

WHAT ARE THE DIFFERENCES BETWEEN FIRING BLANKS AND FIRING LIVE AMMUNITION WITH MUZZLE-LOADING ARTILLERY?

By William Speir

Loyal Train of Artillery Chapter of the United States Field Artillery Association

Copyright © 2011

All Rights Reserved – William Speir

Many reenactors and ceremonial artillerists will never experience firing live ammunition, but organizations, such as the North-South Skirmish Association and the Loyal Train of Artillery Chapter of the United States Field Artillery Association (LTAC-USFAA), do hold regular competitions where live ammunition is fired. The article discusses some of the differences to the Muzzle-Loading Artillery Drill and to the safety procedures when firing live ammunition.

For field guns (smooth bore, rifled, and howitzers), there are three variations of the drill that occur when firing live ammunition. These variations are:

1. **IN BATTERY.** When a cannon fires live ammunition, there is a recoil that rarely occurs when the cannon is only firing blank powder charges. The cannon must be repositioned on the gun line after it is fired. After the command **FIRE** is given, and after the cannon has successfully fired, the command **IN BATTERY** is given. The cannon crew will immediately move onto the carriage to roll the cannon back into its original position. Number 1 & 2 will grasp the wheel above the hub, Number 3 & 4 will grasp the wheel from the rear, and either the Gunner or Number 5 will come forward and lift the trail spike so that the cannon can be moved forward. Once the Gunner is satisfied that the cannon is back in its original position, the cannoneers will begin the *Service the Piece* (which, when firing blank charges, is automatically done immediately after the cannon is successful fired). The Gunner may or may not give the command to **SERVICE THE PIECE**.

Note: Many artillery crews at live fire events will set up markers to help return the cannon to the same position each time after firing. This can be accomplished by staking small wood planks across the front and sides of the wheels to act as guides for moving the cannon back into position.

2. Sighting the Gun. The sighting of the gun so that the projectile hits the intended target is of critical importance. Because three (3) minutes must elapse between when the cannon is fired and when the next round is introduced into the muzzle of the cannon, this is the best time to do the primary sighting and aiming of the cannon. This is the safest time to do the sighting since there is a danger to the Number 3 cannoneer who still has their thumb covering the vent after the live round has been rammed. The Gunner may make one final sighting before the READY command is given to prick and prime the powder charge, but most of the aiming should be done between the IN BATTERY command and the LOAD command.
3. Loading Live Ammunition. Some cannoneers have their live rounds constructed as they were during the War Between the States, meaning that the powder charge the sabot and the projectile are all attached together into a single package. If this is done, there is no variation to the drill for loading and ramming the ammunition. However, many cannoneers have the powder charge separate from the sabot and projectile. This means that the ammunition must be loaded and rammed in a two step process.

The first step is as stated in the drill. Number 2 will rest the worm on the axle (or hook it onto the side of the carriage cheek), and turn toward the wheel the receive the powder charge. Number 5 will bring the powder charge to Number 2, who will then introduce the powder charge to the end of the muzzle and then step out of the inside of the wheel and return to POST position, leaving the worm behind. Number 5 will then return to the Limber to obtain the projectile. The projectile is brought up just like the powder charge to the Gunner, who will then instruct Number 5 when to bring up the projectile to Number 2. Once the powder charge has been rammed by Number 1, Number 2 will step back into the wheel well, hugging the edge of the wheel carefully (similar to the Misfire Drill) and, facing the wheel, prepare to receive the projectile. Number 2 will take the projectile from Number 5 just

like the powder charge and place it just into the muzzle. Number 2 will then take the worm, step out of the wheel well, and return to POST position. Number 1 will ram the projectile just like the powder charge. The rest of the drill proceeds as normal.

Note: Some cannon crews who live fire have standing hooks that the worm and other implements may be hooked to outside the wheel well. If one of these is present, Number 2 will take the worm when stepping out of the wheel well after introducing the powder charge to the muzzle and rest/hook it to the stand so that it is outside of the wheel well when the live ammunition is introduced to the muzzle.

Much care must be taken when firing living ammunition. The rounds need to be closely inspected prior to the event to ensure that they are safe. For rounds where the powder, sabot, and projectile are in a single package, the package needs to be opened up so each component can be checked. Duct tape should not be used when securing the projectile to the sabot because the adhesive can melt and create a mess. The narrow packing tape with the nylon fibers running through it is the best tape to use and is highly recommended. Remember, it is more important to be safe than to hit the target!

Care should be taken when selecting the contents of a Canister Round. 50 Caliber lead shot is the most recommended because it causes the least damage to the inside of the cannon barrel. Steel should not be used, and nuts & bolts should also not be used because of the potential for damaging the barrel lining. The lead shot should be packed in sawdust to hold the shot in place and prevent movement while in flight. Aluminum beverage cans work well for creating Canister Shot. The bottom is cut off and the wooden sabot inserted and tacked & taped into place. The top is then cut off and the sawdust and shot poured in until about ½ of an inch from the top of the can. Then, the top edge is cut with short vertical snips all the way around. The bottom of the can, which was cut off first, is then inverted (so that the dome is facing out) and placed into the top of the can. The snipped ends of the can are then folded in to secure the top of the Canister Round.

Solid shot can be cast from moulds and is typically made of Zink because of its similarity in mass to iron and because it is easier to work with. Some people use lead, but this has much more mass and weight than iron and will have serious effects on the accuracy of the round.

Because the lining of a cannon barrel will get worn over time from firing live ammunition, it is normal for projectiles to be smaller than the inside of the barrel. The sabot attached to the projectile, though, should be custom fit to the barrel so that the projectile package (projectile and sabot attached together) is a good fit. You do not want the projectile package to be too loose because that will allow some of the force from the powder charge to slip past the projectile, causing the projectile to fall short of its intended target.

Exploding ordnance (Shell and Case) and their fuses should be manufactured by professionals because of the extreme danger to cannoneers serving on and near the gun. Exploding ordnance should never be allowed to be fired from mortars at events because of the possibility of severe injury and damage if the charge explodes too soon.

The range used for firing live ordnance must be selected carefully. What most people forget is that solid shot does not just travel several hundred yards in the air, hit the ground, and then stop moving (unless the shot imbeds itself in soft ground). The force produced by the exploding powder charge will continue propelling the shot forward for several miles as the shot hops and bounces down range on firm ground until inertia and gravity eventually slow it down. Solid shot from a 12-Pounder gun has been found ten miles down range before.

Tremendous care must be taken when firing live ordnance to ensure the safety of the gun, the gun crew, and the spectators. No gun crew should ever fire live ordnance without proper training and the supervision of an expert who has been qualified in live-fire by a nationally recognized organization that promotes safe live-fire of muzzle-loading artillery.

Ready to learn more about the muzzle-loading artillery drills taught by the LTAC-USFAA? The drills are taught to all students who attend the Artillery Schools, and the manuals can be purchased online at <http://artillerypublications.com/>.