National Park Service Manual for firing Civil War Artillery

This manual sets forth the procedures that must be followed by persons demonstrating 19th century field artillery to the public in areas administered by the National Park Service. It also provides instruction on proper maintenance, inspection and repair procedures. This manual must be used in conjunction with the Service-wide Standards for Historic Weapons Firing Demonstrations. (NPS-6, Guidelines for Interpretation and Visitor Services, appendix B).

The material in this manual was written and compiled by National Park Service Historian Daniel Brown. Dan has an extensive background and years of experience in the subject and the many hours he spent on this publication are greatly appreciated.

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NOMENCLATURE OF CANNON

(Figures 1,2, and 3)

IMPLEMENTS AND EQUIPMENTS

The following list of implements and equipments are considered to be the minimum levels for conducting safe demonstrations:

Implement/Equipment	Minimum Recommended No.	Material
Sponge-Rammer	1	Stave, Ash or Hardwood Sponge-Head, Elm, poplar Rammer-Head, ash, Elm, &c.
Worm	1	Stave, Ash or Hardwood
Sponges	Replace as necessary	Wool Carpet or Sheepskin
Sponge Bucket	1	Iron
Tube Pouch	2	Leather
Thumbstall	2	Leather
Priming Wire	2	Brass
Laynard	2	
Haversack	1	Leather
Handspike	2	Hickory, Oak

For specific manufacturing and materials, refer to *US Ordnance Manual, 1862* or *CS Ordnance Manual 1863.*

The Sponge-Head and Rammer-Head are attached to the stave by means of hardwood dowels. Nails, used to attach the copper band on the rammer-head and the sponge to the sponge-head, are of copper or bronze.

SPECIAL EQUIPMENTS

A few items are necessary for the safe handling of misfires. These should be kept in the chest or made convenient to the demonstration area.

Quill primers - This item is made with a paper soda straw filled with 3F powder. The straw should be long enough so that it protrudes from the vent an inch or so, and can be torn to expose the powder to the match. A quill primer may be kept in the chest or in #4's pouch.

Slow Match - This item is most easily made from cotton cord (like clothes line) soaked in potassium nitrate. The match is wound around a wooden linstock, specifications are contained in period ordnance manuals.
It is not advisable to make slow match with lead acetate, (as per the manual) as this chemical gives off toxic vapors. For the purposes of this procedure it is acceptable to use untreated cotton rope, since the match will be used infrequently. (If there is an area where the match is necessary, consult the Standards for 18th Century Artillery, for specific instructions on manufacture).

Unloading Through the Muzzle - It is essential that a good supply of water be available to the demonstration area.

A large syringe (60cc) should be kept in the chest so that water may be introduced into the vent to damp the charge.

POSTS OF THE CANNONEERS; PIECE UNLIMBERED

The Gun Detachment for NPS artillery demonstrations shall consist of at least six people, the Gunner and Cannoneers #1 through #5.

The piece being unlimbered, the detachment is posted as follows:

Gunner - at the end of the trail handspike.

Cannoneer #1 - about two feet outside the right wheel; with guns, in line with the front part of the wheels; with howitzers, slightly in rear of the muzzle.

Cannoneer #2 - about two feet outside the left wheel; with guns, in line with the front part of the wheels; with howitzers, slightly in rear of the muzzle.

Cannoneer #3 - in line with the knob of the cascabel, covering on #1.

Cannoneer #4 - in line with the knob of the cascabel, covering on #2.

Cannoneer #5 - five yards in the rear of the left wheel.

If Cannoneers #6 and #7 are included, they are posted to the rear of the limber; #6 at the chest, #7 on his left covering on #5.

(Figure 4)

COMMANDS FOR LOADING AND FIRING

In most demonstrations the commands for loading and firing will be given by the Gunner. This procedure is somewhat in variance with the procedure used in actual field service. Since in a battery organization the Gunner would communicate those orders from the Chief of the Piece, to his detachment.

For the purposes of this manual it is assumed that the Gunner will be giving these orders to the detachment directly. It may be well to consider, however, the use of a Chief of the Piece, or Chief of Section, as the Interpreter required by the Standards. By doing this, the safety requirements will be satisfied, and historical accuracy will be enhanced.

Depending on the nature of the tactical situation, the orders given to the detachment would, in actual service, slightly vary. In the simplest method the commands given would be, "Commence firing" and "Cease firing." These would be given by the Chief of the Piece as directed from the Chief of Section or Battery Commander. Below is listed the various commands and the action to be taken:

"Load" - This is an executive command. It may be given by the Gunner alone or by a superior. When given by a superior, the Gunner will immediately repeat it. This is the signal for the Cannoneers to commence their movements in loading the piece.

"Commence firing" - This command is given by a superior. The Gunner would receive it and, if the piece is not loaded, he would command the detachment to "Load", and as soon as the piece is loaded and all numbers in the proper positions, he would command "Fire", without further orders.

If the piece is loaded when this command is received, the Gunner, being sure that all numbers are in the proper position, would command "Fire".

"Fire" - This is an executive command, given only by the Gunner. This point must be strictly adhered to, so as to prevent #4, who is looking away from the piece when in firing position, from prematurely pulling the lanyard.

"Cease firing" - Given by the Gunner or a superior. If given by a superior, the Gunner will immediately repeat it. At this command, the Cannoneers will return to their positions at "To your posts". Since rapid fire is prohibited, "Cease firing" is given after one discharge of the piece.

If there is an emergency, (such as a violation of the range area) this command is to be given by any member of the detachment who sees the violation or unsafe situation. When given in this manner the Cannoneers will immediately stop whatever they are doing and maintain the position they are in at that moment, except when (1) the charge is in the hands of #2, he will immediately return it to the haversack; (2) #1 is in the process of ramming the charge, he will immediately withdraw the rammer and step outside the

wheel, (3) the charge is seated and #1 is still inside the wheel, he will immediately step outside the wheel.

Once the emergency has been attended to the drill may be completed by giving the command “Load” to resume the action.

For the purposes of instruction of the detachment, or if desired to show the drill step-by-step to the visitors, the "Load by detail" may be used.

In this procedure the commands may be given by the Chief of Section, Chief of the Piece or the Gunner. Each member of the detachment performs his duties with the ~ommands, which are:

"Load by detail - Load; two, three, four: Sponge; two, three, four: Ram; two, three: Ready; Fire; Cease firing."

DUTIES OF THE DETACHMENT - ENUMERATED INDIVIDUALLY

GUNNER

The gunner gives all executive commands in action. He is answerable that all the numbers perform their duties correctly. He communicates the orders he receives for the kind of ammunition to be fired; sending to #6 the time and distance for each round when firing shells or spherical case shot. He should see that each fuze is properly prepared, and make such corrections as are necessary; for this purpose he, as well as #6, should be provided with a fuze-gauge.

On receiving the command, or signal to commence firing, he gives the command "Load"; takes hold of the trail handspike at the end with his right hand, and at the centre with his left; places his knee against the left hand; bending over it, the right knee being slightly bent; looks over the top of the piece, and give the direction. He then steps to the breech to give the elevation, which he does by placing the hausse on its seat, taking hold of a handle of the elevating screw, drawing back his right foot, bending over his left knee, and sighting through the slit in the hausse. (This position is shown in figure 5).

When #3 goes to the trail handspike, the Gunner will indicate to him the direction by tapping on the trail, on the right side for a movement to the left, on the left side for a movement to the right. As soon as the Gunner is satisfied with the aim, he makes a signal by raising both hands, so that #3 may resume his position at "To your post." He then removes the hausse, steps to where he can observe the effect of the shot, gives the command "Ready" and when all numbers are in their proper positions gives the command "Fire."

It is important to note that the original manual states that the Gunner remove the hausse, give the command "Ready" then step out to observe the effect of the shot. For our purposes this is not deemed advisable because, if the Gunner hurries, as there is sometimes a tendency to do, #3 will not have sufficient time to return to his position outside the wheel and more importantly, before the priming process begins, the Gunner should be sure that the range is clear. To accomplish this end the Gunner will move to a position where he has a good view down range before giving "Ready."

When the command "Load" is given by a superior (Chief of the Piece or Chief of Section), instead of "Commence firing," the Gunner repeats it, and performs the same duties as before, except that he does not command "Fire" until the firing is ordered to commence.

(Figure 5)

CANNONEER #1

Until the command "Load", #1 stands square to the front, in line with the front part of the wheels, holding the sponge about the middle of the staff in his right hand, and trailing it at an angle of 45 degrees, sponge-head up.

(The movements and motions for each of the movements are given as per Patten's Artillery Drill, which is "By Detail." In actual service the only commands given by the Gunner are "Load", "Ready" and "Fire".)

"By detail - LOAD"
Three times and four motions

Figure 6. At this command #1 faces to the left, steps ob1ique1y to the right with his right foot, without moving his left, and at the same time brings the sponge smartly to a perpendicular position by drawing his right hand up in line with the elbow. The sponge is grasped firmly in the hand, and the rammer-head kept just over the right toe, the elbow close to the side.

(Figure 6)

TWO

Figure 7. He steps obliquely to the left with his left foot, planting it about half way between the piece and the wheel, and opposite the muzzle; bringing the sponge at the same time across his body to the left, so that his right hand may be opposite the middle of the body, the sponge staff being inclined at an angle of 45 across the front of it.

When stepping in #l will insure that the distance he places himself in front of the muzzle will not be so great as to prevent his body from being behind the muzzle when the charge is seated.

(Figure 7)

THREE

Figure 8. He takes a side step to the right of thirty inches, and bending his knee, brings the sponge to a horizontal position, extending the hands to the end of the staff, the sponge-head to the 1eft, the back of his right hand up, and that of the left down, the sponge-head near the face of the piece.

(Figure 8)

FOUR

Figure 9. He inserts the sponge-head, drops his left hand behind his thigh, shoulders square, feet equally turned out, straightens the right knee, and bending over the left, forces the sponge home.

(Figure 9)

"SPONGE"

Three times and four motions.

At this command #1 fixes his eye on the vent to see that it is closed, gives two turns to the sponge, taking great care to press it at the same time against the bottom of the bore.

(Figure 5)

TWO

Figure 10. He draws out the sponge, at the same time straightening his left knee, and bending his right; seizes the staff near the sponge-head with his left hand, back of the hand down, and holds it near the face of the piece.

(Figure 10)

THREE

Figure 11. He turns the sponge by bringing his hands together in the middle of the staff, giving it a cant with each hand, throwing the sponge head over, at the same time turning his wrist which brings the staff horizontal, and extending his hands to the ends of the staff, back of the left up, that of the other down. He taps the rammer-head, gently, underneath the swell of the muzzle as a signal for #2 to insert the charge.

(Figure 11)

FOUR

Figure 12. He introduces the rammer-head into the muzzle, as soon as #2 has inserted the charge, he elevates the left arm parallel with the ground and pointed, towards the left trunnion, and casts his eyes to the front.

At no time will both hands be on the sponge-rammer when the charge is in the bore.

(Figure 12)

"RAM"
Figure 13. At this command #1 rams home, throwing the weight of his body with the rammer; bending over his left knee, and passing his left arm, with the elbow slightly bent, back of the hand up, in a horizontal position over the piece, in the direction of the left trunnion; the right shoulder back, and eyes still cast to the front until the cartridge is home.

The left arm will be elevated and pointed toward the left trunnion so as to refuse the right shoulder when ramming the charge.

During the whole time of sponging, and ramming #1 will insure that the vent is kept stopped. When sponging he will keep his eye to the vent, when ramming he will be alert for the sound made by air rushing through the vent. If at any time it is not closed, he will discontinue the maneuver, and command "STOP VENT."

(Figure 13)

TWO
Figure 14. He jerks the sponge out with his right hand, allowing it to slide through the hand as far as the middle of the staff, where he grasps it firmly, the rammer-head is dropped slightly below the level of the muzzle, when he then seizes the staff close to the rammer-head with the left hand, back of the hand up; both knees straight; eyes to his own front.

(Figure 14)

When the rammer head is clear of the muzzle he will step back before seizing the stave with the left hand.

THREE

Figure 15. He then draws the sponge close to his body, and immediately steps back outside the wheel, first with the right, then with the left foot; so that when the right foot is brought to it the right hip may be on a line with the front of the wheel. In drawing the right foot to the left, he gives the sponge a cant with his left hand, at the same time quitting it, and brings the sponge to a perpendicular position in the right hand, the rammer-head resting on the right toe.

(Figure 15)

"READY"

Figure 16. At this command, which is given as soon as the piece is loaded or the firing is about to commence, #1 breaks off well to the rear, obliquely, with the left foot, so as to well clear the hub of the wheel; pending the left knee and straightening the right leg, drops the end of the sponge staff into the left hand, back of the left down, and fixes his eyes down range. The body erect on the haunches, and the sponge-rammer held in a horizontal position, sponge-head to the left.
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(Figure 16)

The piece having been fired, #1 rises on his right knee, and returns to his position, as in the third motion of "Ram". At the command "Load", he steps in and performs his duties in the same manner as before.

When the loading is not by detail, as in an actual firing demonstration, #1 goes through all his duties at the command "Load", without any other commands being given, returns to his position outside the wheel, as given in the third motion of "Ram"; breaks off at the command "Ready", and as soon as the piece fires, rises, steps in and performs his duties as before. This continues until the command "Cease firing" is given, at which command he resumes the position at "To your posts". If sponging has been commenced when the command "Cease firing" is given, it is completed before #1 resumes his post.

Remarks on the Position of #1 - In sponging and ramming, if the length of the piece requires it, the sponge and rammer are to be pressed home in two motions, #1 extending his right hand to the end of the staff, as soon as it reaches the muzzle.

In sponging howitzers #1 presses the sponge to the bottom of the chamber, which should be well sponged out. He wipes the bore by rubbing its whole surface, without allowing the sponge to turn in his hands. For this purpose the staff may be grasped in both hands, back of the right up, that of the left down, as the sponge is being withdrawn, wiping the bore.

The distance between the feet, in the Third Motion of "Load", is not considered to be absolute, they will be placed at such a distance apart, as to enable the man to perform his duties with the utmost ease and steadiness.

The object of elevating the left arm over the piece and casting the eyes to the front, while ramming, is to refuse the right shoulder. To secure this object, the left hand when it passes over the piece, is not carried further back than the direction indicated. This will keep the shoulders in a line parallel with their position, at the commencement of the movement, until the cartridge is set home, and thus guard against fatal results in case of a premature discharge (see figure 13).

CANNONEER #2

Until the command "Load" is given, #2 remains in his position at "To your posts," shown in Figure 4.

"LOAD"

On this command being given, he faces to the right, and by two oblique steps, corresponding to those of #1, the first with the left, the second at the command TWO, with the right foot, he places himself near the muzzle of the piece. At the command THREE, he brings up his left foot to the side of the right, and faces to his right, bring-up his hands together to receive the ammunition from #5; the cartridge (powder) in the right, the shot (wadding) in the left hand. Figure 17.

(Figure 17)

As soon as he hears #1 tap on the muzzle, he faces to his left, and puts the ammunition into the muzzle, and immediately steps back, commencing with his left foot, to his position outside the wheel, in the same manner as #1 does.

"READY"

At this command, he breaks off well to the rear, obliquely, with the right foot, so as to well clear the hub of the wheel; bending the right knee, and straightening the left leg; the body erect on the haunches and fixes his eyes down range.

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The piece having been fired, #2 rises on his left leg, remains facing the piece until he hears the command "Load", or when the loading is not by detail as in an actual demonstration, as soon as the piece fires, steps in, and performs his duty as before. At the command "Cease firing", he then takes his position outside the wheel, and faces to the front.

CANNONEER #3

No.3 stands in line with the knob of the cascabel, covering #1, the priming wire held in the right hand, the thumbstall on the left thumb, the tube pouch fastened to the waist. Figure 4.

"LOAD"

At this command, he steps to his left, wipes the vent field with the thumbstall, and presses the thumbstall over the vent, closing it securely, keeping his elbow raised; his fingers on the left side of the piece, so as to allow the Gunner to point over his thumb; the right hand on the tube pouch. Figure 5.

(Figure 5)

When #1 takes his first step back from the muzzle, #3 moves to the end of the trail handspike, and, seizing it with both hands, prepares to move it right or left on a signal from the Gunner, who taps the right of the trail for a movement to the left, and the left of the trail for a movement to the right. As soon as the piece is pointed, the Gunner raises both hands as a signal to #3, who resumes the position, "To your posts."

“READY”

He steps to the piece, pricks the cartridge with the priming wire held in the right hand, grasped along the shaft, taking care not to move the charge. The priming wire will be grasped along the shaft. At no time will the thumb be placed inside the ring. When #4 inserts the tube he secures it in the vent, holding the lanyard against the breech, about 6 inches down from the vent, with the left hand, keeping eye contact with #4 as he steps to

his position. When #4 is in position he will give #3 a signal, by nodding his head, at which time #3 will step to his right, clear of the wheel, and as soon as the piece is fired, or at the command “Load”, serves the vent as before.

No. 3 must be careful to keep the vent closed from the time the sponge enters the muzzle, until #1 steps back from the muzzle. The safety of # 1 depends on him at this point!

CANNONEER #4

The post of #4 is on a line with the knob of the cascable and covering #2.

“LOAD”
At this command, #4 inserts the hook of the lanyard into the ring of a primer, and stands in his position.

"READY”

At this command he steps in with his right foot, drops the tube in the vent, takes the lanyard in his right hand, being sure that the lanyard is not entangled on the carriage, moves in an oblique direction to his left rear, so far as to keep the lanyard slack, but capable of being stretched, without altering his position, which' should be well clear of the wheel, left foot broken to the left and rear. Figure 18.

(Figure 18)

While moving into position for firing, he keeps eye contact with #3, and when he is in position makes a signal to #3 by nodding his head.

As soon as #3 clears the wheel, he brings the lanyard taut, turns his head to the left, the left knee bent, the right leg straight, and waits for the Gunner to command "Fire".

"FIRE"

When the Gunner gives the command, #4 pulls the lanyard with a swift, smooth downward stroke, passing the right hand, back up, behind him, so as to keep the lanyard hook from striking the face. As soon as the piece fires #4 resumes his position at "To your posts".

CANNONEER #5

The position of #5 is five yards clear of and covering the left wheel. The haversack is worn, hung from the left shoulder to the right side.

"LOAD"

At this command #5 goes to the ammunition chest, the round is placed in the haversack so that the cartridge (powder) will be' to 'the front (or to #5's left when looking into the haversack). He immediately takes it to #2. When it is brought up #5 holds the haversack open, and #2 takes out the round with both hands. No.5 then returns to his post. Figure 19.

Should an emergency occur before #2 inserts the charge, #5 will go to the piece and have the charge replaced in the haversack, until the emergency is rectified or, if the firing demonstration is cancelled, he immediately returns the charge to the ammunition chest.

(Figure 19)

In firing shells or spherical case he exhibits the fuze to the Gunner before delivering the charge to #2.

These positions, enumerated above, comprise the required Gun Detachment for National Park Service, 19th Century Field Artillery Demonstrations. The positions listed below are for informational purposes, though, if staffing permits, should be included in order to enhance historical accuracy.

CANNONEER #6

No.6 is stationed in the rear of the limber chest, and issues the ammunition. He is provided with a fuze gouge and prepares the shell and spherical case shot according to the distance or time ordered, before delivering it to #5.

No.6 will be careful not to raise the lid of the chest unnecessarily. In firing shells and spherical case, he prepares each fuze as directed, assisted when necessary by #7. He gives #5 the time or distance of the fuze with each round, issued, who report to the Gunner before delivering it to #2.

CANNONEER #7

The station of #7 is in rear of and near the left limber wheel. It is his duty to assist #6 in preparation of ammunition and serving of it to #5. He is provided with a haversack.

MISFIRE PROCEDURE
GUNNER
In the case of a misfire, the Gunner immediately gives the command "Do not advance, the primer has failed."

Except in those cases when the primer simply slips out of the vent or the lanyard hook slips from the loop of the primer, the minimum waiting time is 30 seconds before attempting to reprime the piece. When a misfire occurs the judgement, experience and coolness of the Gunner is essential. In some cases it may be prudent to wait more than 30 seconds, but in no case (except the two noted above) shall the waiting time be less than 30 seconds.

When the Gunner determines that sufficient time has elapsed, he gives the command "Reprime and piece," and when #2 signals "READY", he gives the command “FIRE". He will be alert during the repriming that all numbers perform their duties safely and correctly.

CANNONEER #1

He will remain in the position of "Ready" during repriming, keeping his eyes down range, alert for possible range violations.

CANNONEER #2

At the command "Reprime the piece," #2 rises from the position of "Ready," steps with the left foot first, inside the wheel, back to the muzzle, without grasping the wheel, and positions himself close to the axletree. With the left hand, back of the hand down, he carefully removes the failed primer. He then receives from #3, over the wheel, the priming wire grasped along the shaft with the thumb and index finger of the left hand. . The wire is inserted into the vent and released allowing it to drop into the vent. After a short pause, he retakes the wire with the thumb and index finger of the left hand and pricks the charge well. The wire is then withdrawn and handed, over the wheel, to #3.

When the wire is returned to #3, #2 turns to his right and receives from #4, over the wheel, a prepared primer. He inserts the new primer with the left hand, the primer grasped along the barrel with the thumb and index finger, using the right hand to hold the lanyard and keep it from becoming entangled on the carriage. When the primer is inserted, he moves the left hand down the side of the breech to secure the lanyard, while #4 moves into position for firing, being sure to keep eye contact with #4 while he is stretching the lanyard.

When #4 is in position he will nod his head to indicate he is ready. Upon this signal, #2 will release the lanyard and retrace his steps back outside the wheel, being sure to keep his back to the muzzle and not grasp the wheel.

When outside the wheel, he will resume the position of "Ready" and give the Gunner the verbal signal "READY".

CANNONEER #3

When the command "Reprime the piece" is given, #3 steps forward even with the hub of the wheel and hands #2 the priming wire over the top of the wheel. When #2 has finished repricking the charge, he will return the wire to #3 over the wheel, and #3 steps back to his position.

CANNONEER #4

When the command, “Reprime the piece" is given, #4 steps forward even with the hub of the wheel. He immediately fixes another primer to the lanyard and as soon as #2 is ready, he hands him the primer over the wheel. Keeping eye contact with #2, he stretches the lanyard as before; nodding when in position, so that #2 can return to his position outside the wheel.

When the command "FIRE" is given by the Gunner, #4 pulls the lanyard as before.

CANNONEER #5

He remains in position, keeping his eyes down range, alert for possible range violations.

NOTE
The repriming procedure is repeated three times before attempting to soak the charge and unload it through the muzzle.

However, if the primers are faulty, (not igniting) then the gun is fired by means of a quill primer and linstock. For that purpose each gun will be equipped with a linstock, slow match and quill primers.

TO FIRE THE PIECE WITH A LINSTOCK

No.2 steps inside the wheel and repricks the charge as before. No.4 goes to the chest and obtains a quill primer, returns to the piece and hands it to #2, who inserts and tears the top of the quill to expose the powder and then steps back outside the wheel as before.

While the piece is being reprimed, #5 lights the slow match, and brings it to #4 as soon as #4 has stepped back to his post.

On the command "FIRE", #4 takes the linstock in the right hand and moves it in a high arch until the glowing end touches the powder in the vent, setting off the piece.

TO UNLOAD THE PIECE THROUGH THE MUZZLE

When the piece has been reprimed three times, and the primer is igniting properly; then it is evident that there is a serious problem with the cartridge. In most cases the most common fault is that the cartridge was inserted backwards or that the cartridge tumbled in the bore.

In this case the piece will have to be unloaded through the muzzle.

Unloading a piece through the muzzle is an extremely hazardous and delicate procedure. Every effort must be made to move as carefully and cooly as possible. Distractions such as visitor kibitzing or razzing must be eliminated by park personnel. It is best to explain the nature of the situation to the visitor and move them away from the demonstration site.

The Gunner orders #1 and #3 to clear the piece. No.2 steps inside the wheel. No. 4 receives from #5 a syringe and supply of water, he fills the syringe and stand by, at the hub of the wheel, to assist #2.

No.2 takes, over the wheel, the syringe from #4 and injects water down the vent, repeating this three times. He then receives from #4 a priming wire and with it pricks the-charge. Returning the wire to #4, #2 carefully reaches back, with the right hand, to the handles of the elevating screw and elevates the muzzle fully. When the muzzle is fully elevated, he continues injecting water into the vent until it runs from the vent. He then returns outside the wheel and clears the piece.

When #2 has cleared the piece, #1 returns to his position on the right, equipped with a bucket of water or a hose, with which he fills the bore with water. When the bore is full, #4 unkeys the worm, takes it from its implement hook and passes it, over the piece to #1.

No.1 carefully sends the worm down the bore, draws the charge and places it in the sponge bucket, where it is safely broken up and the powder destroyed by soaking.

CARE AND MAINTENANCE

The Gun

After each day's firings, the bore is thoroughly cleaned using fresh water. A mild, pure soap (i .e. Ivory) may be used to facilitate cleaning.

The vent and vent field is cleaned using fresh water and a soft bristle brush.

Vents were originally .2" in diameter. A vent in excess of .3” in diameter should not be used. On reproduction guns, an extra vent piece should be purchased with the gun.

Polishing and/or burnishing of original guns is prohibited, as this tends to obscure markings.

The Gun Book is up to date, and notations on bore and vent diameters are updated at least annually.

The Carriage - In order to preserve the carriage, it should be stored in an unheated building when not in use. If a piece must be kept in the field, then it should be covered with a tarpaulin to protect it from rain and dew.

Paint is to be renewed as necessary.

Some checking of the wood is to be expected. Filling of cracks or checks should be done with a soft, elastic filler that will allow expansion and contraction of the wood. Hard putty or similar products will sink into the crack and act as a wedge as the wood breathes.

It is recommended that cracks on horizontal surfaces be filled, since they would allow water to soak into the wood, shortening the life of the carriage.

Be especially aware of cracks and checks on the cheeks and trail of the carriage since these areas receive the shock of recoil.

Wheels - Wheels are, perhaps, the most critical and important part of the carriage. They should be tight and roll freely and straight.

The axle is to be greased as necessary, with a heavy lubricating grease.

The spokes should give a musical "ring" when tapped with a wooden mallet. Flat sounds indicate the presence of rot. Spokes that jiggle or move when grasped indicate shrinkage of the wood and the manufacturer should be notified for retightening or replacement.

The wheels should be rotated frequently in order to prevent rot on the felloes, especially if the piece is left in the field for appreciable amounts of time.

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Any wheel that has to be kept wet in order to be tight is unsound, and should be repaired or replaced.

Ammunition Chest - The chest should be properly made, having non-sparking materials on the inside. All nails are countersunk and the heads puttied over.

The lid should fit snugly and be provided with a lock. The chest is to be kept locked when not serving ammunition.

The chest is clean and free of spilled powder. All equipments and ammunition are neatly and securely stored in the chest.

Implements and Equipments - Wooden implements should be free from serious cracks and splinters. Paint as necessary.

Rammer and sponge heads are securely fastened with hardwood dowels, and no sparking metals are used in the construction. (During the off-season it is a good idea to soak the sponge-head in boiled linseed oil, to minimize deterioration.)

Leather equipments should be cleaned and kept free of dirt and loose powder. To preserve the leather neatsfoot oil, lexol or other commercial leather preservative may be applied to prevent drying and cracking.

Sponges are to be cleaned after daily firing with clean water and spun out to prevent matting. Since powder fouling deteriorates the fibers, sponges should be inspected frequently and replaced as necessary. In no case should a sponge be allowed to deteriorate to the point where there are loose threads and rotting of the material.