

Gatling gun

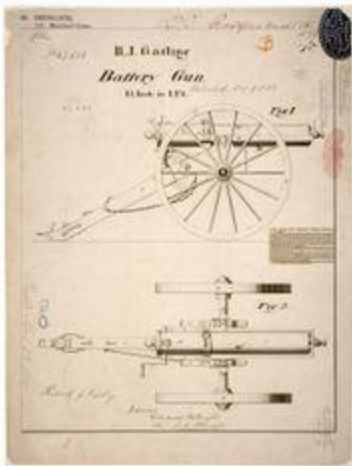


An 1865 Gatling gun.

The **Gatling gun**, also mistakenly known as a **chain gun** or **mini gun**, is a gunpowder field weapon invented in the 1860s which used multiple rotating barrels turned by a hand crank. Unlike earlier weapons, such as the [mitrailleuse](#), which had limited capacity and long reloading times, the Gatling gun was reliable, easy to load, and had a high firing rate. The gun was designed by the American inventor [Richard J. Gatling](#), in 1861 and patented in [1862](#).

The Gatling gun may have been the first "[machine gun](#)", depending on how 'machine gun' is defined, as it was capable of firing continuous bursts of fire. Unlike designs like the [Maxim gun](#), which operate the mechanism using a fraction of the power of the fired cartridge, the Gatling gun relies on external power, such as a hand crank, or motor. Some time later, Gatling-type weapons diverted gas from the barrels to spin the rotating barrels. The term Gatling gun is used to refer to modern rotating-barrel cannons such as 20mm [M61 Vulcan autocannon](#).

History



Patent drawing for R.J. Gatling's *Battery Gun*, [9 May 1865](#).

Gatling's intent in inventing the gun was actually to save lives. He knew that in the American Civil war, many soldiers died simply from disease. He thought that if he could make a gun that made one soldier as effective as many, armies could be much smaller, thus reducing the number of men at risk from battle wounds or infectious disease. In a letter dated June 15th 1877, Gatling explained how and why he came to invent the Gatling gun.

My Dear Friend.

It may be interesting to you to know how I came to invent the gun which bears my name; I will tell you: In 1861, during the opening events of the war, (residing at that time in Indianapolis, md.,) I witnessed almost daily the departure of troops to the front and the return of the wounded, sick, and dead. The most of the latter lost their lives, not in battle, but by sickness and exposure incident to the service. It occurred to me if I could invent a machine--a gun-- which could by its rapidity of fire, enable one man to do as much battle duty as a hundred, that it would, to a great extent, supersede the necessity of large armies, and consequently, exposure to battle and disease be greatly diminished. I thought over the subject and finally this idea took practical form in the invention of the Gatling Gun.

Yours truly,
R.J. Gatling

Although the Gatling gun was designed in 1861 during the U.S. Civil War, in 1862, the U.S. government decided not to purchase any of the weapons, because the firing mechanism lacked triggers and because the Gatling guns were far too heavy to be set up quickly in combat. Even with design improvements, the Gatling gun still lacked a trigger and weighed an unwieldy 90 lb (41 kg). However, Union General [Benjamin Butler](#) bought twelve and used them on the [Petersburg](#) front. During its debut in combat soldiers on both sides were awestruck by its power and destructive effect. They were only put into limited service late in the war by the Union Army.

The British [Royal Navy](#) installed fixed Gatling guns on its warships, and US forces used them in the [Indian Wars](#). During the Japanese [Boshin War](#) (1868-1869), Gatling guns were used in land battles and mounted on ships to repel boarders. During the [Franco-Prussian War](#) of 1870-1871, Gatling guns were used by the French armies fighting in the provinces, to replace the defective [mitrailleuse](#).

The [Naval Brigades](#) serving during the [Anglo-Zulu War](#) of 1879 used Gatling guns in several battles. Gatling guns were used during the British [bombardment](#) of [Alexandria](#) in 1882. Gatling guns were used by the US side during the [Spanish-American War](#), most notably during the [battle of San Juan Hill](#). [1]

Modern Gatling guns

After Gatling guns were replaced by lighter, cheaper blowback-style weapons, the approach of using multiple rotating barrels fell into disuse for many decades. However, Gatling gun-style weapons made a return in the 1940–50s, when weapons with very high rate of fire were needed in military [aircraft](#) such as the [Lockheed AC-130](#) gunship and ship-based [CIWS](#). For these modern rotating-barrel cannons, [electric motors](#) were used to rotate the barrel.



Four Japanese Gatling guns set up in [Ganghwa Island](#), [Korea](#), by Japanese troops, in [1876](#).

One of the main reasons for the resurgence of the Gatling gun-style design is the rotating barrel weapon's tolerance for continuous high-volume rates of fire. For example, if 2000 rounds were fired non-stop at high rate from a conventional single-barrel weapon, this would likely result in overheating of the barrel or a jam in the weapon. In contrast, a five-barreled Gatling gun-style weapon firing 2000 rounds would fire 400 rounds per barrel, an acceptable [rate of fire](#).

The [M61 Vulcan](#) 20 mm cannon is the most commonly-used member of a family of weapons designed by [General Electric](#) and currently manufactured by [General Dynamics](#). It is a six-barrelled Gatling capable of more than 6,000 rounds per minute, a rate unachievable with a conventional machine gun. Similar systems are available ranging from 5.56 mm to 30 mm (there was even a 37 mm Gatling on the [prototype](#) T249 'Vigilante' [AA](#) platform), the rate-of-fire being somewhat inversely-proportional to the size and mass of the ammunition (which also determines the size and mass of the barrels).

During the [Vietnam War](#), the 7.62 mm calibre M134 [Minigun](#) was created as a helicopter weapon. Able to fire 6,000 rounds a minute from a 4,000-round linked [belt](#), the Minigun proved to be one of the most effective non-explosive projectile weapons ever built and is still used in helicopters today. When used in Vietnam, the Minigun was nicknamed "[Puff the Magic Dragon](#)" because it fired red tracers that gave the appearance of breathing fire.

They are also used with lethal effectiveness on USAF [AC-47](#), [AC-119](#) and [Lockheed AC-130](#) gunships, their original high-capacity airframes able to house the items needed for sustained operation. With sophisticated navigation and target identification tools, Miniguns can be used effectively even against concealed targets. The crew's ability to concentrate the Gatling's fire very tightly produces the appearance of the 'Red Tornado' [\[2\]](#) from the light of the [tracers](#), as the gun platform circles a target at night.



The [GAU-8](#) Gatling gun of an [A-10 Thunderbolt II](#) at [Osan Air Base](#), Korea.

In addition to the benefits mentioned above, many modern systems have the advantage of being externally-driven (as opposed to relying on the energy from fired cartridges). This increases their reliability, as cartridge firing failure will not interrupt the operation cycle. Additionally, certain other stoppages, such as faulty extraction and many feeding-related problems, are eliminated or reduced considerably due to the external power source. It should however be noted that, although complex mechanically and uncommon, modern systems that derive power from the ammunition do exist. The world's fastest Gatling-style weapon, the 10,000 RPM [GSh-6-23](#) uses a gas-operated drive system.

See also

- [Minigun](#)
- [Chain gun](#)
- [Machine gun](#)
- [Volley gun](#)
- [Mitrailleuse](#)
- [Revolver cannon](#)
- [Maxim gun](#)

External links

- [List of Military Gatling & Revolver cannons](#)

- [U.S. Patent 36,836](#) -- *Gatling gun*
- [U.S. Patent 47,631](#) -- *improved Gatling gun*
- [U.S. Patent 112,138](#) -- *revolving battery gun*
- [U.S. Patent 125,563](#) -- *improvement in revolving battery guns*
- ["Colt 30 Cal Gatling Gun Model 1900 Army" drawings](#)
- [Description of operating principle \(with animation\) from HowStuffWorks](#)
- [Rubber Band Gatling Gun](#) - Make your own.