Some Civil War Spencer Forensics

By Dave Poche

Suppose you are metal detecting, and you find the scene below behind a large tree. You are probably on a sizeable skirmish site or large battlefield. Strangely, there are several what appear to be “drops” in the pile. Closer examination indicates that this is a pile of Spencer .52 caliber bullets. These early Spencer cartridges were prone to misfire about 25% of the time. Unlike the Henry cartridge, that could be slightly turned in its chamber, the Spencer offered no such option and simply ejected the cartridge, thus, the drops were probably misfires.

Suppose you wanted to know what regiment fired the Spencer, and what company provided these cartridges to that regiment? Company headstamps would not be present on the bases of the Spencer cartridges as none were used during the Civil War (*Round Ball to Rimfire*, Part two, page 381). Headstamps would appear on the .50 Spencer cartridges in 1865, but there is another way to discover the cartridge manufacturer



Pile of spent and misfired Spencer .52 caliber cartridges

The Spencer cartridge began as a long, heavy (350 - 360 grains) bullet with two wide grease grooves. It went under various names, initially it was called the “No. 56” cartridge by Spencer. And later, as the “56-56” based on two diameter measurements along its

body. Finally, it was called “the .52 caliber cartridge for the Spencer”. Thus, the cartridges that fit the Model 1860 Spencer rifle and carbine were called the "Number 56 Cartridge".

Civil War Spencer Model 1860

The Spencer Model 1860 lever-action rifle was developed by Christopher M. Spencer with the help of the Cheney Brothers of Manchester-by-the-Sea, Massachusetts and was first produced in the Cheney Piano Factory in Boston.

Spencer offered three versions of his Model 1860 firearms to the US Government. Two versions of his rifle were the Navy Rifle with a saber and the Army Rifle (“Infantry Rifle”) with a bayonet. There was also a smaller carbine known as the “Long Carbine”. Mechanically, all were identical, and all were chambered for a .52 caliber bullet which Spencer developed (56-56 Spencer Rimfire Cartridge). These cartridges were chambered from a 7-round tube magazine.



Model 1860 Spencer Repeating Firearms

The weight of the rifled was 10 lbs. and the carbine was 8,25 lbs... The overall length of the rifle was 47” with a 30”. Barrel. The length of the carbine was 39.25” with a 22” barrel. All the barrels were rifled identically as 6 land and groove (groove diameter of .515-.518).

During the Civil War, a total of 45,733 Model 1860 carbines and 11,471 Model 1860 rifles were produced under U.S. Army Ordnance Department contracts. The first Spencer carbines did not reach the field until late 1863, at which time three cavalry regiments reported having nearly 1,000 Spencer carbines, but, by the winter of 1864,

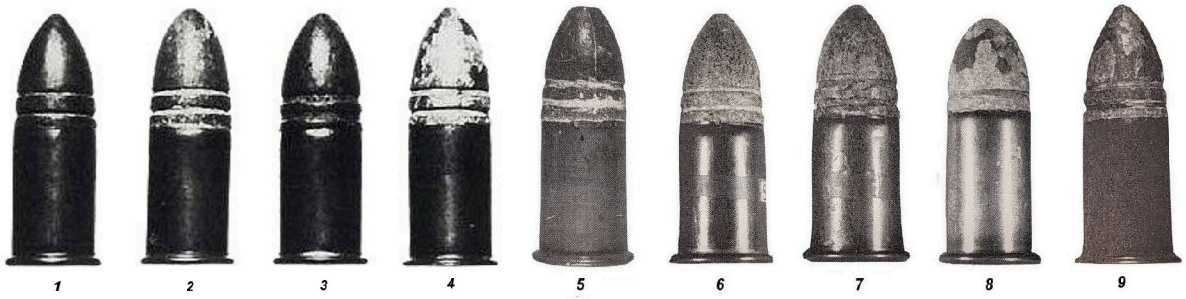
several Army of the Potomac cavalry regiments had been rearmed with M1860 Spencer carbines.

Cartridges

Initially, In December of 1862, Crittendon & Tibbals began making rimfire cartridges for the Model 1860 Spencer Rifle. They delivered over one and a half million cartridges to the government from December,1862 to June,1863. During this same time, the Spencer Repeating Rifle Company completed their contract for 7500 Spencer Rifles.

The increasing demands for more cartridges pushed the government to seek other sources of Spencer cartridges. In November 1863, C, D, Leet was contracted to produce Spencer cartridges. The government by then was requesting millions of Spencer cartridges.

By 1864, seven government contractors, including those made for Spencer by Crittenden & Tibbals, and one government arsenal provided cartridges for both Spencer rifle and Spencer carbine during the Civil War (shown below). From the table below, we can see that each manufacturer's case length is slightly different. This difference can be used to identify relic cartridge manufacturers.



	.56-50 Cartridge Manufacturer	Cartridge Length	Case Length
1	Crittenden & Tibbals (C&T)	1.661	0.894
2	C.D. Leet	1.680	0.888
3	C.D. Leet	1.650	0.900
4	Spencer (C&T)	1.692	0.915
5	Fitch, Van Vechten* [653]	1.640	0.912
6	Sage Ammunition Works* [654]	1.660	0.937
7	Sharps & Hankins* [655]	1.660	0.944
8	Frankfort Arsenal* [656]	1.620	1.027
9	Crittenden & Tibbals (C&T)* [641]	1.690	0.960

<u>Table 1</u>: Cartridges 1 – 4: Cartridge lengths and case lengths are from "Spencer Repeating Rifles" by Roy Marcot. Case lengths 5 – 9 were proportionally calculated from image cartridge lengths in "Round Ball to Rimfire" part two by Dean S. Thomas. Numbers in parentheses refer to image numbers.

			Spencers		
State		**Unit**	**1863**	**1864**	**1865**
Michigan	CAV	1st Cavalry (Custer)		**C**	
	CAV	2nd Cavalry		**R & C**	
	CAV	3rd Cavalry		**C**	**C**
	CAV	4th Cavalry			**C**
	CAV	5th Cavalry (Custer)	**R**		
	CAV	6th Cavalry (Custer)	**R**	**C**	
	CAV	7th Cavalry (Custer)	**R**	**C**	
	CAV	8th Cavalry	**R**		
	CAV	9th Cavalry	**R**	**C**	
	CAV	10th Cavalry		**R**	
	CAV	11th Cavalry		**C**	
	INF	14th Regt	**R**		
	INF	27th Regt		**R**	
New York	CAV	1st Dragoons		**R**	
	CAV	2nd Cavalry		**C**	
	CAV	1st Regt mounted (7th Cav)			**C**
	CAV	7th Cavalry		**C**	
	CAV	5th Cavalry	**R**	**C**	
	CAV	6th Cavalry			**R**
	CAV	8th Cavalry			**C**
	CAV	18th Cavalry			C
	CAV	19th Cavalry		**R & C**	**C**
	INF	5th Regt (Duryea's)	**C**	**C**	
	INF	118th Regt		**R**	
Indiana	CAV	7th Cavalry			**C**
	CAV	8th Cavalry	**R**	**C**	
	INF	17th mounted Regt (wilder)	**R**		
	INF	39th Regt	**R**		
	INF	72nd mounted Regt (Wilder)	**R**		
	INF	97th Regt		**R**	
Kentucky	CAV	1st Cavalry			**R**
	CAV	2nd Cavalry		**C**	
	CAV	3rd Cavalry		**R**	
	CAV	11th Cavalry		**C**	
	CAV	!7th Cavalry		**R & C**	

	INF	4th Regt		**R & C**	
	INF	28th Regt	**R**	**R**	

<u>Table 2</u>: Shows recorded dates of various Spence Model 1860 firearms by state and military unit. R indicates rifle and C indicates carbine. R&C indicates either both rifles and carbines were issued, or rifles were replaced by carbines in same year. Many units of Custer's group were initially issued rifles that were replaced later by carbine. Much of the data in this table and in table 2 comes from Frederick P. Todd's "American Military Equipage, 1851 – 1872", Volume two, State Forces. Also data was sourced from the Springfield Database (SRS). Some data was culled from the internet.

			Spencers		
State		**Unit**	**1863**	**1864**	**1865**
Massachusetts	CAV	2nd Cavalry		R	
	CAV	4th Cavalry		R	
	INF	37th Regt		R	
	INF	57th Regt		R	
Ohio	CAV	2nd Cavalry		C	
	CAV	3rd Cavalry		C	
	CAV	8th Cavalry (44th Inf Regt)		C	
	CAV	11th Cavalry	C	C	
	CAV	12th Cavalry		C	
	INF	10th Regt	R		
	INF	46th Regt	**R**	R	
	INF	75th Regt		R	
	INF	4th Indep Co Sharpshooters	**R**	R	
	INF	5th Indep Co Sharpshooters	**R**	R	
	INF	6th Indep Co Sharpshooters	**R**	R	
	INF	7th Indep Co Sharpshooters	**R**	R	
	INF	8th Indep Co Sharpshooters	**R**	R	
	INF	9th Indep Co Sharpshooters	**R**	R	
	INF	10th Indep Co Sharpshooters	**R**	R	
	INF	198th Regt (sharpshooters)	R	R	
Pennsylvania	CAV	7th Cavalry		**C**	**C**
	CAV	11th Cavalry		**C**	
	CAV	14th Cavalry			**C**
	CAV	18thCavalry		**C**	
	CAV	19th Cavalry			**R**
	CAV	20th Cavalry		**C**	
	INF	13th Regt (Bucktails)		**R**	

	INF	105th Regt		**R**	
	INF	148th Regt		**R**	
	INF	190th Regt		**R**	

<u>Table 3</u>: Shows recorded dates of various Model 1860 Spencer firearms to various military units by state. For further information on sources of this table refer to the information found below Table 1.

			Spencers		
State		**Unit**	**1863**	**1864**	**1865**
Massachusetts	CAV	2nd Cavalry		R	
	CAV	4th Cavalry		R	
	INF	37th Regt		R	
	INF	57th Regt		R	
Ohio	CAV	2nd Cavalry		C	
	CAV	3rd Cavalry		C	
	CAV	8th Cavalry (44th Inf Regt)		C	
	CAV	11th Cavalry	C	C	
	CAV	12th Cavalry		C	
	INF	10th Regt	R		
	INF	46th Regt	**R**	R	
	INF	75th Regt		R	
	INF	4th Indep Co Sharpshooters	**R**	R	
	INF	5th Indep Co Sharpshooters	**R**	R	
	INF	6th Indep Co Sharpshooters	**R**	R	
	INF	7th Indep Co Sharpshooters	**R**	R	
	INF	8th Indep Co Sharpshooters	**R**	R	
	INF	9th Indep Co Sharpshooters	**R**	R	
	INF	10th Indep Co Sharpshooters	**R**	R	
	INF	198th Regt (sharpshooters)	R	R	
Pennsylvania	CAV	7th Cavalry		**C**	**C**
	CAV	11th Cavalry		**C**	
	CAV	14th Cavalry			**C**
	CAV	18thCavalry		**C**	
	CAV	19th Cavalry			**R**
	CAV	20th Cavalry		**C**	
	INF	13th Regt (Bucktails)		**R**	
	INF	105th Regt		**R**	
	INF	148th Regt		**R**	
	INF	190th Regt		**R**	

***Table 4*: Shows recorded dates of various Model 1860 Spencer firearms to various military units by state. For further information on sources of this table refer to the information found below Table 1.**

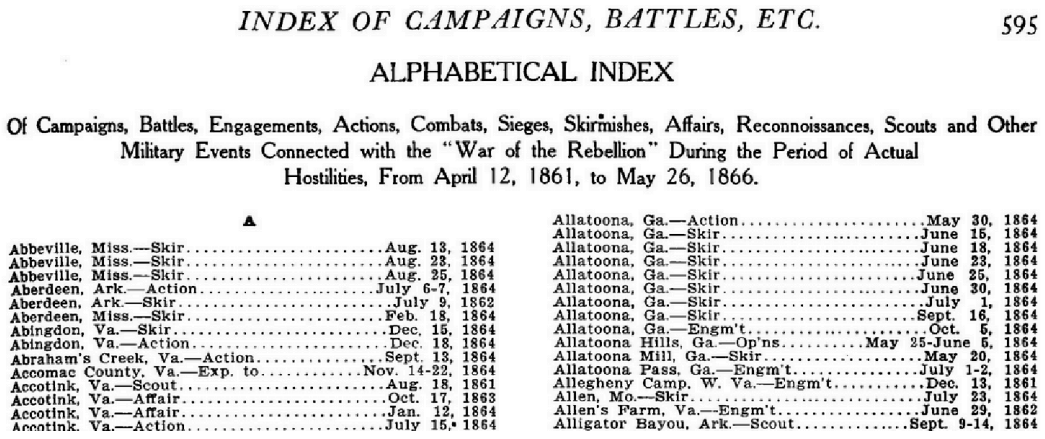
An Example from Relic Cartridges

As an example of calculations and identification of both military unit and cartridge manufacturer can be made, the author offers his Spencer cartridge findings at the battle of Trevillian Station, Virginia. At that battlefield several cartridge casings and two misfired cartridges were found by the author.

To start this methodology, the name of the battle and its date must be determined. Let's assume only know the name of the largest town near where the Spencer cases or misfires were found. The easiest way to determine the all the relevant data is to consult Dyer's Compendium. Use the link below to access a free online copy of the Compendium. **Access to this document might be very slow so be patient**.

Internet Archive

The above link will take you to a copy of Dyer's Compendium on the Internet at the alphabetical index (page 595) of the section entitled "Campaigns, Battles, etc. Of the Civil War the page should look like below. If you already know the location and year of the engagement, go to **Battle Campaigns by State and Year** section below



INDEX OF CAMPAIGNS, BATTLES, ETC. 595

ALPHABETICAL INDEX

Of Campaigns, Battles, Engagements, Actions, Combats, Sieges, Skirmishes, Affairs, Reconnoissances, Scouts and Other Military Events Connected with the "War of the Rebellion" During the Period of Actual Hostilities, From April 12, 1861, to May 26, 1866.

A

Abbeville, Miss.—Skir.....Aug. 13, 1864
Abbeville, Miss.—Skir.....Aug. 23, 1864
Abbeville, Miss.—Skir.....Aug. 25, 1864
Aberdeen, Ark.—Action.....July 6-7, 1864
Aberdeen, Ark.—Skir.....July 9, 1862
Aberdeen, Miss.—Skir.....Feb. 18, 1864
Abingdon, Va.—Skir.....Dec. 15, 1864
Abingdon, Va.—Action.....Dec. 18, 1864
Abraham's Creek, Va.—Action.....Sept. 13, 1864
Accomac County, Va.—Exp. to.....Nov. 14-22, 1864
Accotink, Va.—Scout.....Aug. 18, 1861
Accotink, Va.—Affair.....Oct. 17, 1863
Accotink, Va.—Affair.....Jan. 12, 1864
Accotink, Va.—Action.....July 15, 1864
Allatoona, Ga.—Action.....May 30, 1864
Allatoona, Ga.—Skir.....June 15, 1864
Allatoona, Ga.—Skir.....June 18, 1864
Allatoona, Ga.—Skir.....June 23, 1864
Allatoona, Ga.—Skir.....June 25, 1864
Allatoona, Ga.—Skir.....June 30, 1864
Allatoona, Ga.—Skir.....July 1, 1864
Allatoona, Ga.—Skir.....Sept. 16, 1864
Allatoona, Ga.—Engm't.....Oct. 5, 1864
Allatoona Hills, Ga.—Op'ns.....May 25-June 5, 1864
Allatoona Mill, Ga.—Skir.....May 20, 1864
Allatoona Pass, Ga.—Engm't.....July 1-2, 1864
Allegheny Camp, W. Va.—Engm't.....Dec. 13, 1861
Allen, Mo.—Skir.....July 23, 1864
Allen's Farm, Va.—Engm't.....June 29, 1862
Alligator Bayou, Ark.—Scout.....Sept. 9-14, 1864

If you get lost: Move the solid white ball near the bottom of the page to the right to increase the page number or left to decrease the current page number., Note the change in the page numbers on the right side of the display. Search the index for the name of the battle or nearby town. Note the Name of the engagement and its date.

In the example, the Index on page 653 shows three listings "Trevillian" (shown below). The engagement on June 11-12, 1864 is the one of interest. Note the battle name and date of the engagement. Use the link below for more information.

INDEX OF CAMPAIGNS, BATTLES, ETC.

Trenton, Tenn.—Skir.....Apr. 19, 1863
Trenton, Tenn.—Affair.....June 15, 1863
Trenton, Tenn.—Op'ns.....July 19-29, 1863
Trenton, Tenn.—Scout.....Dec. 21-24, 1863
Trenton, Tenn.—Exp. to.....Jan. 22-27, 1864
Trenton and Pollocksville Cross Roads, N. C.—Skir. .....May 22, 1862
Trenton Bridge, N. C.—Action.....May 15, 1862
Trent River, N. C.—Skir.....May 5, 1864
Trent Road, N. C.—Skir.....Apr. 19, 1862
Trent Road, N. C.—Rec. on.....Jan. 27-28, 1863
Trent Road, N. C.—Skir.....May 4, 1864
Trevillian Raid, Va.—.....June 7-24, 1864
Trevillian Station, Va.—Engm't.....June 11-12, 1864
Trevillian Depot, Va.—Skir.....May 2, 1862
Triana, Ala.—Exp. to.....Apr. 12-16, 1864
Triana, Ala.—Scout.....July 29, 1864
Trickum's Cross Roads, Ga.—Exp. to.....Oct. 26-29, 1864
Trickum's Ferry, Ga.—Skir.....Oct. 27, 1864
Trinity, Ala.—Skir.....July 24, 1862
Trinity, Ala.—Op'ns.....July 25, 1862
Trinity, Ala.—Skir.....Aug. 22, 1862
Trinity, Ala.—Affair.....Aug. 23, 1862
Trinity, La.—Skir.....Sept. 2, 1863

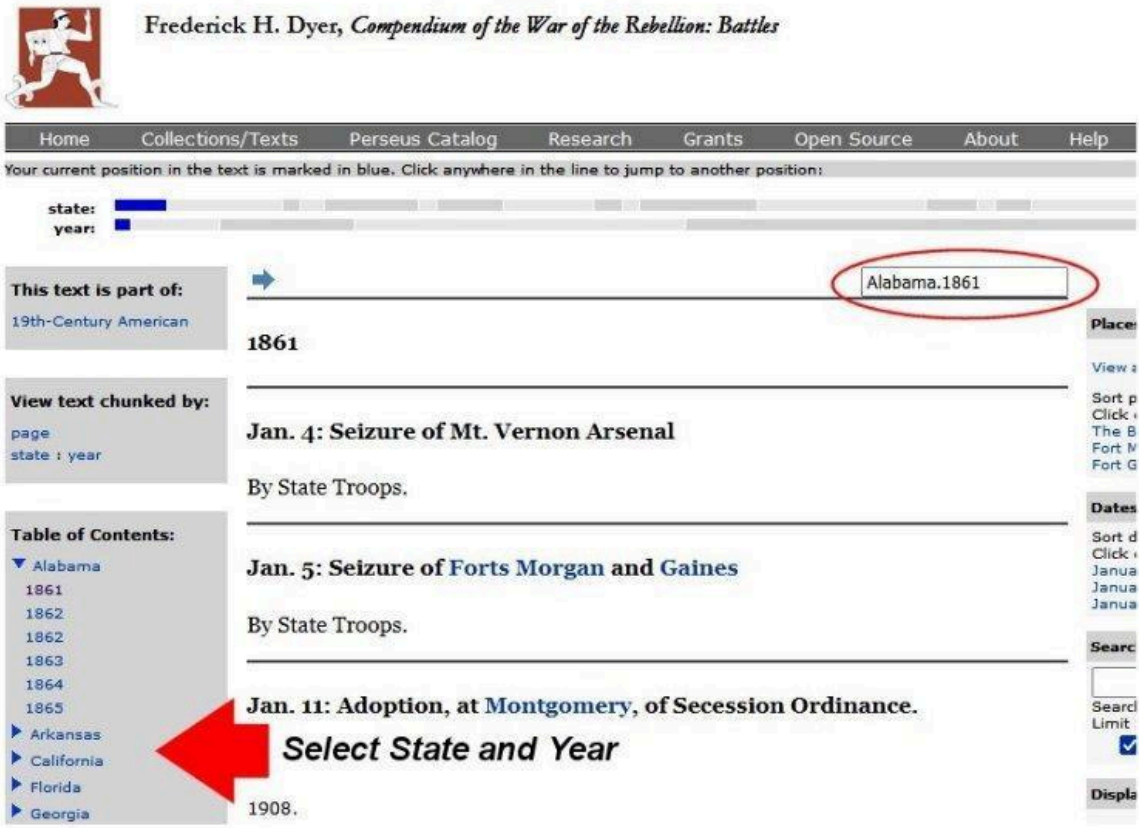




Battle Campaigns by State and Year

Next use the internet link above for more information. Select the state and year of the engagement on the left side of the display and then find the date of the engagement. This should yield a complete list of Federal units engaged in the battle of interest.

Sometimes this step can be eliminated by using the android assistant app or Seri on a smartphone, if the engagement was large. Don't expect information from small engagements like skirmishes, affairs, etc. from your phone.



Partial page from the internet link. Select of the State, Year of the engagement and Date of the engagement and this site will indicate the list of Federal units involved in the engagement. Shown is the listing for Engagements in Alabama in 1861 beginning in January.

Compare the list of engaged Federal military units with those in Tables 2, 3, and 4 to see which units had Spencer rifles or carbines at the time of the engagement.

Shown below is the list of combatants in the 1864 engagement of June 11-12 at Trevillian Station, Virginia.

June 11-12: Engagement, Trevillian Station, Central Railroad

MAINE--1st Cavalry. MASSACHUSETTS--1st Cavalry. MICHIGAN--1st, 5th, 6th and 7th Cavalry. NEW JERSEY--1st Cavalry. NEW YORK--4th, 6th, 9th, 10th and 19th (1st Dragoons) Cavalry. OHIO--6th Cavalry. PENNSYLVANIA--1st, 2d, 4th, 6th, 8th, 13th, 16th and 17th Cavalry. UNITED STATES--1st, 2d, 5th and 6th Cavalry; Batteries "H & I" 1st Arty.; "D" and "M" 2d Arty. Union loss, 102 killed, 470 wounded, 435 captured and missing. Total, 1.007.

The above list indicates that the only military units that had access to Spencer firearms during the example engagement at Trevillian Station, Virginia on June 11-12, 1864 was that of Custer's Michigan Cavalry Brigade.

In May 1864, just one month before the battle at Trevillian Station, George Custer is reported to have said*:*

"Being in command of a brigade which is armed throughout with the Spencer carbine and rifles I take pleasure in testifying to their superiority over all other weapons. I am firmly of the opinion that 1500 men armed with the Spencer carbine are more than a match to 2500 armed with any other firearm. I know this to be true from actual experiment."

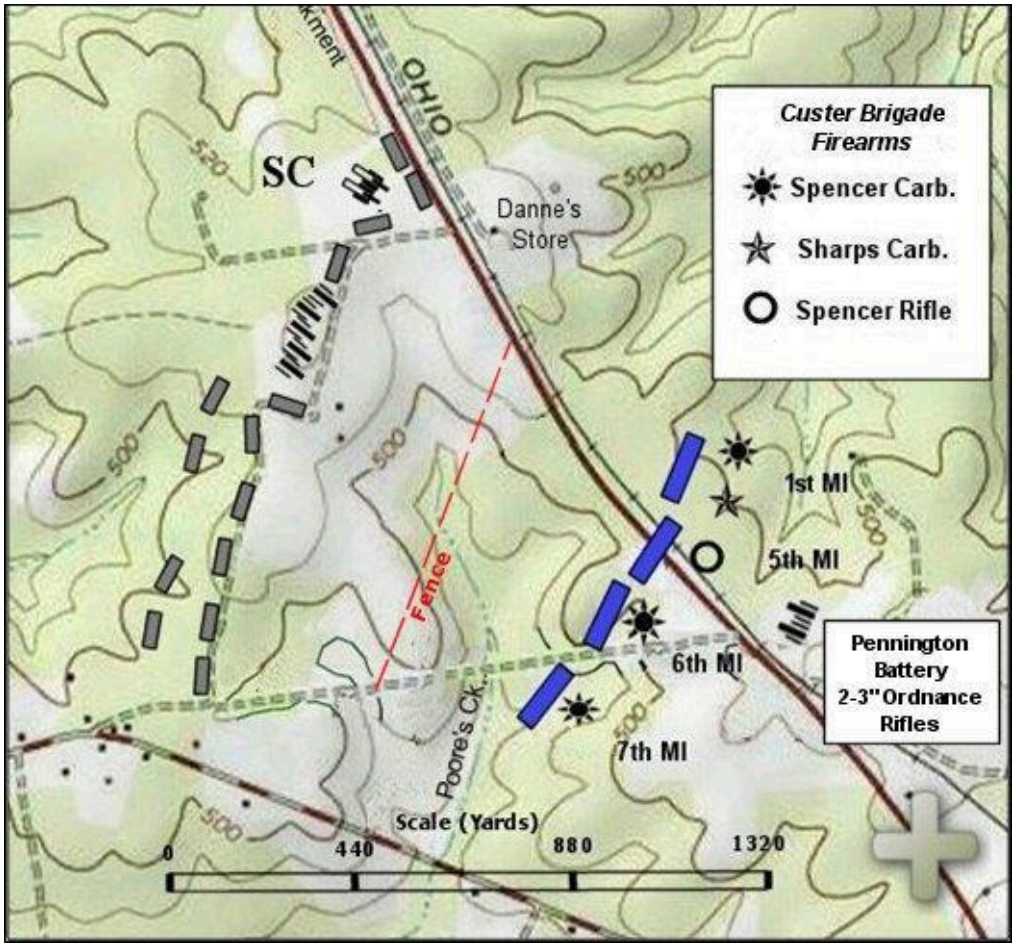


CW Model Spencer Rifle and Carbine
(patented 1860 manufactured 1863-1865) .52 caliber

Who fired the Spencers? And where were my casings found?

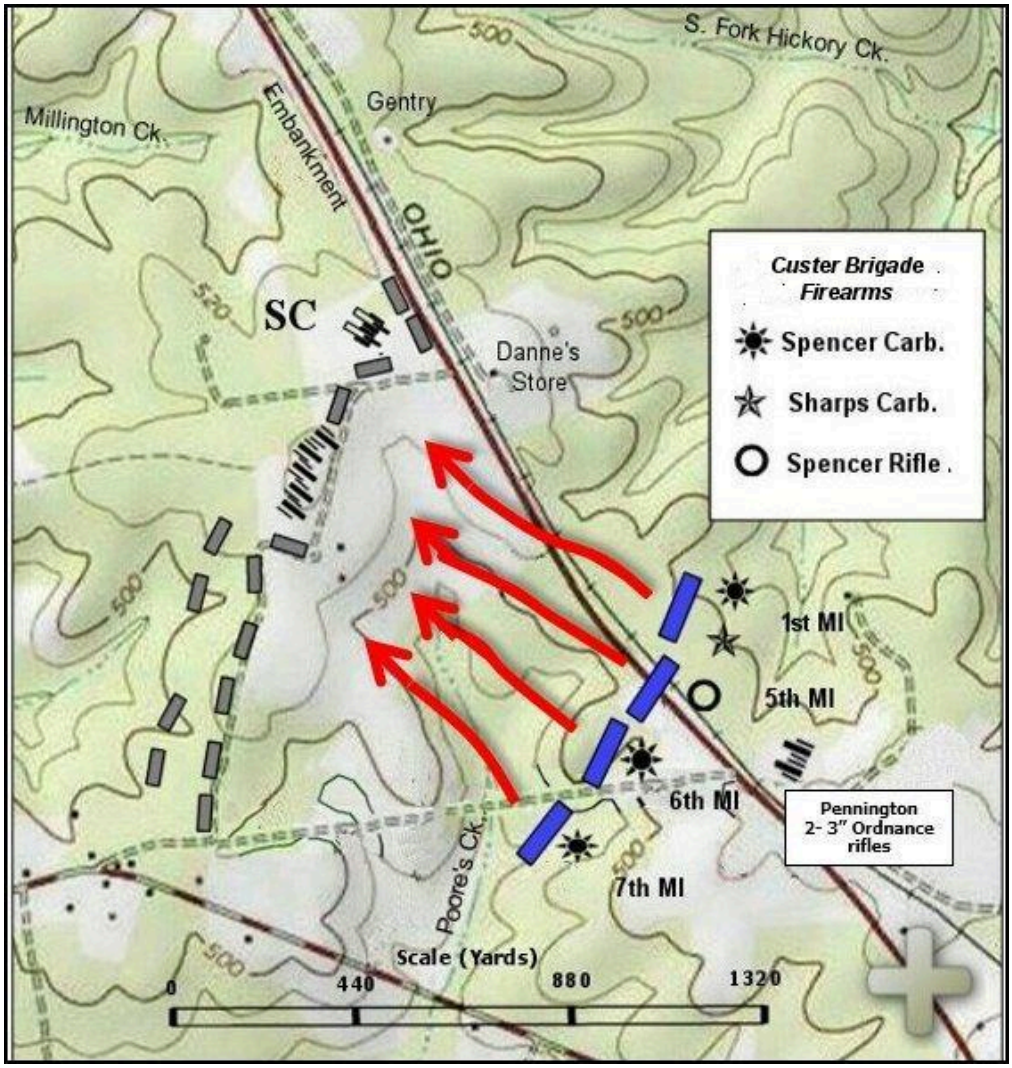
On the second day of the battle, Custer holds the left side of the line and advances under fire. He is supported by Pennington's Battery of Ordnance rifles

The opposing Confederate line consists of breastworks along a split-rail fence at the edge of an old ridge runner road. The line is supported by Confederate artillery



Battle of Trevillian Station, Virginia on June 11-12, 1864. Only the 5th Michigan Cavalry had Spencer Rifles.

Most of Custer's Michigan Brigade was armed with Spencer Carbines. A peek back to Table 2 shows the Custer Brigade (1st, 5th, 6th and 7th cavalry) had Spencer Carbines in 1864. 5th Michigan was the last of the Brigade to give up their Spencer Rifles. Later Quarterly Ordnance Statements (June 30, 1864) reported that the 5th Michigan had 37 Spencer Rifles and the 6th had only 1.



Custer's Brigade advanced slowly under fire from the Confederate line. Custer's men crawled through the heavily wooded area to a fence line and fought Indian style behind trees and fence posts. My cartridge casings and misfires were found along the fence line.

Lieutenant Asa Isham, Co."K", 7th Michigan Cavalry wrote of the engagement::

"*Soon their batteries open on us, and they tried to shell us out of the woods. We could not reach their gunners with our carbines; but keep pegging away at their men in the works."*

Note Custer's men were shooting "uphill" and the distance to the Confederate batteries was 300+ yards away and typical Spencer carbine range was 200 yards.

"They endeavored to get their batteries to fire on the rail fence, but only a few shells took effect, as the shells mostly struck the trees twenty and thirty feet above us or went on into the woods."

Note: After the Confederate silenced Pennington's battery, they commenced firing short-fused spherical case shot and canister. They were on a 530-foot elevation while the Michigan Brigade was located lower at 480 to 500 feet. Read how spherical case shot can be short-fused

"The trees and branches were falling on all sides, and every minute one or two of our boys would be killed or wounded. We lay in this position for several hours, firing all the time until our cartridges were gone. Some of the men had used eighty or one hundred apiece"



Michigan Brigade Spencer cartridge casings and misfires from Trevilian Station

Who manufactured the cartridges? Caliper measurements of the cartridge lengths of several cartridges read the range of 0.91 to 0.92 indicating they were manufactured for Spencer by Crittenden & Tibbals (See Table 1)



Caliper Measurement of Spencer Cartridge Casing Length.

Caveats: When measuring cartridge casing lengths with a caliper be sure to measure lengths of misfires as they are less deformed and less weathered. Make several measurements of the casing length on each case but avoid the area of the firing pin depression as the case can be deformed there.

Tables 2, 3 and 4 are incomplete.

Good Additional Readings:

Roy Marcot, “Spencer Repeating Firearms”, Norrthwood Heritage Press 1983, ISBN 0970760825: 9780970760821

Wiley Sword, “Those Damned Michigan Spencers – Colonel Copeland’s 5th Michigan Cavalry and their Spencer Rifles”, Men at Arms Magazine, October 1997.

Charles Suydam, “The American Cartridge: An Illustrated Study of Rimfire Cartridge in the United States”, Bordan Publishing Co.1986, ISBN 9780875051062

Frank C. Barnes, "Cartridges of the World", ISBN 0-87349-605-. Also available from Google Books

Norman Flayderman, "Flaydermann's Guide to Antique American Firearms", ISBN 0-837349-198-X

Dean S. Thomas, "Round Ball to Rimfire", Part 2 , ISBN 1-57747-020-6

Asa B. Isham, “Seventh Michigan Cavalry of Custer’s Wolverine Brigade”, Blue Acorn Press, 2000, ISBN 1885033249: 978-1885033246

Frederick H. Dyer, “Compendium of the War of the Rebellion”: Dyer Publishing Company, available through Internet Archive.

Springfield Research Service, “Serial numbers of U.S. Martial Arms, Volume 2”, Published by Springfield Research Service, 1986 ISBN 10: 0960330631 13: 9780960330638