cocking handle to be mounted directly on the bolt, moving from the top of the weapon to the right-hand side. Other changes were made that meant the buttstock was permanently attached to the receiver, both the 50-round and 100-round drum magazines could no longer be used and the Cutt's compensator was removed. The new weapon was designated the Submachine Gun, Caliber .45, M1 in April 1942. In October 1942, even this version was simplified again, with the M1A1 having the firing pin and hammer removed and in its place, a fixed firing pin was machined into the face of the bolt. To replace the 50-round drum magazine, a 30-round box magazine was introduced. As a measure of these changes, the M1A1 could be produced in half the time of an M1928A1 and at almost a quarter of the cost. The M1928A1 cost \$209 each, the M1 cost \$70 while the M1A1 cost \$45. The weapon that supplanted it, the M3, cost even less.

The main users of the Thompson during the Second World War, were, in the European Theatre, the British, American and Canadian forces, primarily airborne, commando and ranger units but were also used in other units such as armour, artillery and the infantry, mainly for NCOs and patrol leaders. In the Pacific Theatre, the Australian and British Armies used the Thompson initially but difficulties in obtaining ammunition led the Australians to gradually move over to the Owen and Austen SMGs, although it was still used in large numbers by the US Army and US Marine Corps, even after the introduction of the Browning Automatic Rifle (BAR). While in later years, it was substantially replaced by the Sten Gun in regular army use, the first contract was signed on 1 February 1940 for the first 100,000 weapons.



PM Winston Churchill with a Thompson SMG, 1940 (courtesy of The National Archives, CN 11/6)

The Auxiliary Units were first issued with the Thompson SMG, upon their formation from July 1940 on. All the known and authenticated Thompsons owned by Aux Units were built by Savage and numbered between 35,000 and 60,000. Personnel from RSAF

Enfield were at Savage inspecting the guns destined for the UK and stamped their marks (a broad arrow above the Royal Crown, an examiner's number and 'E' denoting the Enfield Inspectorate) on the right of the body, forward of the magazine cut out. British Thompsons generally have the butt swivel relocated from the bottom to the top and guns with a vertical pistol grip have a SMLE swivel and bracket to either the left or right side, while later weapons with a horizontal foregrip again have the swivel relocated to the left or right. Often, the two lugs of the bronze Blish lock were removed to reduce friction in the bolt assembly operating in, for example, desert dust. Many imported Thompsons were fitted into wood transit boxes, shortened versions of boxes used to store the Bren / Vickers / Lewis machineguns. These boxes had provision for 4 x 20 rd. box magazines, 3 x 50 rd. Drum magazines, the detached buttstock, a cleaning rod retained by leather loops in the lid, a spares box, oil can etc. Comb jointed corners with turn buckle fasteners and heavy hinges, these were deemed to be the best way to store the gun in the Auxiliary Units' Operating Bases (OBs). The gun serial number preceded by "S" for Savage was stamped inside the lid.

The Second World War bred a huge number of sub-machinegun designs, including the Russian PPSH-41 and PPS-43, the American Reising Models 50 and 55, the Japanese Type 100, the French MAS Model 1938, the Australian Owen and Austen Guns and the ubiquitous British Sten Gun. Many of these, including the Thompson, saw combat not only in the Second World War, but in the wars of the Cold War era, including the Chinese Civil War, Korea, Indochina, Vietnam, the Arab-Israeli Wars, and Indonesia. It has also been used in a variety of conflicts since the end of the Cold War, including the war in the former Yugoslavia.

#### Specification (M1)

Calibre: .45 ACP  
Length: 813mm (32in)  
Length of Barrel: 267mm (10.5in)  
Weight Loaded: 4.74kg (10.45lbs)  
Magazine: 20 or 30-round box  
Rate of Fire: 700rpm  
Muzzle Velocity: 280mps (920fps)

#### References

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Final Note: Although generally held in high regard, especially with regard to the mass-produced metal SMGs like the Sten Gun, the Thompson M1928 came lowest in a trial conducted by the US Army in January 1942. Several guns were trialed, and tested for accuracy, simplicity, reliability and weight and then awarded marks out of 100. The Thompson M1928 scored 57, the Hyde (an American design) scored 70, the High Standard (an American design) scored 73 and the British Sten Gun Mk. 2 scored 88. The Germans did similar trials and the Sten Gun won in those as well. What might the result have been if they had tested a later version of the Thompson, such as the M1A1?