

# The Bugle



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**The U.S. Rifle Musket**



# The U.S. Rifle-Musket

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Although there were great technological advances in firearms just before and during the Civil War, most soldiers on both sides used a single shot, muzzle loaded, percussion cap, rifle-musket. The Civil War was the first war in history in which the majority of soldiers used a rifled weapon. The most common of these was the United States Rifle-Musket, made in several "models" at the U.S. Armories in Harpers Ferry, Virginia, and Springfield, Massachusetts, and by about two dozen private manufacturers during the war.

Prior to the Civil War, the U.S. Army had developed a two weapon system for infantry, based on the European concept of line infantry and light infantry. The "line" infantry was armed with the U.S. Model 1842 Musket, a .69 caliber percussion smoothbore. These troops were to make up the majority of the fighting force. They fought in the two-rank line formation of the Napoleonic era and delivered volleys of massed fire at relatively close range, typically 100 yards or less. For close fighting, especially on the offensive, they were supposed to use the bayonet.



**M1841 Rifle (top) and M1842 Musket**

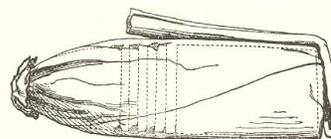
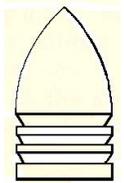
The "light" infantry was armed with the U.S. Model 1841 Rifle (after the Mexican War it was known as the "Mississippi Rifle" because of its use by Col. Jefferson Davis' Mississippi Regiment). It could easily hit a target at 300 yards. Light infantry troops served as skirmishers in front and on the flanks of the line infantry. They operated in dispersed formations, taking advantage of cover, kneeling and laying on the ground. On the offensive, their job was to probe the enemy and on the defensive they were to provide an early warning of attack and to delay the enemy's advance. These rifles were also used by mounted troops.

Each of these weapons had its advantages and disadvantages. The smoothbore musket was quick to load because of its loose-fitting bullet but it could not shoot very far. The rifle could shoot a long distance but because of its tight-fitting bullet it could not be reloaded very quickly.

Many of these weapons would eventually be used in the Civil War, some with modifications, because they were readily available in federal and state arsenals around the country. They were issued to many of the first volunteers but later replaced with rifle-muskets although some units retained their M1842 smoothbores and M1841 rifles throughout the war.

In 1855, the U.S. Army set the pattern for a new "Rifle-Musket" to be issued to all infantrymen. Military theory had changed and all infantry was to be trained in both line and light tactics. To complete both missions, the troops needed a fast loading, long range weapon.

This change was made possible by the development of the hollow-base bullet that was smaller than the bore of the weapon, commonly called the "Minie Ball" after French Army Captain Claude Minié. In fact, several inventors in America and Europe were working on the problem and the final design was really a combination of a number of ideas from several people. Since the "ball" was smaller than the bore of the barrel, it was easy to load like a smoothbore musket. The hollow base expanded when the gunpowder went off and "grabbed" the rifling, giving the bullet a spin like a football forward pass that increased both accuracy and distance. The bullets were wrapped in paper cartridges with 60 grains of black powder, tied with string at the top and folded into a tail at the bottom. It was the tail that the soldiers placed in his mouth to tear open the cartridge during the loading process.



The Model 1855 Rifle-Musket was characterized by a "C" shaped hammer and Maynard tape primer system that was designed to eliminate the necessity of placing a percussion cap on the cone prior to each shot.



**Model 1855 with "C" shaped hammer**

The tape consisted of nodules containing fulminate of mercury, the same substance in percussion caps. As the hammer was cocked, a new section of tape moved forward and the rifle-musket was ready to be fired. Under ideal conditions, the system worked, but humidity, heat, brittle tape, and a somewhat delicate mechanism could cause problems. For that reason, it was also designed to use the standard percussion cap. This system would become the standard for toy cap guns after the war.



**Model 1855 with Maynard tape primer system open**

When the Civil War started, the Army realized that it would need thousands of rifle-muskets as quickly and as cheaply as possible. In order to save money, the M1855 was simplified by eliminating the Maynard tape system, patch box and long-range sight. Thus, the Model 1861 was born and it would become the most common U.S. Rifle-Musket of the Civil War.



**Model 1861 with "C" shaped hammer but without the Maynard tape primer system**

The Harpers Ferry Arsenal was destroyed in 1861 and never produced any of the later models. The Confederates salvaged some of the machinery and produced what is called the "humpback" model because the lockplate had the hump for the Maynard tape system without the tape mechanism.

To supplement production of the Springfield Armory, the U.S. Army contracted with over twenty private companies to make the M1861. Thus, many of the surviving examples of this model have markings other than "Springfield" on the lockplate. There will also be a date on the lockplate and barrel that show the year the weapon was made.

Prior to the Civil War, several American manufacturers in New England had been making Enfield Rifle-Muskets for the British Army. When the contracts were fulfilled, the companies stopped production. When the Civil War began, several manufacturers received permission from the U.S. Army to produce a "Special Model" of the 1861 Rifle-Musket, using the Enfield machinery. These M1861S Rifle-Muskets are characterized by an "S" shaped hammer and elimination of the screw in the bolster and the barrel band retaining springs.



**Special Model 1861 with smooth edged "S" shaped hammer**

In 1863, the U.S. Armory at Springfield modified the M1861 slightly and developed the Model 1863, Type I. It incorporated the same features as the Special Model – an "S" shaped hammer and no clean-out screw on the bolster.



**Model 1863 with beveled edge "S" shaped hammer**

Additionally, the barrel bands were split at the bottom and held in place by a screw rather than springs in the stock, as on previous models (right, top). A further modification in late 1863 returned the retaining springs because it was found that the barrel bands would come loose without them. This final modification was denoted as the M1863 Type II (right, bottom) although it is sometimes called the Model 1864.



Production of the various models of the U.S. Rifle-Musket would reach almost 1.5 million. Regardless of model, all of these U.S. Rifle-Muskets had the same general characteristics: 56 inch overall length, 40-inch barrel, and weighed about 9 pounds, 2 ounces. They had walnut stocks and shiny metal parts, known as "Armory Bright." Lockplates had the year of manufacture, an American eagle and "Springfield" or the name of the contractor or place of manufacture, such as "Providence Tool Co." or "Bridgesburg."

These rifle-muskets fired a .58 caliber, 500-grain lead bullet propelled by a 60-grain charge of black gunpowder, with a muzzle velocity of about 950 feet per second. At 1000 yards, a bullet would penetrate about 4 inches of wood. In terms of accuracy, when fired from a fixed stand, 10 consecutive shots were kept inside a 4-inch bulls eye at 100 yards and within an 11-inch bulls eye at 333 yards.

Soldiers were trained to fire three shots per minute using a nine count loading procedure. In battle, however, they were probably averaging about two shots per minute because each shot left a powder residue in the barrel that made ramming more difficult. The nine steps were very precise and



Rifle-Musket Socket Bayonet and Leather Scabbard

specified every position of the body and every movement in great detail. The men were drilled in the procedure so that they could load without interfering with the movements of the other men in the tight two rank formations. Individual marksmanship, however, was not emphasized during the Civil War and some troops went into battle without ever actually firing their weapons. Tactics called for massed volley fire by closely packed troops against other closely packed troops.

After the Civil War, the government attempted to save money by converting muzzleloaders to breechloaders. The top of the breech of the rifle-musket was cut open and a "trapdoor" added. Converting muzzleloaders proved impractical and the Army switched to producing new weapons with the "trapdoor" system. These single shot breechloaders remained in service until the 1890s.



Model 1866 Rifle with open "trapdoor" converted from a M1863 Type II

For more information see:

Edwards, William B., *Civil War Guns*, Stackpole Book Co., Harrisburg, Pa, 1962.

Fuller, Claud E., *The Rifled Musket*, Bonanza Books, New York, 1958.

Reilly, Robert M., *United States Military Small Arms 1816-1865*, Eagle Press, Highland Park, N.J., 1970.

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## Approximate Rifle-Musket Production 1855-1865

Model	Springfield	Contractors	Harpers Ferry	Total Model
M1855	49,928	0	17,745	67,673
M1861	265,129	461,438	0	726,567
M1861 Special	0	152,001	0	152,001
M1863 I	273,265	Unknown*	0	273,265
M1863 II	255,040	0	0	255,040
<b>Total Source</b>	<b>843,362</b>	<b>613,439</b>	<b>17,745</b>	<b>1,474,546</b>

\*Several private contractors made the M1863 Type I, including Jenks, Mason, Norris & Clement, Remington, and Savage. The numbers were small and are included in the M1861 figures. It appears that no private contractors made the M1863 Type II.

## Makers and Markings

Contractor	State	Lockplate Marking
Eagle Manufacturing Company	Conn.	Eagleville
Eli Whiney, Jr.	Conn.	Whitneyville or E. Whitney
James D. Mowry	Conn.	Jas. D. Mowry
Norwich Arms Company	Conn.	Norwich
Parker, Snow & Company	Conn.	Parkers', Snow & Co.
Savage Reloving Fire Arms Company	Conn.	Savage R.F.A.Co.
Welch, Brown & Company	Conn.	Norfolk
William Muir & Company	Conn.	Wm. Muir & Co.
A.H. Walters & Company	Mass.	Millbury
S. Norris & W.T. Clement	Mass.	S.N.&W.T.C.
William Mason	Mass.	Wm Mason
Hodge & Burt	N.J.	Trenton
Charles B. Hoard	N.Y.	Watertown
E. Remington & Sons	N.Y.	Remington
Edward Robinson	N.Y.	E. Robinson
Sarson & Roberts	N.Y.	New York
Union Arms Company	N.Y.	U.A. Co.
Alfred Jenks & Son	Pa.	Bridesburg or Philadelphia
James Mulholland <sup>1</sup>	Pa./Conn.	Parkers', Snow & Co.
Caspar D. Schubarth & Company	R.I.	C.D. Schubarth
Providence Tool Company	R.I.	Providence Tool Co.
Unknown <sup>2</sup>	R.I. (?)	Providence
Unknown <sup>3</sup>	N.J./Conn (?)	Windsor Locks
J.Manton & Son	England	Manton
Suhl(?) <sup>4</sup>	Germany	U.S.
Amoskeag Manufacturing Company.*	N.H.	Amoskeag Mfg. Co.
Colt Patent Fire Arms Mfg. Company*	Conn.	Colt Pt.F.A.Mfg.Co.
Lamson, Goodnow & Yale*	Vt.	L. G. & Y.

\*These three contractors made the M1861 Special Model; all other made the standard M1861.

1-Mulholland of Reading, Pa., had Parkers' Snow & Co. manufacture rifle-muskets for his contract with the Army.

2-Rifle-Muskets bearing this mark could be made by Schubarth or Providence Tool Co.

3-Dinslow & Chase, a subcontractor in Windsor Locks, Conn., supplied lockplates to Muir and Hodge & Burt so either firm could have used them on their Rifle-Muskets.

4-Rifle-Muskets bearing just "U.S." on the lockplate appear to have been made in Germany by Suhl.