The structure you see here represents the spiral grooves cut around the inside of the barrel of a rifle. This ‘rifling’ as the grooves are called, causes the bullet to spin when the gun is fired, giving it greater accuracy over a longer distance.

Before rifles became commonplace, soldiers used smooth bore weapons such as muskets which were cumbersome to carry and load and much less accurate. The principle of rifling was known about for some time but it was only with the development of new machine tools in the early and middle part of the 19th Century that it became widespread and rifles came into general use.

This development of new machine tools and the weapons they could produce is reflected in the history of one of Enfield’s most important and well-known industries, the Royal Small Arms Factory (RSAF). Although best known for its world famous products, including the Lee-Enfield rifle, the BREN light machine gun and the STEN machine carbine, the RSAF is probably historically more important as the birthplace in the UK of modern mass production systems.

Prior to 1856 all components were made individually, predominantly by hand – every weapon was a one-off and the various parts were not interchangeable. However in America they had developed machinery to produce identical and interchangeable engineering components and, after these were exhibited at the Great Exhibition of 1851, a Parliamentary Commission was sent to look at them.

As a result new machinery was purchased from America to re-equip the RSAF and it became one of the first factories able to mass-produce goods. A new machine shop was built in 1856 to house the new machinery and was the largest in Europe at the time. It had a distinctive Italianate frontage and clocktower, and is one of the few original buildings surviving on the site today.

Being on an island, the site was very isolated and access was poor so the factory and its community had to be largely independent. Over the years it had, amongst other facilities, its own workers housing, church, school, market, power station, police station, theatre and doctors surgery.

The factory continued in operation, with periods of major activity during the Boer War (1899-1902) and the two World Wars, until 1987 when the Royal Ordnance Factories (including Enfield Lock) were sold to British Aerospace. The Enfield Lock plant was closed almost immediately and small arms manufacture was moved to Nottingham.
WARTIME WORK

The increased demands on the Royal Small Arms Factory at the start of the war saw dramatic changes for the workforce. Overtime working began immediately with men working 12 hour day or night shifts, and a 13 day fortnight soon becoming compulsory. Constraints on the working time of boys were suspended, with those under 16 working up to a 60 hour week.

The growth in the sheer numbers working at the factory often led to chaotic working conditions. A shortage of accommodation meant many staff had to live in the 60 purpose-built huts on site, divided into cubicles each containing a bed and an easy chair. Despite building a canteen with a capacity of one thousand and purchasing other local premises, many at mealtimes would resort to eating in corridors or even outside.

Injuries were common, and the increased staff numbers made keeping track of them all difficult. Gas lights were switched off during meals and air raids as ventilation became a problem and affected the health of the workers. The resulting dimly lit walkways between shops caused accidents during the night shifts. Eventually greater government control of arms manufacturing brought improved safety measures, with the introduction of precautions against lead poisoning and the official recognition of emery wheel dust as a hazard in 1916.

Early in the war, the RSAF faced the problem of men with specialist skills leaving to enlist. The Munitions of War Act 1915 made it a penal offence for a munitions worker to leave his job without the consent of his employer, and the RSAF was authorised to issue ‘Lord Kitchener’s cards’ certifying essential war service to its skilled workers, a valuable item that often went ‘missing’ on leaving employment.

Despite this, the number of young, single men working in the factory generated anger. Discharged servicemen held a protest outside the factory, members of nearby tribunals threatened to strike over the issue and local papers received letters from soldiers overseas urging the Government to call-up these able bodied men. It was felt workers were hiding behind their badge of exemption and earning significantly more than men serving in the armed forces.

Because of its relatively remote and isolated location the RSAF was a community almost independent from the rest of Enfield. Throughout the war, photos show the workforce maintained an active football league with at least 9 teams. The new female staff had a recreation room with piano, in which dancing and gymnastics classes were arranged with wounded soldiers being invited to the entertainments.
FOR EVERY FIGHTER, A WOMAN WORKER

A selection of large, leather-bound ledgers containing staff records and memo books from the Royal Small Arms Factory, Enfield have recently been rediscovered in the archive of the Royal Armouries Museum in Leeds. Close inspection of the staff ledgers reveals that every worker recorded in them is male. We know from photographs and other contemporary accounts that women did work at the factory during World War I. So why are they not featured in the official records?

As men flowed out into the army, the RSAF increased its struggling workforce by taking on women, with 1,448 employed by June 1917. A Supervisor of Women Employees oversaw this new intake and her authority on matters such as dismissal had to be accepted as final. However, in a society still uncomfortable with women workers, a number of special considerations were made for the new staff.

They were catered for with their own, separate canteen and recreation room. Foremen were forbidden to recruit additional female employees over the telephone. In the case of an air raid, it was felt women would need to be escorted back to their cloakroom by "a responsible male" rather than make their own way there.

All applications, transfers and records of the women in each of the workshops went through the manager’s office. This may partly explain why no female names are listed in the existing staff ledgers. However, allowing women to work in such vast numbers faced strong opposition from trades unions. Not recording female staff alongside ‘permanent’ male employees may reflect the perception of women as temporary workers, to be dismissed at the end of the war.

In staff photos many of the female shift workers are prominently wearing the triangular ‘On War Service’ badges. Originally introduced for men in protected occupations to avoid being labelled ‘shirkers’, these became popular among women workers too. For those working late shifts, it helped to show that there was nothing disreputable about these ladies travelling alone at night. They also used them as a way of showing pride in their work, as well as protecting them against social stigma.
From its beginnings with the Baker rifle to the SA80 (285) rifle immediately before it closed in 1988, the Royal Small Arms Factory in Enfield Lock made a variety of weapons across its 172 year history. One of its busiest periods was from 1914 to 1918, when it was a major producer of many of the key weapons used in the First World War.

The 1908 Pattern Cavalry Trooper’s Sword (and the 1912 Pattern equivalent for officers) is widely considered the most effective cavalry sword ever designed. However, it was to be the last service sword issued to the cavalry of the British Army. Though in great demand early in the war when traditional horseback charges were still in use, production had ended by July 1917.

The Short Lee Enfield Rifle (SMLE) was the standard issue rifle for all British infantry. The Lee Enfield gets its name from the American who designed it, James Paris Lee, and the fact that it was built by the RASF in Enfield. This used a .303 inch cartridge and had a ten bullet magazine. The gun’s rate of fire in the hands of well-trained men was so rapid, that at the Battle of Mons the advancing German army believed that they were under fire from British machine guns.

To go with the SMLE rifle, a 12 inch double edged sword bayonet and fitting sheath was produced to clip onto the end of the gun, making it an extension of the weapon. However this new, shorter rifle limited the ‘reach’ of the weapon, thought to give an advantage in bayonet fighting. To compensate, this was replaced with the longer 1907 Pattern bayonet with a single edged sword-type blade, grooved along the shaft and with a wooden handle grip.

The Lewis Gun or Lewis Automatic Machine Gun was designed by US Army Colonel Isaac Newton Lewis in 1911. After retirement from the army, Lewis relocated to Belgium and then England and worked on the production of the Lewis Gun. In 1914, the Birmingham Small Arms Company purchased a licence to manufacture the Lewis gun, where it was produced and officially adopted by the British army in 1915. Although the RASF did not make the Lewis gun, contemporary photographs show that workers on site either assembled them or converted them from land to aircraft use.

By the end of the war the RASF had produced over two million SMLE rifles and countless other weapons for the war effort. Now over 100 years old, the Lee Enfield has been used in 40 different countries across the globe and still can be found in official use to this day.