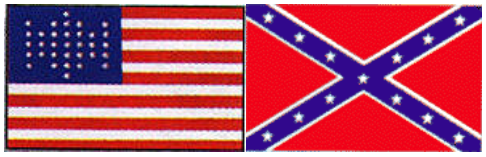
The Civil War 3" Parrott Field Rifle



by Sunsetsam

The Union Forces were equipped with large numbers of the 3" Parrott Field Rifles, as these cannons were produced in large quantities in the North. The Confederate Forces acquired some of these cannons by capture. Also, copies of the 3" Parrott Field Rifle were built by the Confederacy. Parrott Field Rifles were very common during Civil War and they can be seen in most of our Civil War Parks today. This one quarter size firing model of the 3" Parrott Field Rifle will make an outstanding addition to your collection, and will attract plenty of attention when fired.

Note: Before building a firing model cannon, one should recognize that these are No(Toys! They deserve all the respect and proper handling due any firearm.

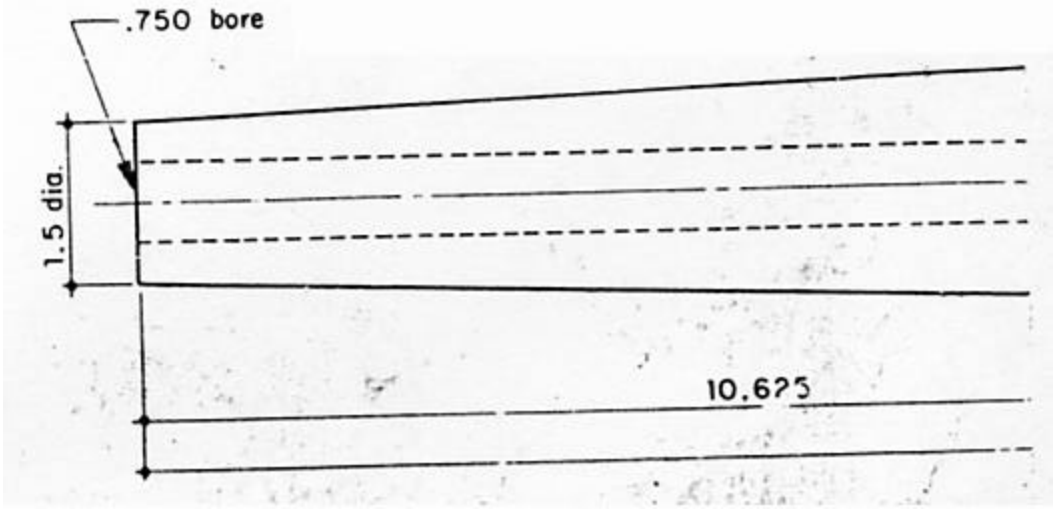
BUILDING THE MODEL

Make the tube first. Referring to Figure 1, select a piece of mild steel round stock of the proper diameter and about l'/2" longer than the tube. This extra stock is handy for chucking purposes and can be cut off after all operations are completed. Machine the tube to the dimensions and shape shown in Figure 1.. The trunnion holes should be drilled before the taper is turned. This can be done on the lathe, drill press, or with a milling machine. The preferred way is to clamp the tube in a vertical milling machine and drill a pilot hole, and then counter bore with an end mill. If a mill is not available, use a drill press at its slowest speed. Remember, when boYing the tube (Photo 3), the drill must be cleared frequently to prevent the chips from binding and breaking the drill. Turn the trunnions as indicated in Figure 2. Since the trunnion holes in the tube may vary slightly from the specified dimensions, due to drill wear, etc., it is best to alter trunnion dimensions as required to fit the tube. Try them in the tube occasionally as they are being turned and before removing the trunnion from the lathe. This procedure will assure a tight fit. A telescoping gauge would be helpful in determining the size and speeding up the process. When the trunnions are completed, attach them to the tube.

Notes: figure numbers are to identify parts in the assembly illustrations

gauges used

14 ga. = .0747
20 ga. = .0359
24 ga. = .0239



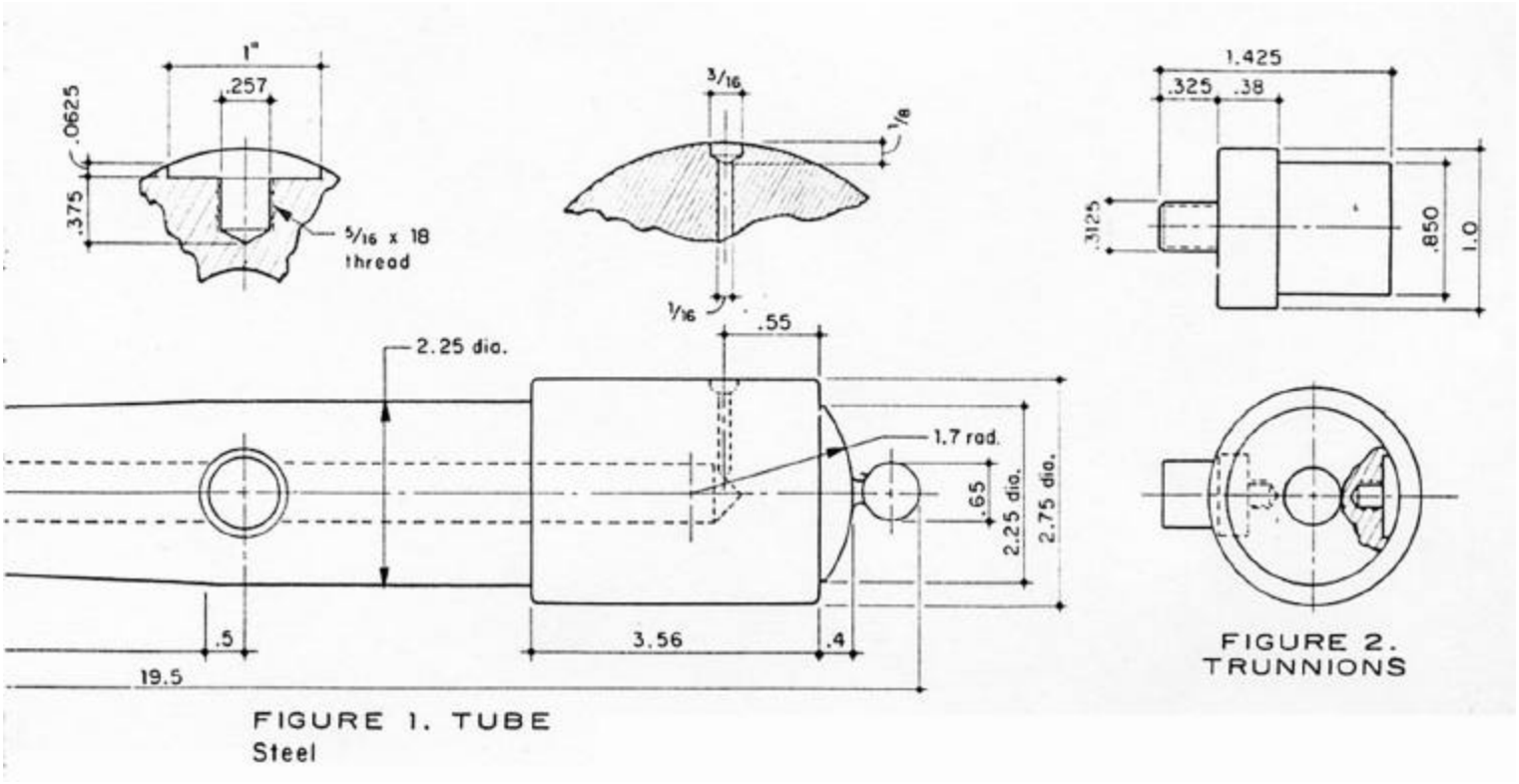


FIGURE 1. TUBE
Steel

FIGURE 2.
TRUNNIONS

The stock and cheeks are made from wood. I prefer mahogany (see Figure 3 and Figure 4).Lay out the parts on wood and saw them to way to shape. Where holes must match, the parts should be clamped together and drilled at the same time. Cut the axle tree from wood, as shown in Figure 14.

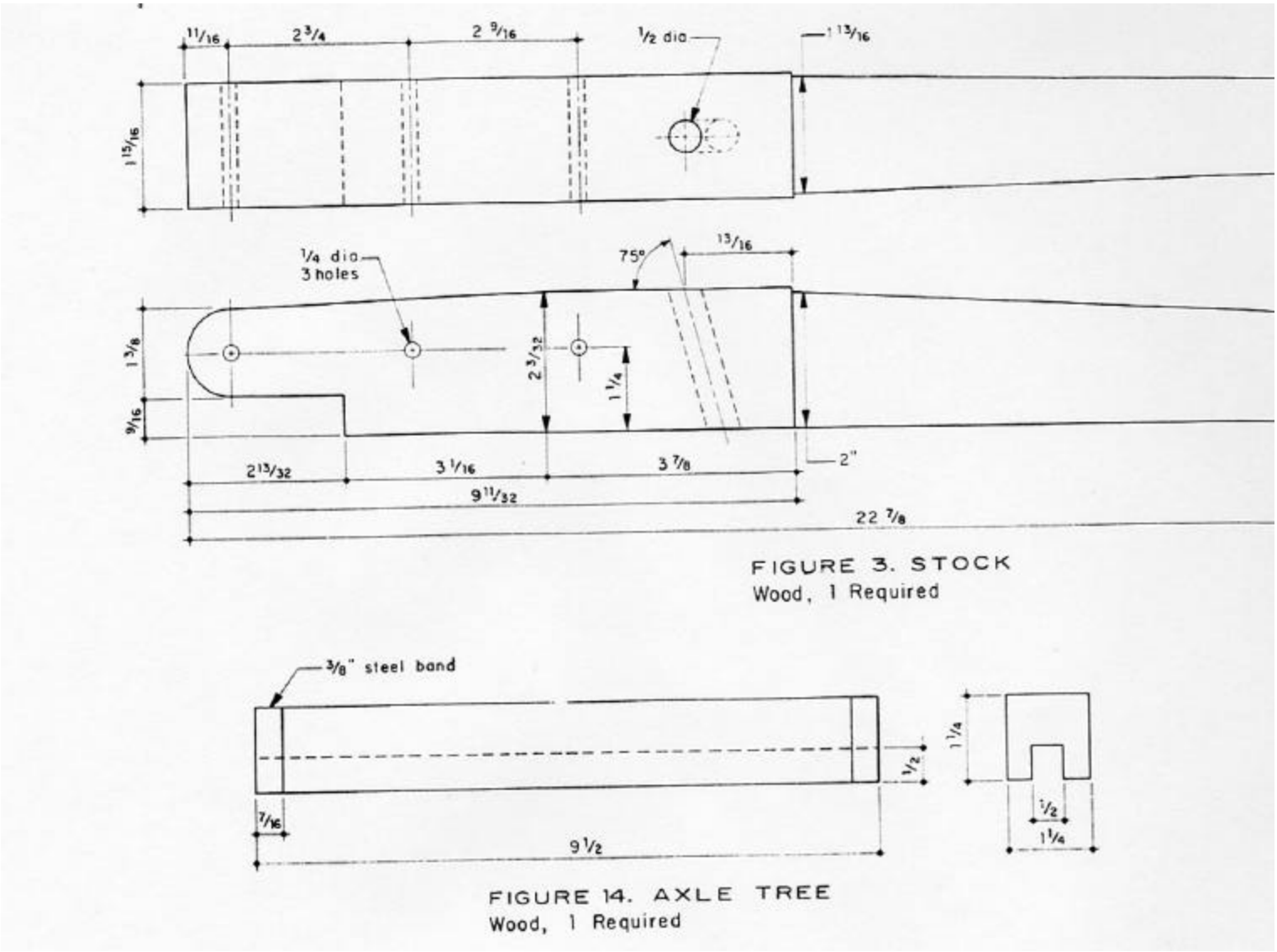


FIGURE 3. STOCK
Wood, 1 Required

FIGURE 14. AXLE TREE
Wood, 1 Required

Since the wheels may be the most difficult parts for most builders, I have devised an easy to way to build them. The wheel construction is illustrated in greater detail to simplify this task. See Figure 9, 10, 11. The builder is given some choice in wheel construction, as to the spokes, (Figure 13), and the number of wheel segments (see notes in Figure 9). Once the wheel rim glue-up is completed as indicated in Figure 10, slip the router circle cutting attachment over the pivot bolt and cut both the inside and outside circles. Separate the completed rim from the cardboard with a sharp knife. Drill spoke holes as indicated in Figure 9. Assemble the rim hub and spokes by clamping the rim to the plywood jig with "C" clamps and bolting the hub with the center pivot bolt. Shim the rim with blocks of wood to produce the correct angle between the rim and the hub for the spokes. Position the spokes through the holes in the rim and then push them into the hub. Add glue just before seating them into final position. Sand a11 wood parts to a smooth finish, and paint with a light gray paint. I use a paint mixture of 5 parts of light gray, mixed with one part of olive drab.

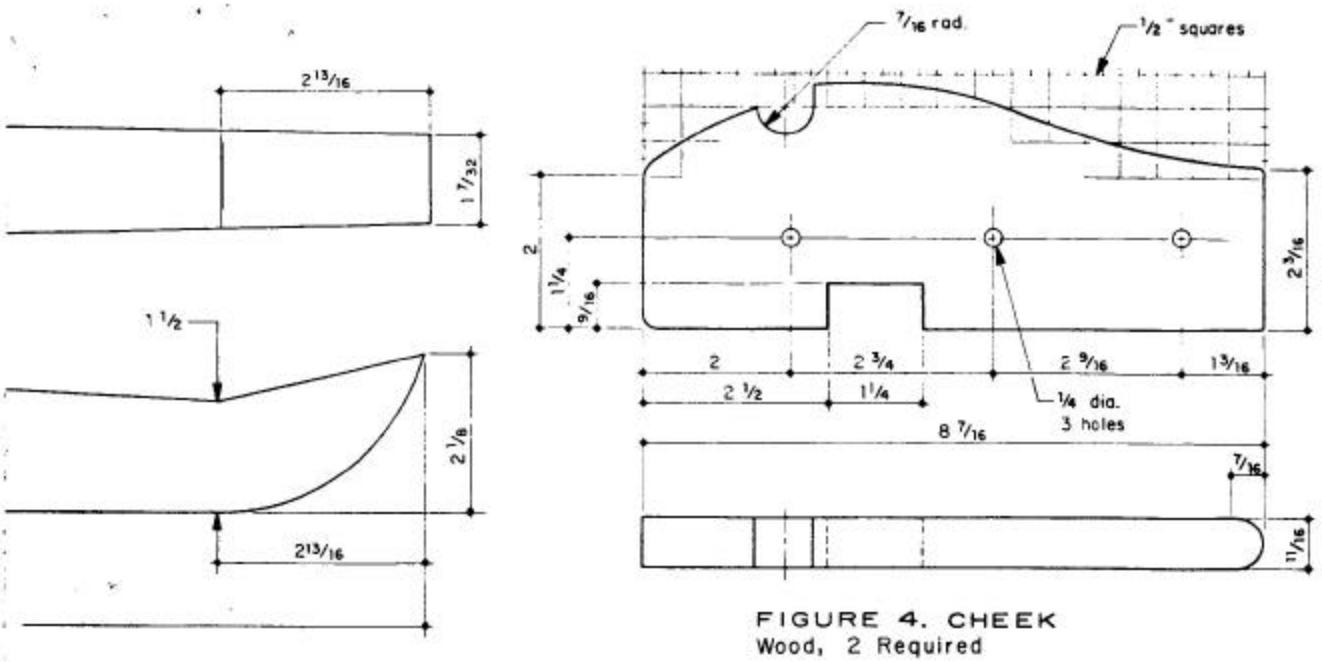


FIGURE 4. CHEEK
Wood, 2 Required

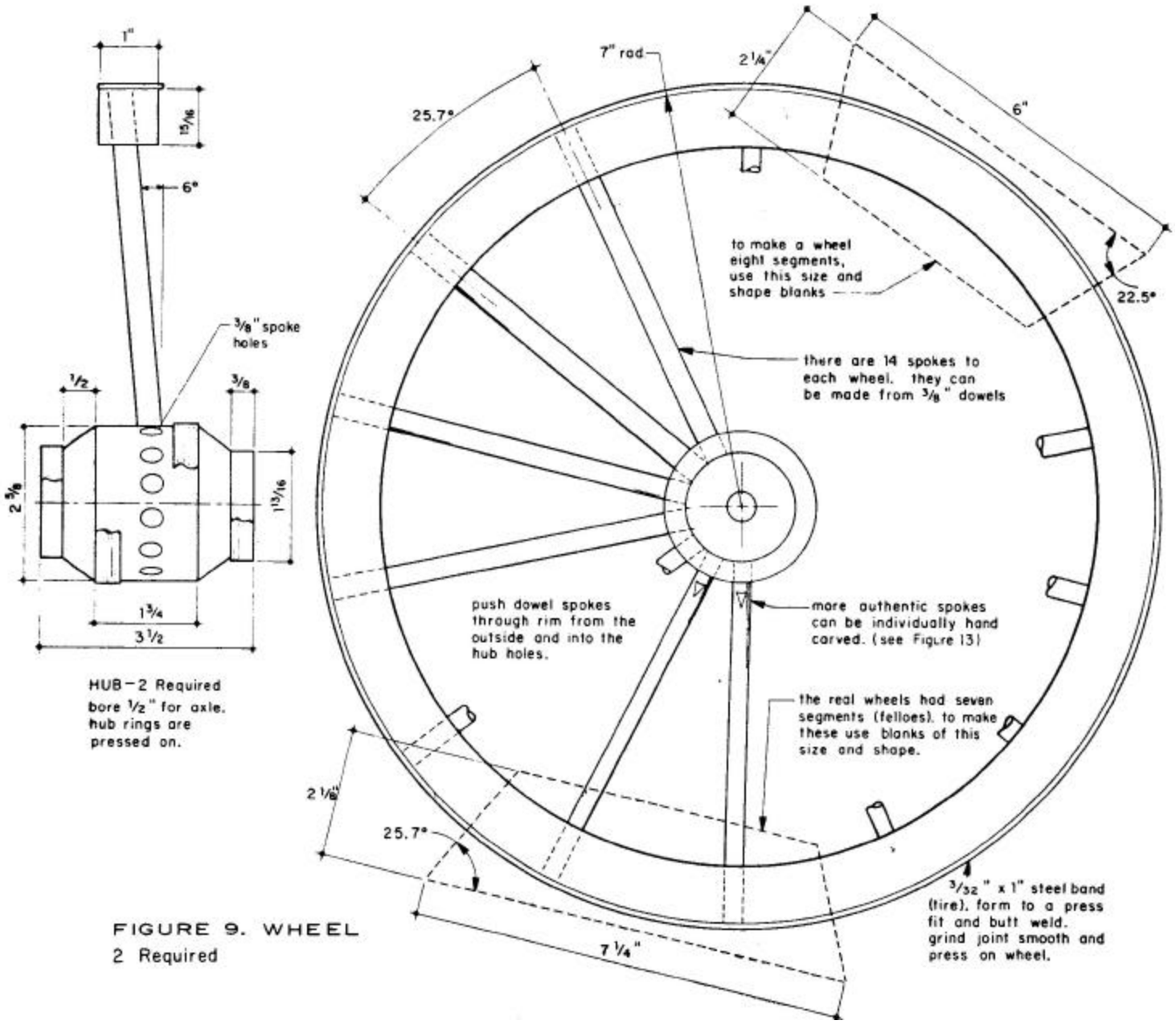


FIGURE 9. WHEEL
2 Required

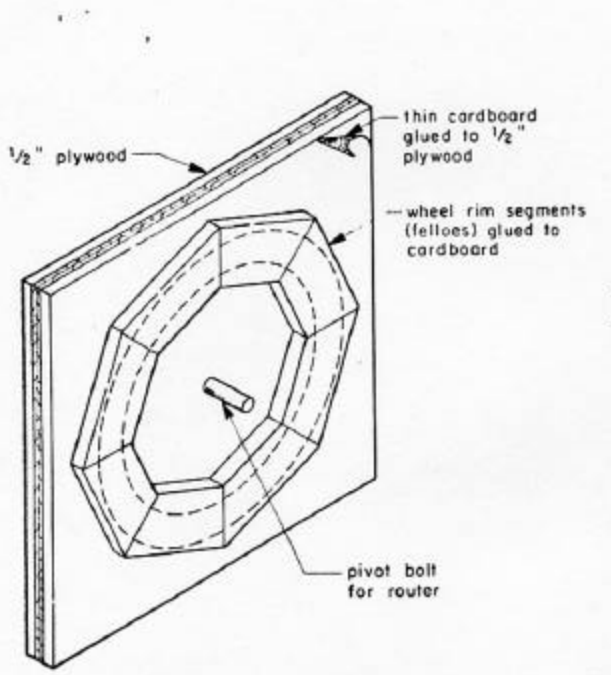


FIGURE 10. PREPARATION OF WHEEL SEGMENTS FOR CUTTING RIM OUT WITH A ROUTER

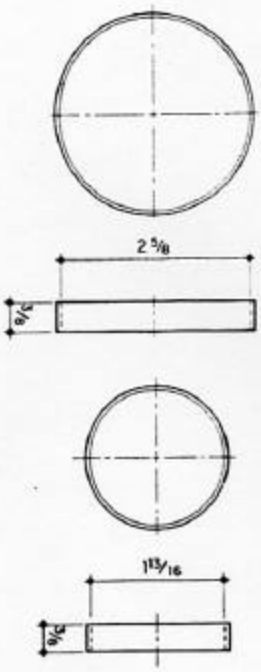


FIGURE 11.
WHEEL HUB RINGS
20 Ga. Steel, 4 Each Required

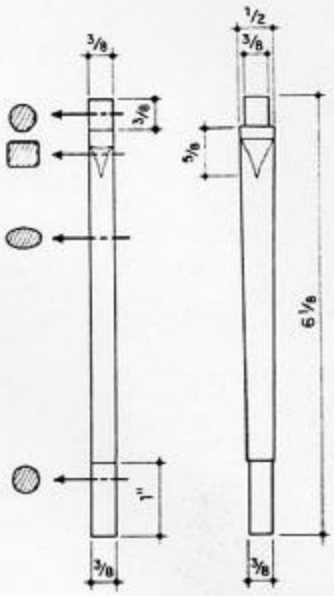


FIGURE 13. AUTHENTIC HAND CARVED SPOKES
Wood, 28 Required

All metal hardware should be constructed as shown in the drawings. In most cases, the drawings are self-explanatory. In some instances, such as the trunnion cap squares (Photo 9), you will find it easier to heat the metal for shaping. The slots in the cap squares can be cut with a milling attachment or by drilling overlapping holes and smoothing with a file. Cap square bolts (Figure 19) are made from 1/8" diameter steel rod welded to the top of wood screws with the heads cut off. The top, and part of the bottom, of the cheeks are covered with a metal band (Figure 7). Metal banding, such as that used around square crates and boxes for shipping, is ideal for this; if not available, cut banding from sheet metal. Solder the pointing rings to the lunett. All metal parts, including the tube, are treated with a "cold blue" preparation, which gives them a dark blue gun finish. This is available at most gun shops and sporting goods stores.

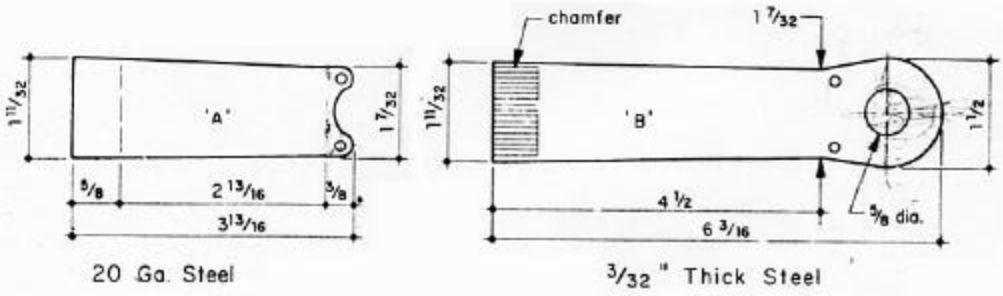


FIGURE 5. LUNETT
1 Each Required - Shape as Indicated in Figure 6

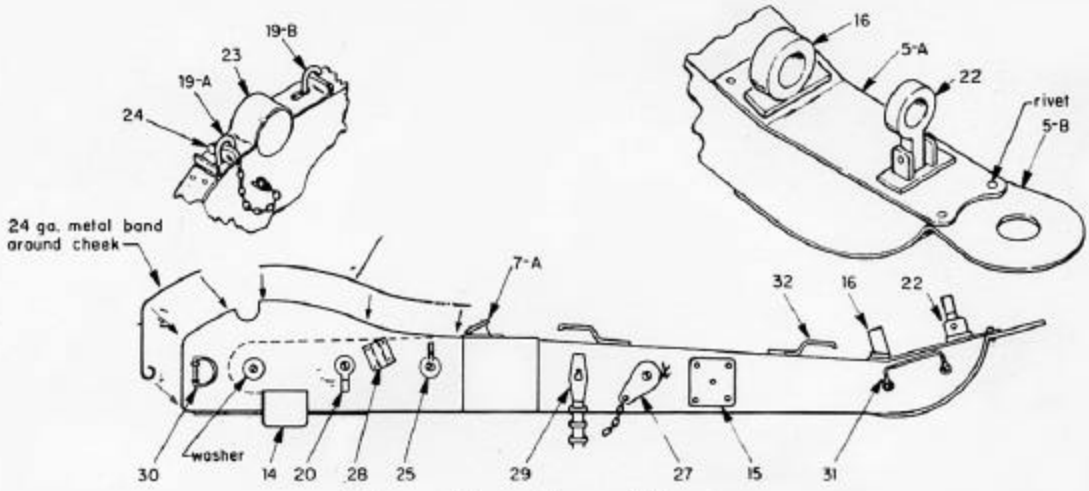


Figure 6. Location ogf Hardware

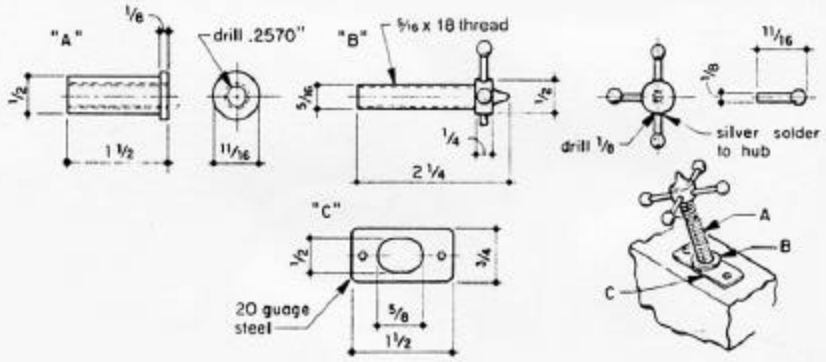


Figure 7. Elevating Screw Cold Rolled Steel

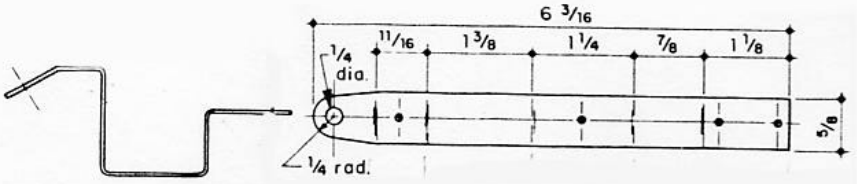


FIGURE 12. AXLE STRAP
20 Ga Steel

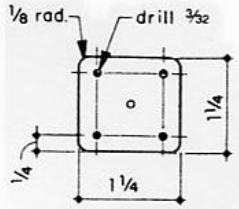
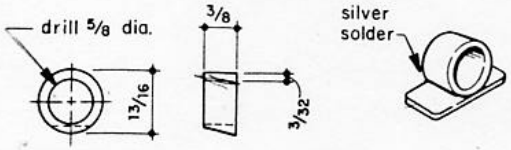


FIGURE 15.
RUB PLATE
24 Gauge Steel,
2 Required



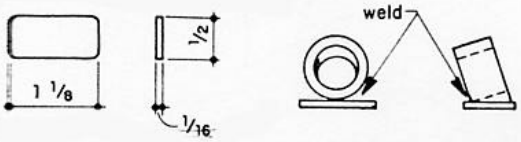


FIGURE 16. FRONT POINTING RING
Steel, 1 Required

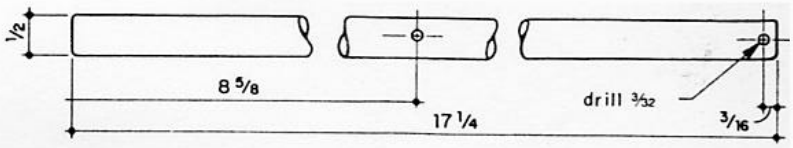


FIGURE 17. AXLE
1/2" Dia. Cold Rolled Steel,
1 Required

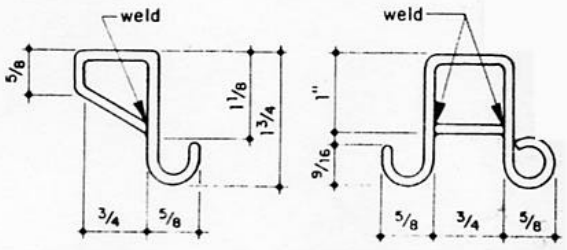


FIGURE 18. IMPLEMENT HOOKS
1/8" Steel Rod, 1 Each Required

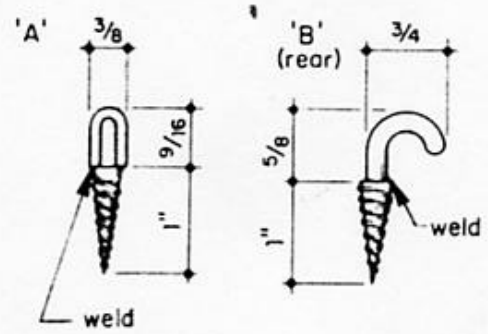


FIGURE 19.
CAP SQUARE BOLTS

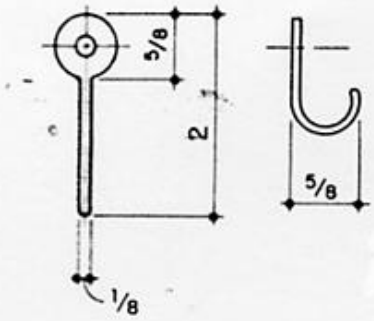


FIGURE 20.
CHAIN HOOK
14 Gauge Steel, 2 Req'd.

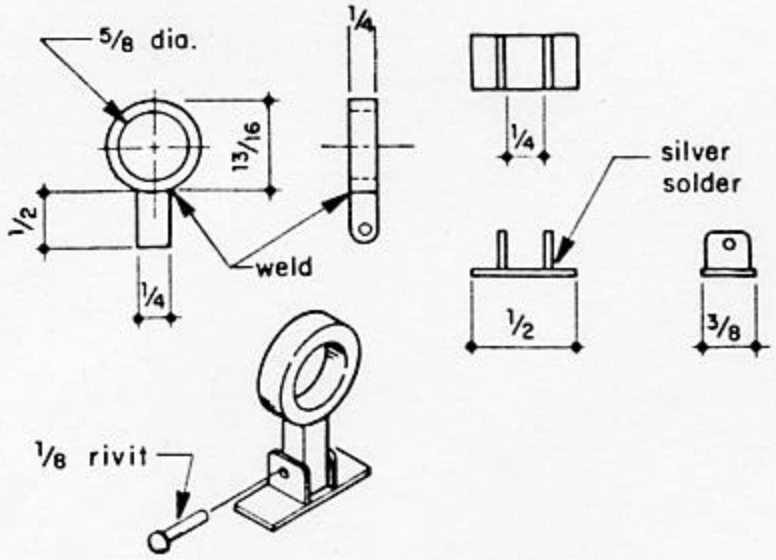


FIGURE 22.
REAR POINTING RING
Steel, 1 Required

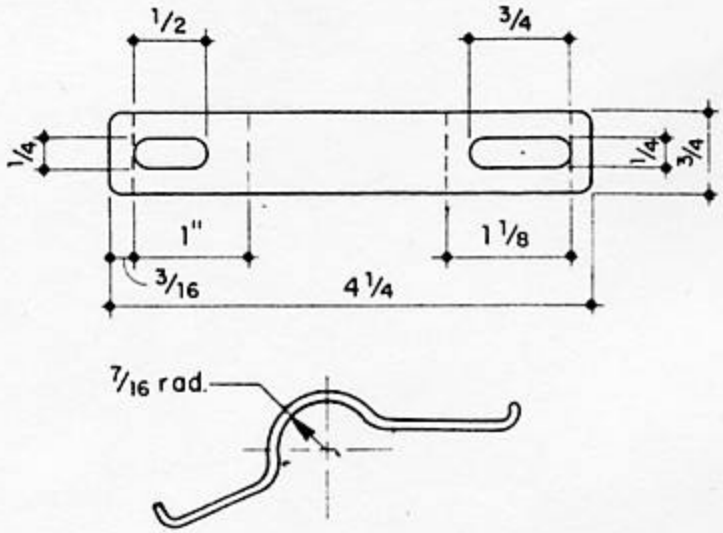


FIGURE 23. TRUNNION
CAP SQUARE
3/32" Steel, 2 Required

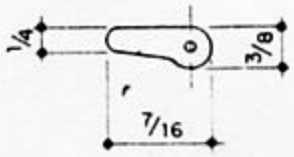


FIGURE 24.
CAP SQUARE KEY
3/32" Steel, 2 Required

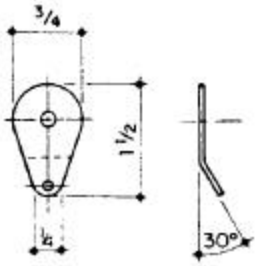


FIGURE 27.
CHAIN PLATE
24 Gauge Steel,
2 Required

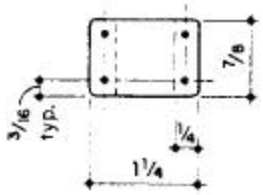


FIGURE 28. VENT
PICK HOLDER
24 Gauge Steel, 2 Required

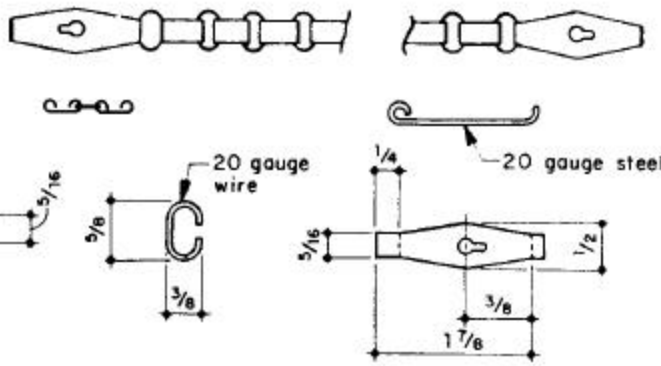


FIGURE 29. SPONGE CHAIN
AND CHAIN PLATE
12 Links Required

FIGURE 30.
HAND SPIKE "D"-RING
1/8" Dia. Steel Rod, 2 Required

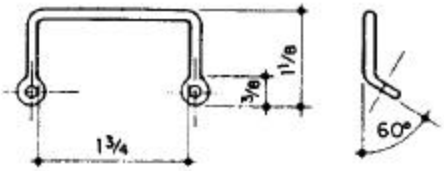


FIGURE 31.
TRAIL HANDLE
1/8" Dia. Steel, 2 Required

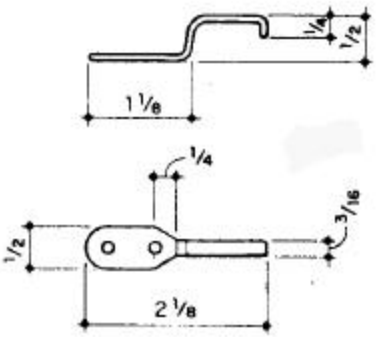


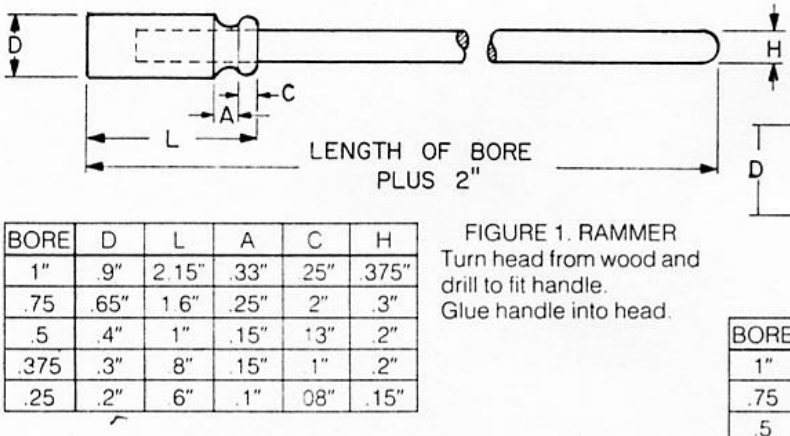
FIGURE 32.
PROLONGE HOOK
14 Gauge Steel, 2 Required

This addendum is intended to show how to build the required implements for firing model cannons. In addition, it will suggest procedures for firing model cannons.

CONSTRUCTION OF IMPLEMENTS

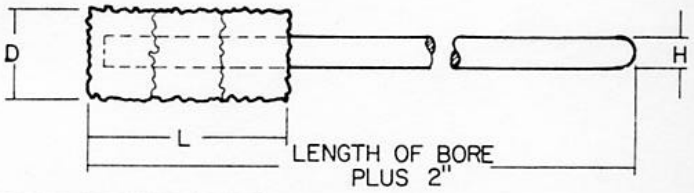
Make the rammer as indicated in Figure 1. Dimensions are indicated in the table to cover model cannons in several bore sizes; this system of dimensions is also used for the sponges. Hardwood dowels are used for the handles. The size of the dowels can be changed to suit the other dimensions suggested in the tables. *(Note: These implements are not to scale, but are intended as practical working implements for firing models.)* Figure 2 shows to make the sponges from cellulose kitchen sponges. (You should make at least three.) Be sure to use water-proof glue, since the sponges will be used wet. The diameter of the sponge must be a little larger than the bore. Next, refer to Figure 3 and make the powder ladle (Note: This implement is only used on larger models. Small models are held vertically and loaded like pistols). The ladle should slide freely into the bore and go all the way to the end without binding. Powder measures are shown in two sizes for large and small-bore models

(see Figure 6). These are turned from brass stock and handles of brass are soldered to them. After boring them on a lathe, scribe the measure rings on the inside with an internal threading tool. ***(CAUTION: The grain equivalence of these measures is approximately correct for BLACK POWDER ONLY, However, they can be used with PYRODEX, since it is a volume equivalent to black powder, but not a weight equivalent.) The ball extractor is shown in Figure 4. Construction is self-explanatory. The screw can be a wood screw or a long sheet metal screw.***



BORE	D	L	A	C	H
1"	.9"	2.15"	.33"	25"	.375"
.75	.65"	1.6"	.25"	2"	.3"
.5	.4"	1"	.15"	13"	.2"
.375	.3"	8"	.15"	1"	.2"
.25	.2"	6"	.1"	08"	.15"

FIGURE 1. RAMMER
Turn head from wood and drill to fit handle. Glue handle into head.



BORE	D	L	H
1"	1.2"	2.5"	.375"
.75	.85"	2"	.3"
.5	.6"	1.5"	.2"
.375	.45"	1.2"	.2"
.25	.3"	1"	.15"

FIGURE 2. SPONGE
Make from rings of cellulose kitchen sponge. Cut out with a sharp knife. Drill to fit handle. Glue on with rubber cement. Sand to shape on disk sander while turning with handle. Make three.

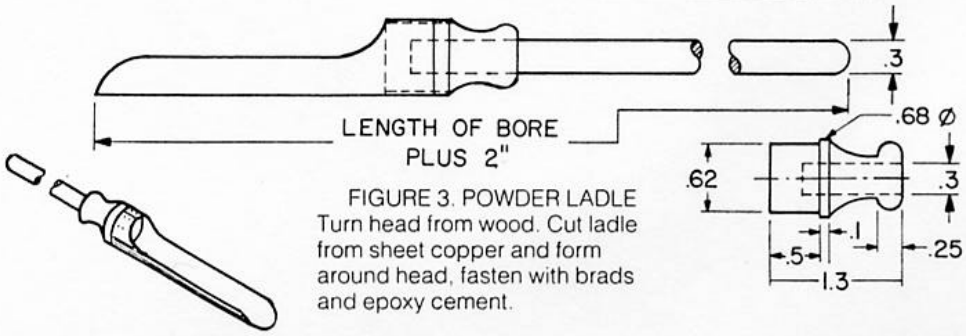
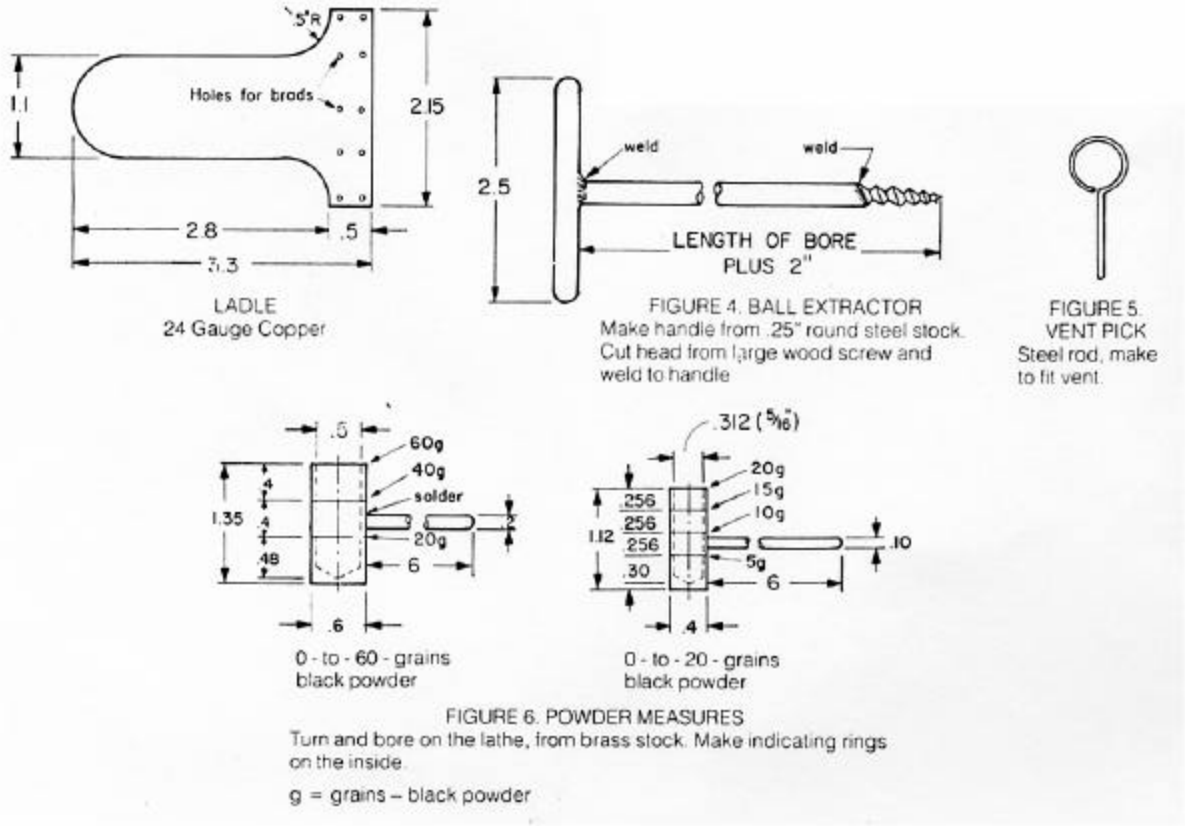


FIGURE 3. POWDER LADLE
Turn head from wood. Cut ladle from sheet copper and form around head, fasten with brads and epoxy cement.

For use with large bore models (.75 and up) only. Load small models by holding vertically and loading like a pistol.



ASSEMBLY

Most of the hardware is attached to the wood parts with wood screws or brads. In either case, the heads of the brads or screws are filed square to resemble the type of screws that were used in that period. Locate the hardware as shown in Figure 7 and Figure 8. Part numbers 15, 28, and the metal bands over the cheeks are fastened with brads. Part numbers 5, 7, 12, 27, 31, and 32 are attached with small square head wood screws. Part numbers 20 and 25 are attached over the threaded rods, which hold the cheeks and stock together. The two pivot pins on the "D" rings are pressed into holes m the cheeks and held with epoxy glue. Use 1/4" threaded rods through the three holes in the cheeks and stock to hold and secure the wheels with a small tapered pin forced into the holes at the ends of the axle. The axle and axle tree are further secured to the assembly by the metal cheek bands and the axle strap. Form metal bands around each end of the axle tree (Figure 14). Drill pilot holes into the cheeks and screw the cap square bolts into position (detailed sketch in Figure 6). Slide the wheels onto the axle with a washer between them and the axle tree. Place a drag hook (Part No. 26) over each end of the axle and secure the wheels with a small tapered pin forced into the holes at the ends of the axle. Glue the elevating screw assembly into the hole in the stock, and fasten part "C" into position with two brads. Attach the cap square keys to the cheeks with a short section of chain as shown the detailed sketch of Figure 7. Fasten a length of chain between the chain plates and the chain hooks as indicated in Figure 8. Place the tube into position and secure with the trunnion cap squares. This completes the assembly, and now your cannon is ready for display or firing.

FIRING THE MODEL

Experienced Black Powder shooters should have no trouble developing their own loads and procedures. For

those who lack such experience, I will give my methods as a suggested starting point.

LOADING

(CAUTION: Use only Black Powder or Pyrodex). The following loads are suggested for model cannons by bore size: .74" bore - 50 grains FFG Black Powder; .5" bore - 35 grains FFG; .375" bore - 10 grains FFFG; .25" bore - 5 grains FFFG. Use only lead ball which will fit into the tube without force.

Make sure the bore is clear by running a ramrod to its end. (Bore length should be marked on the ramrod.) Clean the vent with the vent pick. Place a measured amount of powder in the powder ladle and insert it carefully into the bore all the way to the end. Turn the ladle upside-down to dump the powder out and withdraw it. This procedure should cause all the powder to be dumped at the end of the bore. When loading small, light-weight models hold them vertically and pour the powder in just like you would load a pistol. Place the ball in the tube and seat it against the powder charge with the rammer.