

Replicate a 19th Century .46 Special Cartridge with 21st Century Components

By Walt Kirst

Today, many of us are enjoying the re-creation of past history through historical re-enactment in many forms, Western Action Shooting™ and Cowboy Action Shooting™ (NCOWS & SASS respectively) among them. Many action shooters and most re-enactors go to great efforts to portray history accurately in their actions, dress, and equipment. Many of the Civil War period and cowboy-era arms and accoutrements are being manufactured with great historical accuracy, and several of the 19th century cartridges have been put back into production in a modern version.

By the end of the Civil War, there were no large caliber cartridge revolvers being manufactured in the United States. Smith & Wesson manufactured .22 and .32 caliber rimfire cartridge revolvers throughout the conflict as they owned the rights to the Rollin White Patent for bored-through cylinders. They couldn't keep up with production orders for their very popular, small caliber, rimfire cartridge revolvers, so they had no extra resources available to develop and build a large caliber cartridge model. After the war, they wasted no time developing what became their No.3 American, .44 caliber, top-break revolver.

The United States Ordnance Department had purchased nearly half-a-million cap and ball revolvers from Remington and Colt during the Civil War. At its cessation, the metallic cartridge had come of age, and ordnance officers started the arduous and costly task of updating their pistol inventories. It is speculated that, as early as 1866, Springfield Armory was secretly developing ways to convert cap & ball revolvers to cartridge. They kept the development under wraps because they wanted to avoid payment of royalties to Smith & Wesson for the Rollin White patent.

At the close of the war, many revolvers were sold to mustering-out soldiers for a stipend, and there were others, not a few, that just went home with their possessors. Many more revolvers were sold at auction to civilian markets. Benjamin Kitteradge & Co. of Cincinnati, Ohio, obtained about 4000 of these surplus Remington Army revolvers with the intention of converting them to cartridge for sale to the western trade.

The first legally-produced cartridge conversion cap & ball revolvers in the United States were produced by E. Remington & Sons in 1868 and 1869, under the Rollin White Patent for bored-through cylinders licensed from Smith & Wesson.

Kitteradge approached Smith & Wesson, asking them to convert their surplus Remington revolvers to cartridge. S&W took the project to Remington to do the actual conversion work, charging Remington \$1.00 per revolver to use the White Patent. Remington accepted the challenge if they would be allowed to make new 5-shot .46 rimfire cartridge cylinders¹ rather than to convert the old 6-shot percussion cylinders, which they felt would be too thin between the chambers of the larger .46 caliber cartridge chamber.

In the early 1870s, the Union Metallic Cartridge Company was the major manufacturer of .46 rimfire revolver ammunition. UMC cartridge boxes were labeled ".46 Cal. Short Rim-Fire Cartridges." Charles R. Suydam in his *U.S. Cartridges and Their Handguns, 1795-1975* noted that, until about 1900, the .46 short rimfire round was generally referred to as the ".46 Special."

I wanted to re-create a Remington, Smith & Wesson conversion, with a 5-shot cylinder, so I went searching for an appropriate modern equivalent to the ancient .46 Short Rimfire cartridge. Even if you could afford to accumulate a dozen or so cartridges, the .46 Short Rimfire cartridge (or .46 Special) would be worthless after the first firing, if they would even go off, as the rimfire cartridge is not easily reloaded. So, how can we re-create a historically significant .46 Short cartridge? The 56/50 Spencer rimfire cartridge has been re-introduced in a center fire form, so why not a .46 Short Center Fire cartridge? With the .46 short rimfire cartridge dimensions in hand (see chart), I started searching for an existing center fire cartridge case of the appropriate dimensions and discovered that the .455 Colt/Enfield cartridge, an American adaptation of a 19th century British military revolver cartridge for the 1873 Colt revolver, fit the profile almost perfectly. The .46 Short RF carried a .456 inch diameter, 227 grain, heeled base bullet in front of a 20 grain charge of black powder. The .455 Colt carried a .455 inch diameter, inside lubricated bullet which required a larger inside case mouth diameter than does the heeled base bullet.

Cartridge	Bullet Diameter	Case Diameter	Rim Diameter	Case Overall Length	Cartridge OAL	Bullet Grains	Black Powder Grains
.46 Short RF	.456	.458	.53	.84	1.34	227	20
.46 Short CF	.454	.478	.51	.89	1.34	230	20
.455 Colt	.455	.478	.53	.87	1.35	265	?
.44 Henry	.446	.446	.52	.88	1.35	200	26
.45 S&W	.454	.478	.52	1.10	1.43	?	?
.45 Colt	.454	.478	.51	1.29	1.60	255	28

If only the .455 Colt were still in production, but it was discontinued in the late 1930s and is too valuable as a collector item to be used today. But, hey – wait a minute! The Cowboy Action Shooting fraternity has a way of re-inventing the past for us. Enter the .45 Cowboy Special cartridge case, designed to make use of .45 ACP loads in the .45 Colt chamber. The .45 ACP, due to its smaller case capacity and more efficient burn rate, seems to be a bit more accurate than the venerable old .45 Colt. Hence, the .45 Cowboy Special case was born to take advantage of the volumes of load data already developed for the .45 ACP. Return with me to the chart and compare the .46 Short Rimfire to the .455 Colt. Note that the case diameter is larger on the .455 because of the inside lubricated bullet. Now take a look at the .45 Cowboy Special case. These three cartridge cases are as close to identical to each other as can be expected with the “considerable variation”² of rimfire cartridges made in the 19th century. With the .45 Cowboy Special case, loaded with 20 grains of black powder and a .454/.452 inch diameter, 200 grain bullet we have a .46 Special (Short) Center Fire cartridge for historical application in reproduction Remington Army conversion revolvers.

Let's keep reviewing the chart for other possibilities. Check out the .44 Henry Flat cartridge. The .44 Henry was developed by Benjamin Tyler Henry for the model 1860 lever action repeating rifle that he designed for Oliver Winchester. The “Flat” designation is derived from the flat nose designed to nest safely against the base of the cartridge ahead of it in the magazine of the Henry Rifle. The bullet also had a heeled base, so the case diameter and the bullet diameter are very close to identical. Now compare the cartridge case dimension of the .44 Henry to the three cartridge cases in our previous study. If we load the .45 Cowboy Special case with a flat-nosed, .454/.452 inch diameter, inside lubricated bullet, we have a .45 Henry Flat Center Fire cartridge for historical adaptation to reproduction Henry and 1866 rifles chambered for the .45 Colt cartridge. As a point of interest, the .45 Colt cartridge, although a very historically-correct cartridge for revolvers, was never used in any of the 19th century Winchester and Marlin lever action rifles and carbines.

All the components needed to load center fire clones of the .46 Special (Short) rimfire and .44 Henry Flat cartridges are available. We can now shoot nearly-perfect reproduction ammunition in our reproduction Remington Army Conversion revolvers, and the Henry and 1866 Winchester Repeating rifles, with very little modification to the arms. The cartridge carrier in the Winchester does need to be altered to function with the shorter cartridge. Modified carriers are available for the Henry, the 1866, and the 1873 rifles and carbines chambered for the .45 Colt cartridge.



The .45 Cowboy Special is nothing more than the use of modern components to re-create an old rimfire cartridge that is no longer practical to shoot. This gives us a cartridge to shoot in our reproduction firearms that replicates a cartridge no longer available.

Footnotes:

1 Colt Conversion Revolvers and other Conversions by R. Bruce McDowell, page 53.

2 Note: “Rim fire cartridge dimensions show considerable variation, depending upon manufacturer, specific production lot and production era.” See page 492 in the 11th Edition of Cartridges of the World by Frank Barnes/Stan Skinner.

Loading Component Source: .45 Cowboy Special cartridge cases <https://www.starlinebrass.com/45-cowboy-special>