

**INSTRUCTIONS FOR MOUNTING,
USING AND CARING FOR BARBETTE
CARRIAGE, MODEL OF 1893 FOR 10-
INCH GUNS MODEL OF 1888, FOUR
PLATES, MARCH 10, 1906, NO.1700**

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WILLIAM CROZIER

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BARBETTE CARRIAGE

MODEL OF 1893

FOR

10-INCH GUNS

MODEL OF 1888

FOUR PLATES

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WILLIAM CROZIER,
Brigadier General, Chief of Ordnance.

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INSTRUCTIONS FOR MOUNTING, USING, AND CARING
FOR BARBETTE CARRIAGE, MODEL OF 1893, FOR 10-
INCH GUN, MODEL OF 1888.

(FOUR PLATES.)

[The points in *italics* are of importance or concern the safety of the carriage and should be specially noted. The important changes are shown in bold-face type.]

GENERAL DESCRIPTION.

PRINCIPAL PARTS.—The carriage is of the center pintle form, designed for guns of model of 1888, and consists of the following principal parts, viz, base ring resting upon the concrete platform, traversing-roller system, racer, right and left chassis, top carriage, recoil and counter-recoil system, loading platform, projectile hoist, traversing, elevating, and retracting mechanism, and accessories, including ammunition truck, shot trays, and implements.

BASE RING.—The base ring is of gun iron in one piece, secured to the platform by bolts through the flange. The lower roller path is on its upper surface.

The base ring is provided with leveling screws of bronze, bearing upon steel thrust plates set upon the concrete. In some of the earlier carriages wedges and plates were furnished instead of leveling screws and thrust plates.

The pintle, rising from the center and forming part of the base ring, is a cylinder with a spiral oil groove on its outer surface.

Lugs projecting from the base ring form a support for the traversing chain-adjusting bolts.

TRAVERSING-ROLLER SYSTEM.—Upon the lower roller path rests a circle of forged-steel live, conical traversing rollers, held in place by two concentric distance rings. The distance rings are secured to each other by braces bolted between them and the system is held concentric with the pintle by flanges on the inner ends of the rollers.

The trunnions at each end of the traversing rollers run in bearings in the distance rings, these bearings being slotted through on the underside to permit assemblage.

RACER.—The racer is of cast steel. The upper roller path is on its under surface and rests upon the traversing-roller system. The racer

also contains the pintle bearing, which fits over the base-ring pintle and is provided with a packed wrought-iron cover to keep out dust and water. On the top surface of the racer are the seats for the two chassis and brackets. Two cast-steel clips (one in front and one in rear) are bolted to the outer surface of the racer. These clips or guide hooks have lips which engage under a flange on the base ring. Between the clips is a dust guard which protects the traversing-roller system.

CHASSIS AND RECOIL ROLLERS.—The chassis are bolted to the racer. They are joined in front by a transom bolted to each chassis.

In U-shaped recesses at the top of each chassis are placed the recoil rollers, made of forged steel bushed with bronze and run on 2.5-inch journals of forged steel. These journals pass through both walls of the U-shaped recess in the chassis and are secured by being screwed into the inner wall.

The tops of the chassis rails are inclined 4° upward and to the rear. At the forward ends of the chassis there are lugs projecting upward through which the piston rods pass. Stops are placed on the chassis rails in front to limit the forward motion of the top carriage. The front surface of the projecting lugs is finished as a seat for a shield to protect the gunners. The chassis also contain bronze-bushed bearings for traversing, retracting, elevating, and projectile hoist shafts as well as the support for the crane mast and seats for various brackets.

TOP CARRIAGE.—The top carriage is made in one piece of cast steel. It consists of two side frames containing the beds for the trunnions of the gun and the recoil cylinders, united by a transom passing underneath the gun. The trunnion beds are bushed with bronze and each cap-square is dovetailed and secured by bolts. Grease cups attached to the upper end of the top carriage and connected to the trunnion-bed bushings by brass tubes, provide lubrication for the gun-trunnion bearings.

Flanges on the top carriages are clipped over corresponding flanges on the chassis rails.

RECOIL BRAKE (Pl. III).—The cylinders are 9.5 inches in interior diameter, fitted each with a piston rod 4 inches in diameter, having a piston with a diametrical clearance of 0.02 inch in the cylinder. During the recoil the pistons remain stationary and the top carriage, with its recoil cylinders, is drawn over them. Approximately uniform resistance in the cylinders is obtained by the passage of the liquid from front to rear through varying orifices caused by throttling bars whose inner faces are curved. There are two throttling bars in each cylinder held in place by bolts passing through the walls of the cylinder. Each piston has two rectangular slots fitting over the throttling bars. The sectional areas of these bars are such that the