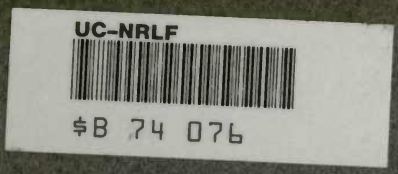

No. 1773

HANDBOOK OF THE

3.8-INCH GUN MATÉRIEL

(*ELEVEN PLATES*)

JANUARY 19, 1917

WASHINGTON
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War Department,
Office of the Chief of Ordnance.
Washington, January 19, 1917.

This manual is published for the information and government of the Regular Army and National Guard of the United States.

By order of the Secretary of War:

William Crozier,
Brigadier General, Chief of Ordnance.

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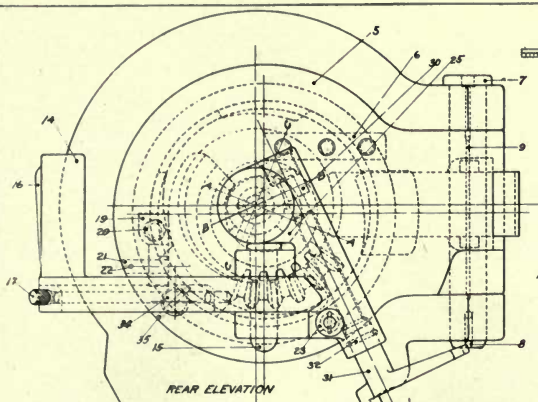
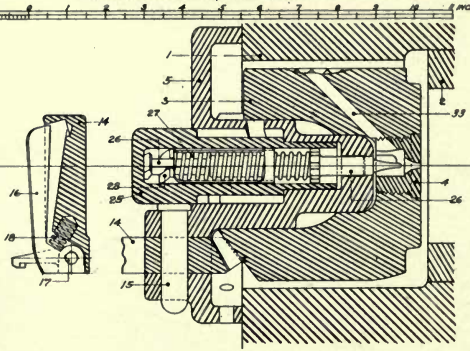
1	Set of pack harness [2]	.....	.....

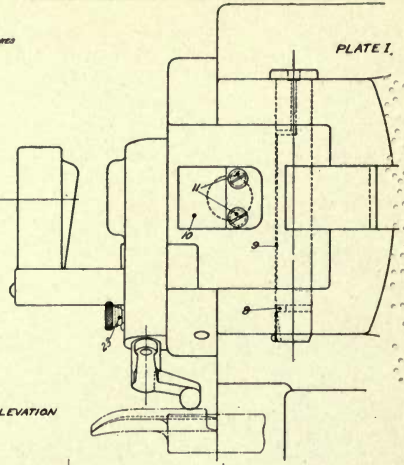
[1] The 2-horse reel will be issued when available and will carry the fire-control equipment, etc.
[2] This temporary pack outfit is furnished to batteries for the purpose of carrying fire-control equipment until such time as type of 2-horse reel to be built for this purpose is available for issue to the batteries.

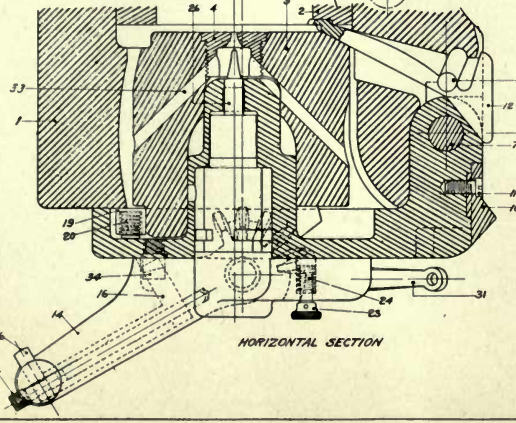
3.8 INCH GUN. MODEL OF 1907
BREECH MECHANISM, ASSEMBLED

PLATE I.

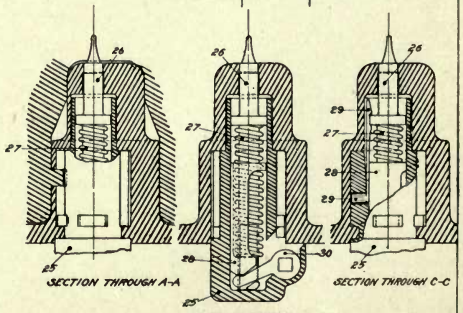

REAR ELEVATION


VERTICAL SECTION


SIDE ELEVATION


HORIZONTAL SECTION

NO.	NAME OF PART.
1	JACKET
2	TUBE
3	BREECH BLOCK
4	VENT BUSHING
5	BLOCK CARRIER
6	BLOCK STOP
7	HINGE PIN
8	HINGE PIN CATCH
9	HINGE PIN OIL GROOVE
10	PALLET
11	PALLET SCREW
12	EXTRACTOR
13	EXTRACTOR TRUNNION
14	OPERATING LEVER
15	OPERATING LEVER PIVOT
16	OPERATING LEVER LATCH
17	OPERATING LEV LATCH PIVOT
18	OPERATING LEV LATCH SPRING
19	BLOCK LATCH
20	BLOCK LATCH SPRING
21	BLOCK LATCH PIVOT
22	BLOCK LATCH PIVOT PIN
23	LOCKING BOLT NUT & PIN
24	LOCKING BOLT SPRING
25	FIRING LOCK CASE
26	FIRING PIN
27	FIRING SPRING
28	FIRING SPRING SLEEVE
29	SEAR
30	TRIGGER FORK
31	TRIGGER SHAFT
32	TRIGGER SHAFT DETENT
33	VENT
34	LEVER CATCH
35	CATCH PIN


SECTION THROUGH A-A

SECTION THROUGH B-B

SECTION THROUGH C-C

36-2-74

HANDBOOK OF THE 3.8-INCH GUN MATÉRIEL.

The 3.8-inch Field Gun, Model of 1907.

This pamphlet, together with O. O. Form No. 1659 (3-inch gun matériel), will be used for the 3.8-inch field gun, model of 1907. As the 3.8-inch field gun and its mechanism is practically identical with the 3-inch field gun, model of 1905, the information given in that pamphlet is equally applicable to the 3.8-inch gun. The differences are in the sizes of the pieces, types of extractors, and methods of firing, which are clearly shown in Plate I of this handbook.

WEIGHTS, DIMENSIONS, AND GENERAL INFORMATION.

Weight	pounds..	1,535
Caliber	inches..	3.8
Total length	do....	111.25
Length of bore	do....	10[illegible]
Length of rifled portion of bore	do....	91.47
Number of grooves		3[illegible]
Width of grooves	inches..	0.2111
Depth of grooves	do....	0.03
Width of lands	do....	0.1[illegible]
Twist right hand increasing 1 turn in fifty (50) at origin to 1 turn in twenty-five (25) at 13.47 inches from muzzle, thence uniform to muzzle.		
Weight of projectile, filled and fuzed	pounds..	30
Weight of powder charge	ounces..	48
Weight of cartridge case	pounds..	4.7
Capacity of cartridge case	cubic inches..	142.6
Muzzle velocity	feet per second..	1,700
Travel of projectile	inches..	93.73
Maximum pressure per square inch	pounds..	33,000
Range at 18° elevation	yards..	8,000

77810—17——2

Range table for the 3.8-inch gun.

MUZZLE VELOCITY—1700 F. S.

SHELL AND SHRAPNEL, WEIGHT 30 POUNDS.

1 Range.	2 Angle of elevation.	3 △X for ±△1′ elevation.	4 △X for ±△10 F. S. M. V.	5 △X for wind 10 M. P. H.	6 △X for change of ±1/10 C.	7 Time of flight.	8 Fuze setting.	9 Drift.	10 Deflection for 10 miles cross wind.	11 Angle of departure.	12 Slope of fall.	13 Terminal velocity.	14 Maximum ordinate.	15 Values of "C."	16 Values $\frac{f\,\beta c}{fa}$.
Yards.	° ′	*Yards.*	*Yards.*	*Yards.*	*Yards.*	*Seconds.*	*Divs.*	*Mils.*	*Mils.*	° ′	*1 on—*	*F. S.*	*Feet.*		
100	−0 1	16.9	1.0	0.19	0.5	0.18	0.2	2.0	0.1	5.7	607.4	1,674	0.15	.....	.....
200	+0 4.9	16.4	2.0	.25	1.2	.36	.4	2.0	.2	0 11.6	296.9	1,647	.55	.....	.....
300	0 11.0	15.9	3.0	.29	2.0	.54	.7	2.2	.3	0 17.7	191.0	1,619	1.22	.....	.....
400	0 17.3	15.4	4.0	.35	2.9	.73	.9	2.2	.4	0 24.0	138.0	1,590	2.19	.....	.....
500	0 23.8	14.9	4.9	.40	4.0	.92	1.1	2.2	.5	0 30.5	106.8	1,560	3.46	.....	.....
600	0 30.4	14.5	5.8	.51	5.2	1.12	1.4	2.3	.5	0 37.1	86.4	1,530	5.06	.....	.....
700	0 37.3	14.1	6.8	.72	6.5	1.32	1.7	2.4	.6	0 44.0	71.8	1,499	7.02	.....	.....
800	0 44.3	13.8	7.7	.99	7.9	1.52	2.0	2.4	.7	0 51.0	61.0	1,467	9.36	.....	.....
900	0 51.5	13.5	8.6	1.19	9.4	1.73	2.4	2.5	.8	0 58.2	52.6	1,434	12.09	.....	.....
1,000	0 58.9	13.2	9.5	1.52	11.0	1.95	2.7	2.5	.9	1 5.6	46.0	1,399	15.00	2.03	1.0245
1,100	1 6.4	12.8	10.3	2.04	13.0	2.16	3.0	2.5	1.0	1 13.1	40.7	1,382	18	.....	.....
1,200	1 14.2	12.5	11.2	2.60	15.0	2.38	3.3	2.6	1.1	1 20.9	36.2	1,363	22	.....	.....
1,300	1 22.1	12.2	12.0	3.21	17.1	2.61	3.6	2.6	1.2	1 28.8	32.5	1,344	26	.....	.....
1,400	1 30.2	11.9	12.8	3.86	19.2	2.84	3.9	2.6	1.3	1 36.9	29.4	1,324	31	.....	.....
1,500	1 38.5	11.6	13.6	4.55	21.5	3.07	4.2	2.7	1.4	1 45.2	26.9	1,303	37	.....	.....
1,600	1 47.1	11.4	14.3	5.28	24.0	3.30	4.5	2.7	1.5	1 53.8	24.6	1,280	43	.....	.....
1,700	1 55.8	11.1	15.0	6.06	26.8	3.54	4.9	2.8	1.6	2 2.5	22.6	1,257	50	.....	.....
1,800	2 4.7	10.9	15.7	6.88	29.6	3.78	5.2	2.8	1.6	2 11.4	20.9	1,234	57	.....	.....
1,900	2 13.9	10.6	16.4	7.74	32.5	4.03	5.5	2.9	1.7	2 20.6	19.3	1,209	65	.....	.....
2,000	2 23.2	10.3	17.1	8.65	35.5	4.28	5.8	2.9	1.8	2 29.9	17.9	1,183	74	2.10	.9889
2,100	2 32.8	10.2	17.7	9.65	38.7	4.53	6.1	2.9	1.9	2 39.5	16.7	1,173	83	.....	.....
2,200	2 42.5	9.9	18.4	10.69	42.0	4.79	6.4	3.0	2.0	2 49.2	15.6	1,162	92	.....	.....
2,300	2 52.5	9.8	19.0	11.76	45.4	5.05	6.8	3.0	2.1	2 59.2	14.6	1,151	102	.....	.....
2,400	3 2.6	9.6	19.6	12.85	48.9	5.32	7.1	3.1	2.2	3 9.3	13.7	1,139	113	.....	.....
2,500	3 13.0	9.4	20.2	13.98	52.5	5.58	7.4	3.2	2.2	3 19.7	12.9	1,127	125	.....	.....
2,600	3 23.5	9.3	20.8	15.14	56.2	5.85	7.7	3.2	2.3	3 30.2	12.2	1,114	138	.....	.....
2,700	3 34.2	9.1	21.4	16.33	60.0	6.12	8.0	3.3	2.4	3 40.9	11.5	1,101	152	.....	.....
2,800	3 45.1	8.9	21.9	17.56	64.0	6.39	8.4	3.3	2.5	3 51.8	10.9	1,088	166	.....	.....
2,900	3 56.2	8.8	22.4	18.81	68.0	6.67	8.7	3.4	2.6	4 2.9	10.3	1,074	182	.....	.....
3,000	4 7.5	8.6	23.0	20.10	72.0	6.95	9.0	3.4	2.7	4 14.2	9.8	1,059	198	2.17	.9555
3,100	4 19.0	8.5	23.5	21.43	76.0	7.23	9.3	3.5	2.8	4 25.7	9.3	1,052	214	.....	.....
3,200	4 30.7	8.4	24.0	22.79	80.0	7.52	9.6	3.5	2.8	4 37.4	8.9	1,045	231	.....	.....
3,300	4 42.5	8.3	24.5	24.17	84.0	7.80	10.0	3.6	2.9	4 49.2	8.5	1,038	249	.....	.....
3,400	4 54.6	8.1	24.9	25.59	88.0	8.09	10.3	3.7	3.0	5 1.3	8.1	1,031	269	.....	.....

3,500	5	6.9	8.0	25.4	27.03	92.0	8.39	10.6	3.7	3.0	5	13.6	7.8	1,023	289	.....	.....
3,600	5	19.4	7.9	25.8	28.50	96.0	8.68	10.9	3.8	3.1	5	26.0	7.4	1,016	310	.....	.....
3,700	5	32.0	7.8	26.2	30.00	100.0	8.98	11.3	3.9	3.2	5	38.6	7.1	1,008	332	.....	.....
3,800	5	44.8	7.7	26.7	31.53	104.5	9.28	11.6	4.0	3.3	5	51.4	6.8	999	356	.....	.....
3,900	5	57.7	7.6	27.1	33.08	108.5	9.58	11.9	4.0	3.3	6	4.3	6.6	991	380	.....	.....
4,000	6	10.9	7.5	27.5	34.66	112.5	9.88	12.3	4.1	3.4	6	17.5	6.3	982	405	2.25	.9250
4,100	6	24.1	7.4	27.8	36.25	116.6	10.19	12.6	4.2	3.5	6	30.8	6.1	977	431	.....	.....
4,200	6	37.6	7.3	28.2	37.87	121.9	10.50	13.0	4.3	3.5	6	44.2	5.9	972	457	.....	.....
4,300	6	51.2	7.2	28.6	39.52	125.0	10.81	13.3	4.4	3.6	6	57.8	5.7	967	485	.....	.....
4,400	7	5.1	7.1	29.0	41.21	129.0	11.12	13.7	4.5	3.7	7	11.7	5.5	962	514	.....	.....
4,500	7	19.2	7.0	29.4	42.93	133.0	11.44	14.0	4.6	3.7	7	25.8	5.3	956	545	.....	.....
4,600	7	33.4	6.9	29.7	44.68	137.5	11.76	14.4	4.8	3.8	7	40.0	5.1	951	576	.....	.....
4,700	7	47.9	6.8	30.0	46.46	142.0	12.08	14.7	4.9	3.9	7	54.5	4.9	945	609	.....	.....
4,800	8	2.6	6.7	30.4	48.28	146.0	12.40	15.0	5.0	4.0	8	9.2	4.7	940	643	.....	.....
4,900	8	17.5	6.6	30.7	50.14	150.0	12.73	15.4	5.2	4.0	8	24.1	4.6	934	679	.....	.....
5,000	8	32.5	6.6	31.0	52.02	154.0	13.06	15.7	5.3	4.1	8	39.1	4.4	928	715	2.31	.8980
5,100	8	47.7	6.5	31.2	53.88	158.8	13.39	16.1	5.5	4.2	8	54.3	4.3	924	751	.....	.....
5,200	9	3.0	6.4	31.5	55.79	163.0	13.73	16.5	5.7	4.2	9	9.6	4.2	920	789	.....	.....
5,300	9	18.5	6.3	31.8	57.74	167.4	14.07	16.8	5.9	4.3	9	25.1	4.1	916	829	.....	.....
5,400	9	34.4	6.2	32.1	59.74	171.6	14.41	17.2	6.1	4.3	9	41.0	3.9	911	870	.....	.....
5,500	9	50.5	6.1	32.4	61.79	175.6	14.75	17.5	6.2	4.4	9	57.1	3.8	907	913	.....	.....
5,600	10	6.8	6.0	32.7	63.89	180.0	15.10	17.9	6.4	4.5	10	13.4	3.7	903	957	.....	.....
5,700	10	23.5	5.9	32.9	66.03	184.0	15.45	18.3	6.6	4.5	10	30.1	3.6	898	1,003	.....	.....
5,800	10	40.4	5.8	33.2	68.21	188.2	15.80	18.6	6.7	4.6	10	47.0	3.5	893	1,051	.....	.....
5,900	10	57.5	5.8	33.4	70.45	192.5	16.16	19.0	6.9	4.7	11	4.1	3.4	889	1,100	.....	.....
6,000	11	14.8	5.7	33.6	72.73	196.8	16.52	19.4	7.0	4.7	11	21.4	3.3	884	1,151	2.37	.8775
6,100	11	32.2	5.7	33.9	75.03	201.0	16.88	19.7	7.3	4.8	11	38.8	3.2	881	1,210	.....	.....
6,200	11	49.8	5.6	34.2	77.39	205.0	17.25	20.1	7.6	4.8	11	56.4	3.1	877	1,269	.....	.....
6,300	12	7.8	5.5	34.4	79.80	209.5	17.62	20.5	7.9	4.9	12	14.4	3.0	874	1,329	.....	.....
6,400	12	26.1	5.4	34.6	82.26	213.8	17.99	20.8	8.2	4.9	12	32.7	2.9	870	1,388	.....	.....
6,500	12	44.8	5.3	34.8	84.77	218.0	18.37	21.2	8.5	5.0	12	51.4	2.9	867	1,448	.....	.....
6,600	13	3.8	5.2	35.0	87.34	222.0	18.75	21.6	8.7	5.0	13	10.4	2.8	863	1,509	.....	.....
6,700	13	23.2	5.1	35.2	89.95	226.0	19.14	22.0	9.0	5.1	13	29.8	2.7	860	1,569	.....	.....
6,800	13	42.9	5.0	35.5	92.63	330.5	19.54	22.3	9.3	5.1	13	49.5	2.6	856	1,630	.....	.....
6,900	14	2.9	4.9	35.7	95.35	234.6	19.94	22.7	9.5	5.2	14	9.5	2.6	852	1,690	.....	.....
7,000	14	23.3	4.9	35.9	98.13	239.0	20.34	23.1	9.8	5.3	14	29.9	2.5	848	1,752	2.40	.8637
7,100	14	45.4	4.8	36.1	100.95	243.0	20.74	23.5	10.3	5.3	14	52.0	2.4	845	1,821	.....	.....
7,200	15	7.5	4.7	36.3	103.84	247.0	21.15	23.9	10.8	5.4	15	14.1	2.4	843	1,893	.....	.....
7,300	15	29.7	4.6	36.5	106.77	251.5	21.56	24.3	11.2	5.4	15	36.3	2.3	840	1,969	.....	.....
7,400	15	51.9	4.6	36.7	109.76	255.5	21.98	24.6	11.7	5.5	15	58.5	2.3	837	2,047	.....	.....
7,500	16	14.2	4.5	37.0	112.80	259.8	22.41	25.0	12.2	5.5	16	20.8	2.2	834	2,128	.....	.....
7,600	16	36.5	4.4	37.2	115.89	264.0	22.84	25.4	12.7	5.6	16	43.1	2.1	831	2,212	.....	.....
7,700	16	58.9	4.3	37.3	119.08	268.2	23.28	25.8	13.1	5.6	17	5.5	2.1	828	2,299	.....	.....
7,800	17	21.3	4.2	37.5	122.23	272.5	23.73	26.2	13.6	5.7	17	27.9	2.0	825	2,389	.....	.....
7,900	17	43.7	4.1	37.7	125.48	277.0	24.18	26.7	14.0	5.7	17	50.3	2.0	822	2,482	.....	.....
8,000	18	6.2	4.0	38.0	128.78	281.0	24.64	27.1	14.4	5.8	18	12.8	1.9	819	2,577	2.43	.8551

AMMUNITION.

[Plate II.]

Fixed ammunition is used in the 3.8-inch gun and is made up of either common shrapnel or common steel shell. The ammunition as made up varies slightly in length with the type of projectile used. The ammunition chests of the battery are of sufficient size to take either kind of ammunition furnished, so that the quantity of each class of ammunition to be carried is a matter to be regulated by proper authority. All fixed ammunition for the 3.8-inch gun is issued filled and fuzed. The weight of the projectile is 30 pounds and the total weight of the fixed ammunition, either shrapnel or shell, is 37.78 pounds.

A cast-iron shell has been designed having the same center of gravity and exterior dimensions as the common steel shell. This is used for proof and range firing only.

THE CARTRIDGE CASE.

[Plate II.]

The cartridge case is a solid drawn case of cartridge brass having a capacity of approximately 142.6 cubic inches. The weight of the cartridge case with the 110-grain percussion primer is 4.78 pounds.

The base of the cartridge case is stamped with the name of the gun, initials of the place of manufacture, and the year of manufacture. The ammunition lot number is also stamped on the base of the cartridge case. A circular groove cut in the base of the cartridge case is painted yellow to indicate common shrapnel and black to indicate common steel shell, i. e., high explosive shell.

THE PROPELLING CHARGE.

The propelling charge is composed of nitrocellulose powder, the granulation being cylindrical and having seven longitudinal perforations. The weight of the propelling charge varies slightly for different lots of powder and weighs approximately 48 ounces.

Smokeless powder must not be used for blank charges. For this purpose, the Ordnance Department furnishes a special powder.

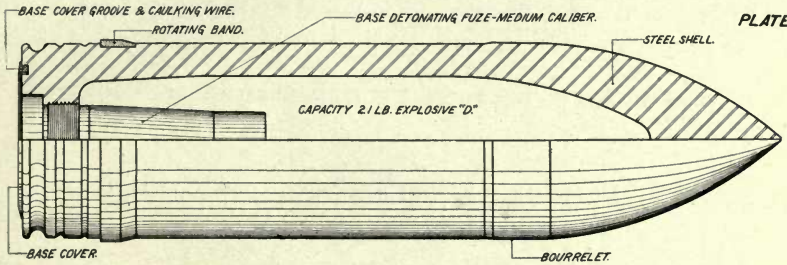
PROJECTILES.

COMMON STEEL SHELL.

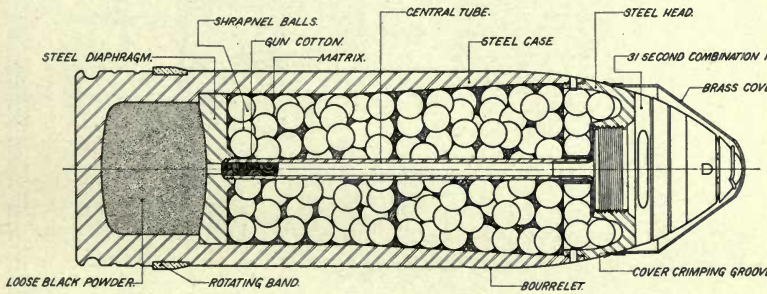
[Plate II.]

The common steel shell contains a bursting charge of 3.24 pounds of trinitrotoluol. The weight of the shell with the bursting charge, fuze, and base cover is 30 pounds with a small tolerance either way.

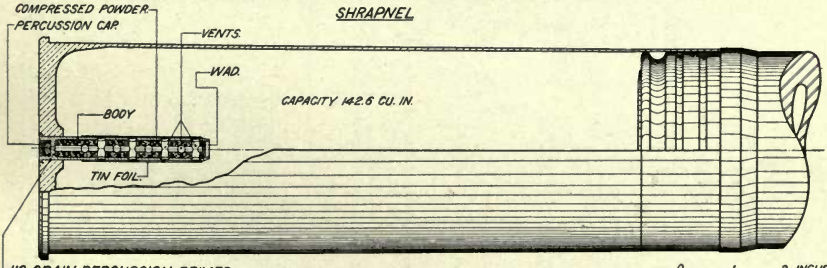
PLATE II



COMMON STEEL SHELL MODEL OF 1905.



SHRAPNEL.



110 GRAIN PERCUSSION PRIMER.

CARTRIDGE CASE.

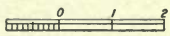


PLATE III.

31 SECOND COMBINATION FUZE.

FIG. 1.

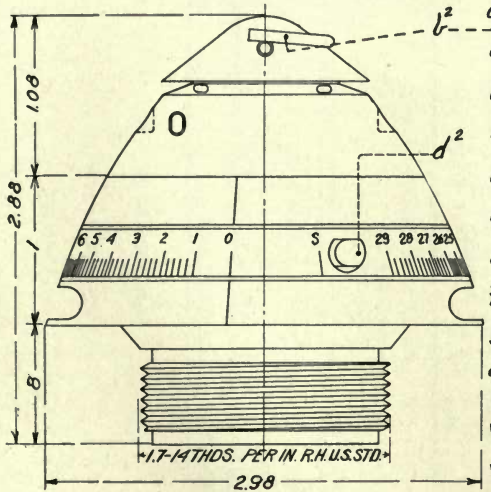
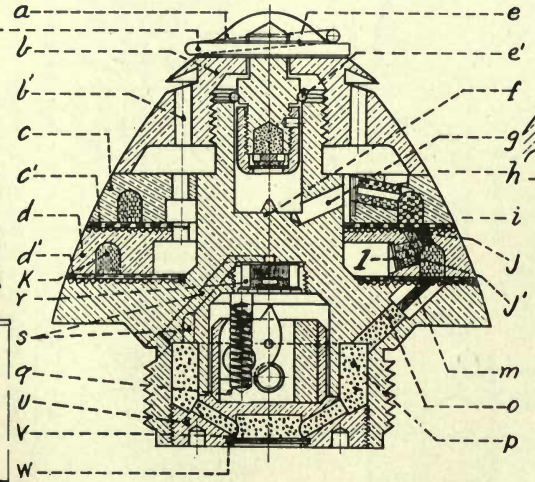
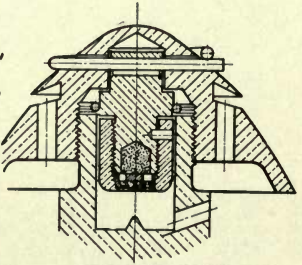


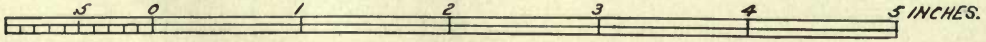
FIG 2.



FOR GUN.



FOR HOWITZER.



REVISED DEC. 22, 1916.

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COMMON SHRAPNEL.

[Plate II.]

The shrapnel is a base charged common shrapnel fitted with a 31-second combination fuze. The shrapnel filling is composed of 369 balls, each approximately 230 grains in weight. The balls are approximately 0.54 inch in diameter. The interstices contain a smoke-producing matrix.

All shrapnel ammunition is issued fuzed all ready for use and provided with a waterproof hood over the fuze to exclude moisture.

FRANKFORD ARSENAL COMBINATION FUZE, 31-SEC. MODEL OF 1907 M.

[Plate III.]

This fuze consists of the following parts, assembled as shown in the drawing:

a Body, bronze.
b Closing cap, brass.
b^1 Vents in closing cap.
b^2 Safety wire.
c Upper time-train ring, Tobin bronze.
c^1 Washer for time-train ring, graduated, felt cloth.
d Time-train ring, graduated, Tobin bronze.
d^1 Washer for body, felt cloth.
d^2 Rotating pin, brass.
e Concussion plunger.
e^1 Concussion-resistance ring, brass.
f Firing pin, brass.
g Vent leading to upper time train.
h Compressed-powder pellet.
i Upper time train, compressed powder.
j Compressed-powder pellet in vent leading to lower time train.
j^1 Compressed-powder pellet in lower time-train vent.
k Lower time train, compressed powder.
l Brass disk, crimped in place.
m Compressed-powder pellet in vent *o*.
o Vent leading to magazine.
p Powder magazine.
q Percussion plunger.
r Percussion primer.
s Vents leading from percussion primer to magazine.
u Bottom closing screw, brass.
v Washer for closing screw, muslin.
w Washer for closing screw, brass.
x Pins, brass.

The action of this fuze is similar to that of the 21-second fuze used with the 3-inch field gun. The principal difference is in the length of the time train, and graduations of the time-train ring.

ALLOWANCE OF AMMUNITION.

Shell and shrapnel ammunition is issued by the Ordnance Department in moisture-proof zinc-lined wooden packing boxes, two rounds per box.

The annual allowance of ammunition for the instruction of field artillery is prescribed from time to time in War Department orders.

BLANK AMMUNITION.

Blank metallic ammunition consists of the following components: A brass cartridge case, a percussion primer, a charge of black powder, and a tight-fitting felt wad.

THE CHARGE.

The charge to be used in the preparation of blank metallic ammunition for the 3.8-inch gun is 1.75 pounds of saluting powder.

PREPARATION OF BLANK METALLIC AMMUNITION.

Blank metallic ammunition will be assembled at posts, the same as for 3-inch field guns, or in the field under the supervision of a commissioned officer, who will be held responsible that it is prepared in the manner prescribed.

FLASH TARGETS.

Flash-target apparatus is issued for use with the 3.8-inch gun as well as other targets. For detailed information in this connection, see Ordnance pamphlet No. 1994.

3.8-INCH GUN—DRILL CARTRIDGE.

The drill cartridge is a dummy cartridge for use in drilling cannoneers in the service of the gun.

The principal parts are, wood body, bronze base, body guard, split pin, graduated ring, point nut, and bolt extending through the entire length.

It is the shape of the service shrapnel ammunition and is fitted at the point with a movable ring, graduated the same as the ring upon the F. A. 31-second combination fuze. This arrangement is for the instruction of the cannoneers in fuze setting. No caliber .30 subcaliber cartridge is to be used in the 3.8-inch field gun.

There has been developed a 1.457-inch subcaliber gun for use in mobile guns and howitzers when fitted with its proper adaptors. This gun is to fire a 1.7-pound smoke shell.

THE HAND FUZE SETTER MODEL OF 1913.

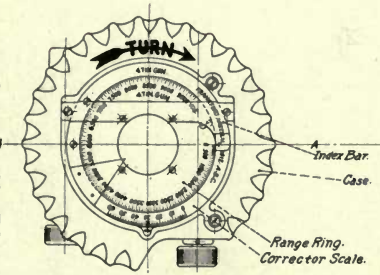
[Plate IV.]

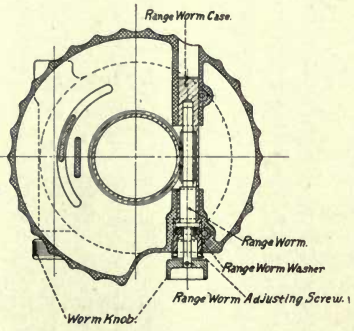
DESCRIPTION.

The fuze setter is a device provided for the rapid and accurate setting of fuzes.

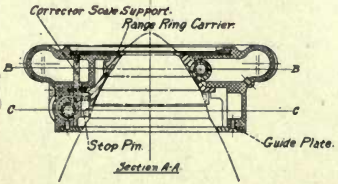
The hand fuze setter provided for the 3.8-inch gun consists principally of an aluminum case having a serrated rim forming a handle for turning; a range ring mounted on the range-ring carrier, which

PLATE IV

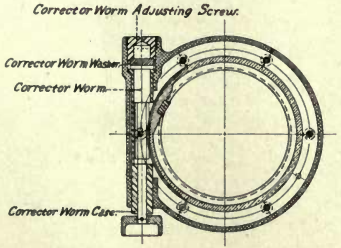




Section B-B.

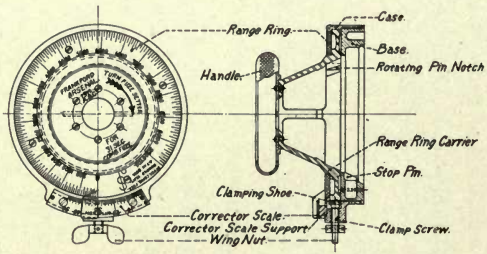


Section A-A.



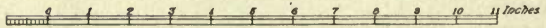
Section C-C.

Hand Fuze Setter. Model of 1913.



Hand Fuze Setter. (Old Model).

36-23-71



is operated by the knob on the range worm; a corrector scale mounted on the corrector-scale support, which is operated by the knob on the corrector worm, and a guide plate which rests on the projectile.

A slot is cut in the range-ring carrier which engages with the pin on the graduated time-train ring of the fuze. A stop pin is attached to the corrector-scale support and engages with the stop pin of the fuze to limit the motion of the fuze setter.

The range worm and corrector worm are mounted eccentrically in the range-worm case and the corrector-worm case. Upon rotation this provides an adjustment to accommodate slight variations in machine operations and to take up for wear between the teeth of the worms and gears.

The range-worm adjusting screw and the corrector-worm adjusting screw have fiber washers fitted in the end which bear on the collar of the range and corrector worms for taking up the end motion and to provide sufficient friction to resist accidental turning.

Clamp plugs are provided for locking the range and corrector-worm cases and the range worm and corrector worm adjusting screws.

OPERATION.

Turn the knob of the corrector worm until the index on the case registers with the line on the corrector scale, which indicates the desired correction for height of burst.

To set a fuze, remove the waterproof cap and safety wire. Place the hand fuze setter over the fuze and turn until the slot in the range-ring carrier engages with the pin on the graduated time-train ring of the fuze; the base plate and the upper part of the range-ring carrier will then bear firmly on the projectile; then turn the fuze setter in a clockwise direction as indicated by the arrow on the top of the case until the stop pin on the corrector-scale support engages with the stop pin on the fuze, and further motion is prevented.

An index to register with a line on the fuze to indicate when the stop pin on the fuze and fuze setter are in contact is attached to the corrector scale.

HAND FUZE SETTER.

[Plate IV.]

OLD MODEL.

This hand fuze setter consists of the following principal parts: Range-ring carrier, base, case, range ring, corrector scale, plunger, plunger spring, clamping shoe, and clamp screw.

On the top of the base is mounted the range-ring carrier to which is secured by four screws the graduated range ring. On the interior

conical surface of the carrier is cut a notch, which engages the fixed pin of the graduated time-train ring of the fuze.

The range-ring carrier is loosely mounted on top of the base and is held in place by means of the case in such manner that it can be freely revolved so that the desired relation between the time train-ring notch cut therein and the fixed plunger in the base may be readily obtained for the desired setting of the fuze.

In the case which is securely fixed to the base is fitted a clamping screw and shoe, by means of which the range-ring carrier with its graduated range ring may be securely clamped. On the top surface of the case is fitted the corrector scale; this is held in place by two screws. If after a setting has been made for a given range it is found that the shrapnel does not burst at the desired point in its trajectory, the clamping screw is released and the range-ring carrier is revolved forward or backward as desired until the graduation mark on the range ring comes opposite the proper graduation mark on the corrector scale. For making the adjustment for different heights of burst, the corrector scale has been graduated and fitted to the case in such manner that if a lower point of burst is desired the range graduation on the range ring should be set to one of the lesser graduation marks on the corrector scale, and if a higher point of burst is desired, then the graduation on the range ring should be set to one of the higher graduations on the corrector scale.

ADJUSTMENT.

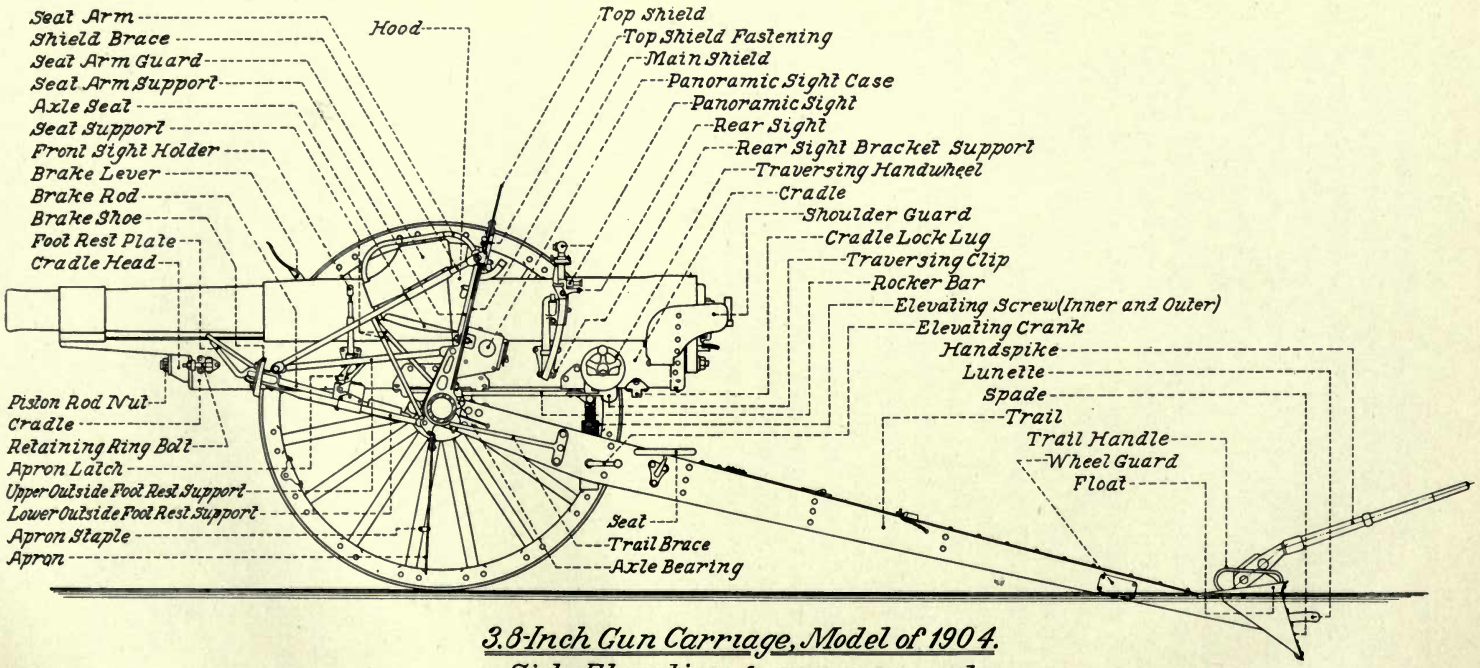
As the parts are adjusted by the manufacturer before issue and ample provision made for lubricating the parts by filling the interior of the case with a heavy grease, there should be but little need for adjustment for a long time.

Two oil holes closed by screws are provided in the case for emergency use only.

Reference marks are placed on the case and worm cases to indicate the normal adjustment.

ADAPTABILITY TO OTHER GUNS.

This fuze setter is adaptable to all projectiles using the 31-second combination fuze by using suitable range ring, corrector scale, guide plate, and index bar. The corrector scale for guns has 60 graduations, 30 being the normal. The range ring for guns has but one scale graduated thereon. The index bar for guns has a fixed projecting arm on which the index is engraved. The guide plates are suitably marked for the projectile to which they are fitted. The range rings and corrector scales are marked with the name of gun.



3.8-Inch Gun Carriage, Model of 1904.

Side Elevation [Left Wheel Removed]

Scale 0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108 112 116 Inches

The 3.8-inch Gun Carriage, Model of 1904.

WEIGHTS, PRINCIPAL DIMENSIONS, ETC.

Weight of carriage, complete	pounds	2,337
Weight of gun and carriage, complete	do	3,875
Weight at end of trail, carriage limbered	do	195
Diameter of wheels	inches	58
Width of track	do	60
Length of recoil of gun on carriage	do	58.5
Height of axis of gun	do	44.567
Height of line of peep sight	do	47.068
Length of peep sight radius	do	36.75
Maximum angle of elevation	degrees	15.5
Maximum angle of depression	do	5
Amount of traverse of gun on carriage	mils	106

Nomenclature of parts of carriage (complete).

No.	Name of part.	Location.	Property classification. Class.	Section.
1	Axle			
1	Trail, consisting of—			
2	Flasks (right and left)	Form right and left side of trail		
2	Axle bearings (right and left)	Riveted to front ends of flasks		
1	Axle bushing, right	In right axle bearing		
1	Axle bushing, left	In left axle bearing		
2	Axle-bearing bolts	Clamp bearings to axle		
1	Elevating gear transom	Riveted between flasks		
	Consisting of—			
1	Transom, front	Forms front of elevating gear transom		
1	Transom, rear	Forms rear of elevating gear transom		
2	Transom bearings	In cross transoms		
2	Elevating gear cross transoms	Between front and rear transoms		
1	Transom, intermediate	Riveted between flasks		
8	Bolts for elevating gear transom.	Hold cross transoms in place		
1	Tool box	Riveted between flasks		
	Consisting of—			
1	Tool box transom, front	do		
1	Tool box transom, rear	do		
1	Tool box bottom	Tool box in trail		
1	Tool box lid	Hinged to tool box cover		
1	Tool box cover	Forms top of tool box		
1	Tool box fastening	Fastened to lid and rear transom	IV	3
	Consisting of—			
1	Handle	At rear of tool box lid		
2	Handle lugs	Riveted to rear tool box transom		
2	Handle springs	Riveted to tool box cover		
2	Hinge, male	Riveted to tool box lid		
2	Hinge, female	Riveted to tool box cover		
1	Handle guide rivet	Riveted to tool box lid		
1	Handle stop rivet	do		
1	Lock eye	Riveted to trail cover		
1	Rear sight box bottom	Forms bottom of rear sight box		
1	Rear sight shank packing No. 1	Fastened to rear sight box bottom		
1	Rear sight shank packing No. 2	Fastened to rear sight box cover		
1	Rear sight shank packing No. 3	Fastened to rear sight box bottom		
1	Rear sight shank packing No. 4	Fastened to rear sight box cover		
1	Rear sight shank packing No. 5	Fastened to rear sight box bottom		
1	Lock chain rivet with chain	Riveted to left flask		
4	Carriage bolts with nuts and washers	2 for packing No. 3; 2 for packing No. 5		
1	Wheel guard transom	Riveted between flasks at rear end of rear sight box.		
1	Spade	Riveted to ends of flasks		
1	Spade edge	Riveted to face of spade		
1	Float	Riveted to spade and flasks		
1	Float brace	Riveted to bottom of trail and float		

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Nomenclature of parts of carriage (complete)—Continued.

No.	Name of part	Location.	Property classification.	
			Class.	Section.
	Trail, consisting of—Continued.			
1	Lunette bracket	Riveted to float		
1	Handspike fastening	Riveted to top of float		
2	Wheel guards	Riveted to flasks and wheel guard transom.		
1	Trail brace, right	Right flask to right seat axle bracket		
1	Trail brace, left	Left flask to left seat axle bracket		
1	Trail cover	Riveted to flasks and front tool box transom.		
1	Trail handle, right	Riveted on float and spade		
1	Trail handle, left	do		
1	Seat bracket, right	Riveted to right flask		
1	Seat bracket, left	Riveted to left flask		
2	Seats	Riveted to seat brackets		
1	Elevating and traversing lock, consisting of—			
1	Cradle lock bracket	Riveted to elevating gear transom, rear		
1	Hook	Pinned to cradle lock bracket		
1	Hook center	Riveted to hook		
1	Link	Pinned to hook center		
2	Link pins	For link		
1	Cradle lock spring	Pinned to bracket and link		
1	Cradle lock pin	Pins hook and hook center to bracket		
2	Long spring pins	1 for spring; 1 for spring stop		
1	Cradle lock bracket pin	Riveted in bracket for spring stop		
1	Sponge staff socket	Riveted to right flask		
1	Sponge staff stop	do		
1	Sponge fastening	do		
	Consisting of—			
1	Hasp	Pinned to fastening		
1	Bolt	On sponge fastening		
1	Twisted coil chain	Attached to bolt		
1	Pin	On sponge fastening		
1	Name plate	Riveted on top of tool box cover		
1	Handspike	Carried on trail cover		
1	Handspike bolt	Secures handspike to fulcrum		
1	Handspike bracket	Riveted to float		
1	Handspike fastening	On trail cover		
1	Handspike fastening spring	Holds fastening to trail cover	IV	3
1	Lunette with nut	In lunette bracket		
1	Padlock	Fastened to chain on left flask		
1	Bolt snap	do		
1	Padlock chain rivet	For securing chain to left flask		
1	Cradle, consisting of—			
1	Angle, right	Riveted to right side of body		
1	Angle, left	Riveted to left side of body		
1	Cradle body	Below gun		
1	Cradle rear end	Riveted to body		
1	Cradle reinforce plate	Riveted to rear end		
1	Cradle washer	Between rear end and reinforce plate		
1	Guide liner, right	Riveted to body and top plate		
1	Guide liner, left	do		
1	Cradle top plate	Riveted to angles and body		
1	Cradle head	In retaining ring		
	Consisting of—			
1	Special screw	In cradle head		
1	Cradle head stop	In retaining ring		
1	Cradle head stop plug	do		
1	Cradle head stop spring	do		
1	Bushing	In cradle head		
1	Retaining-ring pin	In retaining ring		
1	Pintle	Riveted to cradle body		
2	Oil tubes	In pintle		
1	Cradle-lock lug	Riveted to cradle body near rear end		
1	Bracket seat, firing handle	Riveted to cradle body		
1	Recoil-indicator guide	Riveted on right side of body		
1	Quadrant fastening	do		
2	Shoulder-guard fastenings	Riveted on left side of body		
1	Shoulder-guard clip	do		
1	Shoulder-guard brace	Secures shoulder guard to cradle		
1	Rear-sight bracket support	Riveted on left side of body		
1	Front-sight bracket support	do		
2	Retaining-ring bolt fastenings	Riveted to cradle body		
1	Spring-support guide, right	Riveted inside cradle		
1	Spring-support guide, left	do		
2	Retaining-ring bolts with nuts	In bolt fastenings		
2	Retaining-ring bolt pins	do		

Nomenclature of parts of carriage (complete)—Continued.

No.	Name of part.	Location.	Property classification.	
			Class.	Section.
1	Shoulder guard	On rear end of cradle	IV	3
1	Shoulder-guard pin	Secures shoulder guard to cradle		
1	Shoulder-guard bushing	Brazed in shoulder guard		
1	Dust guard	On cradle guide liners		
1	Cradle brush	Riveted to dust guard		
	Consisting of—			
1	Brush plate	Part of cradle brush		
1	Rear felt plate	do		
1	Front felt plate	do		
1	Recoil indicator	In indicator guide		
	Consisting of—			
1	Spring	Riveted to slide		
1	Slide	In guide		
1	Recoil-indicator throw	Attached to hinge		
1	Recoil-indicator pointer	Riveted to indicator slide		
1	Recoil-indicator hinge pin	For hinge		
1	Recoil-indicator hinge	Riveted to dust guard		
1	Firing mechanism, consisting of—			
1	Firing-shaft bracket	Bolted to bracket seat		
1	Firing shaft	In bracket		
1	Firing-handle hub	On end of firing shaft		
1	Firing handle	Assembled to firing-handle hub		
	Consisting of—			
1	Plunger	In handle		
1	Spring	do		
1	Firing-shaft bracket pin	In bracket		
1	Shaft-trip collar	On end of firing shaft		
1	Trip latch	Secured to trip-latch plunger		
1	Trip-latch plunger	In firing-handle hub		
1	Trip-latch spring	On trip-latch plunger		
1	Trip-latch pin	Secures trip latch		
1	Trip-collar pin	Fastens trip collar on shaft		
1	Handle-return spring	Front end of bracket		
1	Shaft-return spring	Rear end of bracket		
1	Adjusting screw	In bracket		
1	Adjusting-screw check nut	On adjusting screw		
2	Bracket studs and nuts	For attaching bracket		
1	Cylinder	In cradle		
1	Cylinder-end stud	Connects cylinder to gun		
1	Cylinder-end stud nut	On cylinder-end stud		
1	Screw for cylinder end	Prevents cylinder end from unscrewing		
1	Counter-recoil buffer	Screwed and pinned on cylinder-end stud		
1	Cylinder head	Front end of cylinder		
3	Cylinder-head screw eyes	Cylinder head		
1	Cylinder-head washer	In cylinder head		
1	Gland	Screwed on head		
1	Stirrup	Inside of cradle		
1	Front-spring support	Front end of stirrup		
1	Rear-spring support	Rear end of stirrup		
3	Outer counter-recoil springs	Outside of stirrup		
3	Inner counter-recoil springs	Inside of stirrup		
2	Spring separators, inner	Separate inner springs		
2	Spring separators, outer	Separate outer springs		
1	Cylinder support	Inside of front end of stirrup		
5	Rings, packing	Garlock hydraulic waterproof, 0.25 inch square.		
1	Piston	At rear end of piston rod		
1	Piston rod	In cylinder		
1	Piston-rod plug	do		
1	Piston-rod nut	At front end of piston rod		
1	Filling plug with gasket	Screwed in end of piston rod		
1	Vent plug	In cylinder head		
1	Vent-plug washer	do		
3	Piston-retaining screws	Secure piston to rod		
1	Piston-rod plug pin	Fastens plug in piston rod		
1	Rocker, consisting of—			
1	Pintle socket	On axle		
1	Pintle bushing	Upper surface of socket		
2	Rocker bars	From pintle socket to traversing clip		
1	Pintle-socket front clip liner	Riveted to front clip		
1	Pintle-socket rear clip liner	Riveted to rear clip		
1	Pintle-socket side clip liner, right	Riveted to right-side clip		
1	Pintle-socket side clip liner, left	Riveted to left-side clip		
1	Traversing plate liner pin	Supports one end of liner		
1	Traversing plate	Riveted to cradle body		
1	Traversing-plate liner	Pinned and screwed to traversing plate		

Nomenclature of parts of carriage (complete)—Continued.

No.	Name of part.	Location.	Property classification.	
			Class.	Section.
	Rocker, consisting of—Continued.			
1	Azimuth pointer	Traversing plate		
1	Dowel for azimuth pointer			
2	Azimuth-pointer screws	Secure pointer to traversing plate		
1	Traversing-plate liner screw	Attaches traversing-plate liner		
1	Traversing mechanism, consisting of—			
1	Handwheel	On worm shaft		
1	Handle	On handwheel		
1	Spindle	Through handle		
1	Traversing worm shaft	In bearing on traversing clip		
1	Nut	On worm shaft		
1	Traversing upper bushing pin	Secures upper bushing		
1	Traversing clip	Riveted to rocker bars		
1	Traversing clip upper bushing	In upper end of bearing		
1	Traversing clip, lower bushing	In lower end of bearing		
1	Traversing stop pin	On traversing clip		
1	Azimuth scale	do		
1	Azimuth scale screw No. 1	Secures scale to traversing clip		
1	Azimuth scale screw No. 2	do		
1	Elevating mechanism, consisting of—			
1	Elevating pin	Through elevating screw and traversing clip.		
1	Inner elevating screw	Between rocker and outer elevating screw		
1	Outer elevating screw	Between inner elevating screw and elevating gear bracket.		
1	Ring, brass			
1	Elevating gear bracket	On bearing in trail transoms		
1	Elevating bevel gear	In elevating gear bracket		
4	Elevating gear bronze bushings	In bracket		
2	Elevating gear keys	Riveted in bevel gear		
2	Elevating crank handles	On elevating cranks		
2	Washers	For handles		
2	Elevating bevel pinions	One on end of each crank shaft		
2	Elevating bevel pinion taper pins	Secure pinions to crank shafts		
1	Elevating crank shaft, right	Through right flask		
1	Elevating crank shaft, left	Through left flask		
1	Elevating screws, dust guard	Lower end of bracket		
1	Dust-guard screw	Secures dust guard	IV	3
2	Axle seats and foot rests, consisting of—			
1	Seat, right			
1	Seat, left			
1	Seat support, right	Supports right seat		
1	Seat support, left	Supports left seat		
1	Seat-axle bracket, right	Upper right end of main shield		
1	Seat-axle bracket, left	Upper left end of main shield		
1	Seat arm, right	Riveted to right seat arm bracket		
1	Seat arm, left	Riveted to left seat arm bracket		
1	Seat-arm guard, right	Fastened to right seat arm		
1	Seat-arm guard, left	Fastened to left seat arm		
1	Seat-arm connection, right	Riveted to right seat		
1	Seat-arm, connection, left	Riveted to left seat		
6	Seat-filler pieces	Front of seat		
2	Seat stiffeners	Riveted to rear edge of seats		
2	Seat-arm supports	Support rear ends of seat arms		
1	Seat-support connection, right	Bolted to right axle bracket		
1	Seat-support connection, left	Bolted to left axle bracket		
2	Seat-support connection bolts	For seat-support connections		
2	Shield brace bolts with nuts	Secure shield brace to shield bracket		
1	Diagonal brace (rear end inside) right	For right seat		
1	Diagonal brace (rear end inside) left	For left seat		
1	Diagonal brace (rear end outside) right	For right seat		
1	Diagonal brace (rear end outside) left	For left seat		
1	Foot-rest frame, right	Fastened to right foot rest supports		
1	Foot-rest frame, left	Fastened to left foot-rest supports		
1	Foot-rest plate, right	On foot-rest frame, right		
1	Foot-rest plate, left	On foot-rest frame, left		
2	Foot-rest plate attachment, right	Attaches foot-rest plate		
2	Foot-rest plate attachment, left	do		
2	Seat-axle bracket bolts with nuts	Secure brackets to axle		
2	Foot-rest bolts, inside, with nuts	Secure foot-rest supports to axle bearing		
2	Foot-rest bolts, outside, with nuts	Secure foot-rest supports to seat-axle bracket.		
4	Foot-rest support bolts with nuts	Secure supports to foot-rest frames		
2	Upper inside foot-rest support	From axle bearings to foot-rest frames		
2	Upper outside foot-rest support	From seat-axle brackets to foot-rest frames		

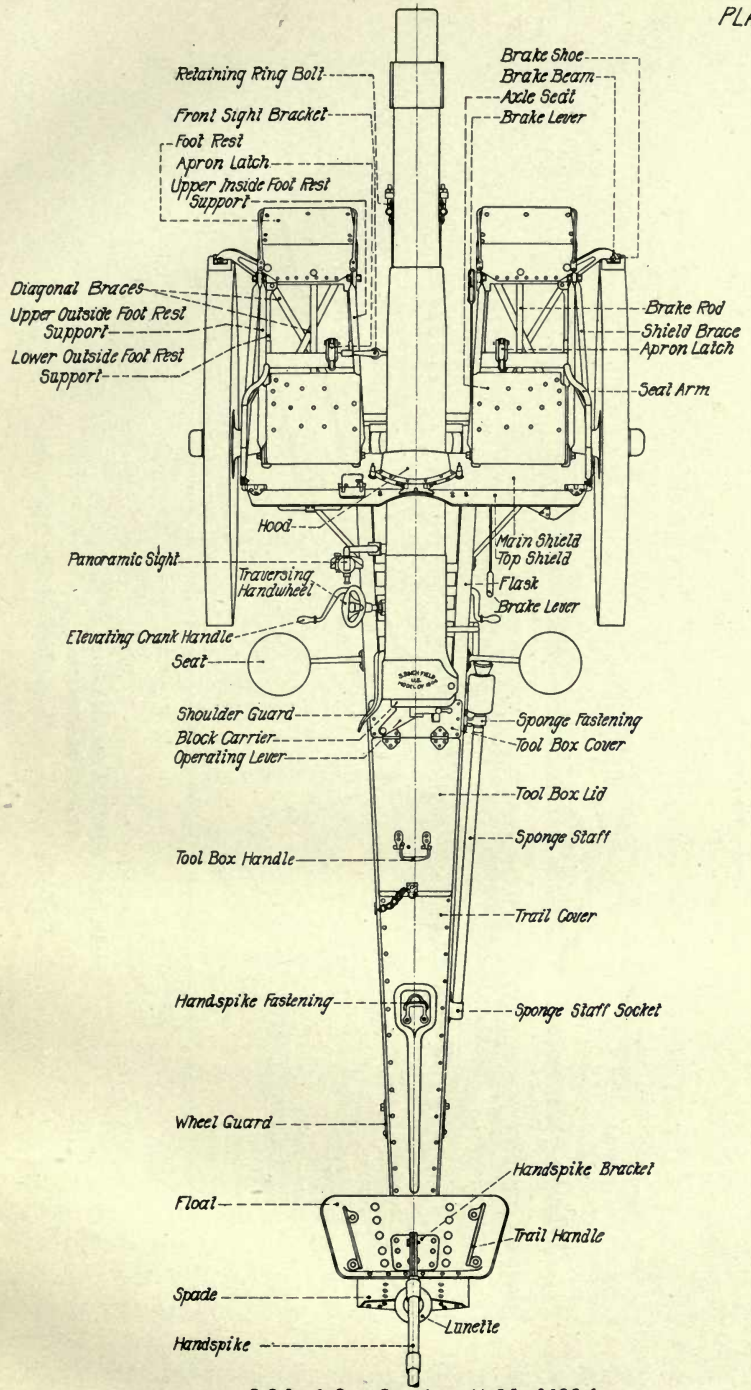
Nomenclature of parts of carriage (complete)—Continued.

No.	Name of part.	Location.	Property classification.	
			Class.	Section.
	Axle seats and foot rests, consisting of—Continued.			
1	Lower inside foot-rest support, right	From axle bearing to foot-rest frame	IV	3
1	Lower inside foot-rest support, left	....do		
1	Lower outside foot-rest support, right	From seat axle bracket to foot-rest frame		
1	Lower outside foot-rest support, left	....do		
2	Inside foot-rest support pin	Fastens upper inside supports to axle bearing.		
2	Outside foot-rest support pin	Fastens upper outside supports to seat axle brackets.		
2	Foot-rest braces	Brace foot-rest plates		
1	Road brake, consisting of—			
1	Brake beam, right	Pivoted to right foot-rest frame		
1	Brake beam, left	Pivoted to left foot-rest frame		
2	Brake-beam pin	Foot-rest frames		
1	Brake-lever hinge pin	Pinned in brake lever hinge		
1	Brake-axle bracket bushing (A=3.2)	For right bracket		
1	Brake-axle bracket bushing (A=1.5)	For left bracket		
3	Brake-axle bracket bolt	Secures bracket to axle		
3	Brake-axle bracket-bolt nuts	For bolts		
1	Brake axle bracket	Bolted to axle		
1	Segment rack	Riveted to brake segment		
1	Brake-lever hinge	On rock shaft		
1	Brake-lever spring	On brake-lever hinge pin		
1	Brake-lever stop	Riveted near bottom of brake segment		
1	Brake pawl	Pinned to brake-lever hinge		
1	Brake segment	Riveted to brake-axle bracket		
2	Connecting-rod ends	On ends of brake rods		
4	Connecting-rod pins	Connect ends to brake beams		
1	Rock shaft	In bearings bolted to axle		
1	Rock-shaft bracket	Bolted to axle		
1	Key, steel	Rock shaft		
2	Key, steel	On brake rods		
2	Brake shoes	Ends of brake beams		
4	Brake-shoe tap bolts	Secure shoes to beams		
2	Brake rods	Between brake-rod ends and springs		
2	Springs	Inside of spring cover		
2	Spring covers	Ends of brake rods		
2	Spring-cover heads	Slide on brake rod		
1	Brake crank	On end of brake shaft		
1	Brake lever	....do		
2	Apron latches, consisting of—			
2	Apron-latch bracket	On apron-latch bridge		
2	Apron-latch pin	Form pivot for apron-latch body		
2	Apron-latch body	Pivoted on block		
2	Apron-latch lever	Pivoted on bodies		
2	Apron-latch lever pin			
2	Apron-latch plunger	Seated in bodies		
2	Plunger eye	Screwed on end of plunger		
2	Plunger-eye pin	Attach plunger eye to lever		
2	Apron-latch spring	In body around plunger		
2	Apron-latch bushing	Screwed into body		
1	Apron-latch bridge, right	Fastened to clasps		
1	Apron-latch bridge, left	....do		
4	Apron-latch bridge clasp	Around foot-rest supports		
1	Apron shield, consisting of—			
1	Apron	Hinged to axle bearings and axle-seat bracket.		
4	Apron hinges	Riveted to apron		
4	Apron-hinge pin	Through apron hinges and brackets		
2	Apron-latch staples	Riveted to apron		
1	Main shield, consisting of—			
1	Main shield	Bolted to axle bearings and axle-seat bracket.		
1	Hood	Riveted to main shield		
1	Hood angle	Riveted to hood		
1	Shutter, peep-sight port	Hinged to shield		
1	Shutter, panoramic-sight port	....do		
1	Shutter support	Riveted to shutter		
1	Shutter-latch base	....do		
1	Shutter-latch plunger	In shutter-latch base		
1	Shutter-latch spring	....do		
6	Hinge, sight-port shutter	On shield		
1	Hinge pin, sight-port shutter	In hinges		
2	Filler, shutter hinge	Between hinge and shield		
1	Shutter latch plunger nut			

Nomenclature of parts of carriage (complete)—Continued.

No.	Name of part.	Location.	Property classification.	
			Class.	Section.
	Main shield, consisting of—Continued.			
1	Lower center shield hinge	Riveted to main shield		
2	Wing-nut studs, front	Front of main shield		
2	Wing-nut studs, rear	Rear of main shield		
7	Lower bushing	For wing-nut studs		
3	Upper bushing	do		
2	Shield brace bolts with nuts	Fastens shield braces to clips		
4	Wing nut pin washer	On pins		
1	Shield brace clip, right	Riveted to shield		
1	Shield brace clip, left	do		
4	Lower shield bolts with nuts	Fasten main shield to axle brackets		
1	Seat shield bolt inside, right, with nut	Fasten seat to shield		
1	Seat shield bolt inside, left, with nut	do		
2	Seat shield bolt outside, with nuts	do		
1	Top shield, consisting of—			
1	Top shield	Hinged to main shield		
2	Top-shield hinge, upper half	Riveted to top shield		
2	Top-shield hinge, lower half	Riveted to main shield		
4	Fastening hinges	Riveted to top shield		
2	Fastening-hinge pins	For fastening hinges		
3	Top-shield hinge pin	For hinges		
2	Top-shield fastening	For holding top shield secure		
1	Upper center shield hinge	Riveted to top shield		
1	Range quadrant case bracket, consisting of—			
1	Bracket	Bolted on rear face of main shield, right side.		
1	Left spring support	Riveted to bracket		
1	Right spring support	do		
1	Range quadrant case, consisting of—			
1	Lid	Swung between springs by box supports in bracket.		
1	Body	do		
1	Box support, right	Riveted on case		
1	Box support, left	do		
1	Bearing plate, upper right	Riveted to right box support		
1	Bearing plate, lower right	do		
1	Packing-block base	In bottom of case		
2	Case hinges, upper half	Riveted on lid	IV	3
2	Case hinges, lower half	Riveted to back of case		
1	Hasp hinge	Riveted on case lid		
1	Hasp	Riveted on case front		
1	Wing nut	Riveted on case		
1	Wing-nut pin and washer	do		
1	Wing-nut pin reinforce	do		
1	Chain eye	do		
1	Padlock chain	Attached to chain eye		
7	Leather-covered packing blocks	Screwed to inside of case		
3	Bolts with nuts	Secure case to bracket		
3	0.375 pipes	On bolts		
1	Lower reinforce	Riveted to bracket		
1	Upper reinforce	do		
2	Box bracket bolts with nuts	do		
6	Springs, quadrant case	Not interchangeable with sight case springs.		
1	Padlock	Fastened to chain		
1	Bolt snap	do		
1	Panoramic sight-case bracket, consisting of—			
1	Bracket, sight case	Bolted on rear face of main shield, left side		
1	Spring support, right	Riveted to bracket		
1	Spring support, left	do		
1	Panoramic sight case, consisting of—			
1	Packing-block base	In bottom of case		
1	Lid	Suspended between springs and bracket		
1	Body	do		
1	Bottom	do		
2	Box supports	Riveted to case		
1	Hasp	Riveted on case front		
1	Hasp hinge	Riveted on case lid		
2	Case hinges, upper half	do		
2	Case hinges, lower half	Riveted to back of case		
1	Filler block	In case		
1	Lower reinforce	Riveted to bracket		
1	Upper reinforce	do		
1	Wing nut	Riveted on case		

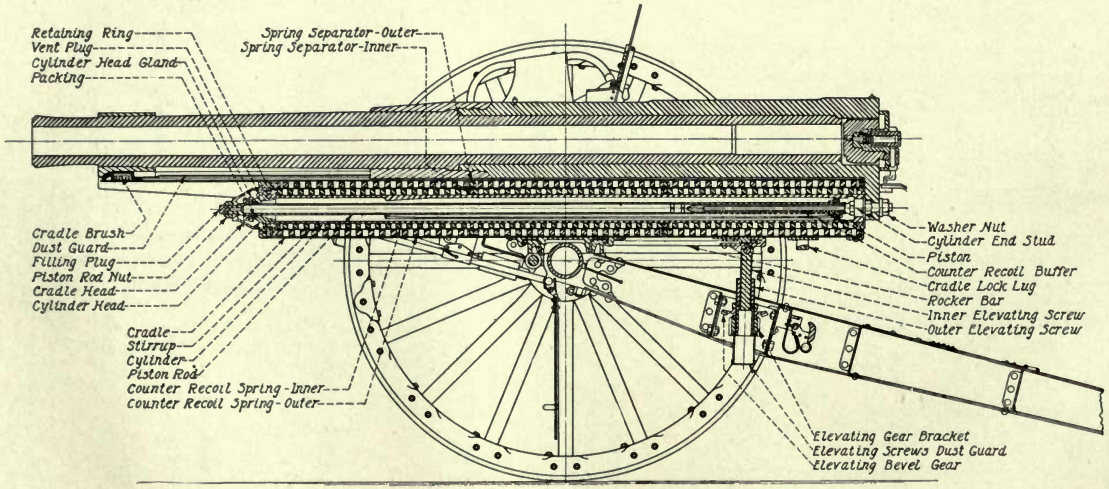
PLATE VI



3.8-Inch Gun Carriage, Model of 1904

Plan

0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108 112 116 INCHES.



38-Inch Gun Carriage Model of 1904.
Longitudinal Section

Scale 0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 Inches.

Nomenclature of parts of carriage (complete)—Continued.

No.	Name of part.	Location.	Property classification.	
			Class.	Section.
	Panoramic sight case, consisting of—Con.			
1	Wing-nut pin and washer	Riveted on case		
1	Wing-nut pin reinforce	do		
1	Chain eye	do		
1	Padlock chain	Attached to chain eye		
5	Leather-covered wood packing blocks	Screwed to inside of case		
4	Bolts with nuts	Secure case to bracket		
4	0.375 pipes	On bolts		
8	Springs, sight-case	Not interchangeable with quadrant-case springs.		
1	Padlock	Fastened to chain		
1	Bolt snap	do		
1	Front-sight, consisting of—			
1	Front-sight bracket	Rests in socket riveted to cradle		
1	Sleeve	Threaded to bracket		
1	Holder	Supports ring with cross wires		
1	Rear sight, consisting of—			
1	Rear-sight bracket, with shank socket	Fastened by two nuts to bracket support riveted to cradle.		
1	Rear-sight shank	Constitutes the rear sight		
1	Shank-socket cover	Bolted to shank socket		
1	Panoramic sight	Fitted to rear-sight shank		
1	Range quadrant			
2	Wheels, 58-inch, complete, consisting of—		IV	3
16	Tire bolts, with nuts and washers			
16	Dowels			
64	Felloe rivets			
128	Washers			
16	Felloe segments			
32	Spokes			
2	Tires			
2	Hub boxes			
2	Hub liners	Forced into hub boxes		
2	Hub rings	Outer flanges of hubs		
16	Carriage bolts			
16	Carriage-bolt nuts			
2	Lock washers	Between hub rings and hub caps		
2	Hub caps	On ends of hubs		
2	Oil valves	In hub caps		
2	Washers	For oil valve		
2	Springs	do		
2	Wheel fastenings (in halves)	At ends of axle		
	Consisting of—			
2	Wheel-fastening pin			
2	Hasp			
2	Hasp staple			
2	Twisted coil chain, with ring pin.			

DESCRIPTION OF THE CARRIAGE.

[Plates V, VI, and VII.]

The carriage for the 3.8-inch gun is of the type known as the long recoil, in which the gun is permitted a sufficient length of recoil upon the carriage to render the latter stationary under firing stresses.

As this carriage is of the same general design as the 3-inch gun carriage, model of 1902, the description of the carriage and its parts given in the handbook on 3-inch Gun Matériel, Form No. 1659, will be used.

There are differences in design, however, existing between some parts of the two carriages, such as in the traversing mechanism, the rocker, and other smaller parts. These are taken up in their proper order, and the differences may be readily seen by comparison with similar paragraphs in the above-mentioned handbook. Any dimen-

sions given in the description of the 3-inch gun carriage will be disregarded, as the 3.8-inch gun has a larger carriage. Numbers of carriages will also be disregarded.

WHEELS.

The wheels are a heavier type of the Archibald pattern, 58 inches in diameter, with 4-inch tires. The hub cap is of forged steel and no hub band or hub-latch plunger is used.

The wheel fastening is of a different design, being made in halves and pinned together by means of a pin and interlocking lugs at one end and a hasp and split pin at the other. The fastening has a square thread, onto which the wheel is screwed. The wheel is locked to the fastening by means of the hasp and staple.

TRAIL.

The only difference noted in the trail is that the rear ends of the flasks are not flanged outward at the points at which the float is attached.

ELEVATING GEAR.

The functioning of the elevating gears is the same, but differs in construction. In place of the angle the 3.8-inch gun-carriage rocker has two steel bars threaded in the pintle socket at one end and riveted to the traversing clip at the other. The traversing clip serves as a point of attachment for both the traversing and elevating mechanism.

TRAVERSING MECHANISM.

The traversing mechanism consists of the traversing worm shaft, mounted in a bearing in the traversing clip. The bearing is inclined 30° to the horizontal and is bushed at either end. Through an aperture provided for the purpose the worm thread on the traversing worm shaft engages with the rack on the traversing plate, which in turn is riveted to the cradle. A pin, inserted in the traversing clip after assembly, serves as a traversing stop. Two small lugs, one at the center and one at the right of the traversing plate, limit the motion of the gun to right or left. The traversing worm shaft extends upward and to the left, terminating in a seat for the traversing handwheel. Turning the handwheel causes the cradle, with the gun, to be traversed, the amount of motion provided being 106 mils, 53 on each side of the axis of the carriage.

CRADLE COMPLETE.

The cradles complete are similar in design and operation except as noted. The 3.8-inch gun-carriage cradle has three steel forgings riveted to its under side—the pintle, traversing plate, and cradle-lock lug. The traversing and elevating mechanism are attached at the same point.

ACTION OF MECHANISM DURING RECOIL.

The firing mechanism is as described in the handbook, Form 1659, for carriages after No. 168.

AMMUNITION CARRIERS.

There are no ammunition carriers mounted on the 3.8-inch gun carriage, and all references thereto in the handbook, Form 1659, should be disregarded.

ROAD BRAKE.

The spring cover and spring-cover end mentioned in the handbook, Form 1659, are integral on the 3.8-inch carriage.

There is but one rack riveted to the brake-segment bracket.

THE SHIELD.

The apron is hinged to the axle-seat brackets and the axle bearings and reaches to within 5.25 inches of the ground. For traveling, it is swung up under the seats and held by two apron latches, which are attached to brackets riveted to the foot-rest supports. The main shield is rigidly attached by bolts to the axle-seat brackets and axle bearings and is braced by two shield braces, reaching from its upper corners to the foot-rest frame. It has two wing nuts for securing the top shield when folded down and has a sighting port and a gun port. The latter is made a minimum port, and the shield is stiffened by a hood riveted to its front face. The upper edge of the top shield is 64 inches from the ground.

TO FILL THE RECOIL CYLINDER.

In the instructions regarding the filling of recoil cylinders the following important point should be noted in addition to the instructions given in the handbook: *The cylinder should be refilled after any test which requires the retracting of the gun.*

TO DISMOUNT THE TRAVERSING MECHANISM.

The gun being dismounted, remove the traversing stop pin from the clip and traverse the cradle (muzzle end) to its extreme left position. This will disengage the rack from the worm on the shaft. To remove the worm shaft, first remove the handwheel, next the nut from the upper end of the shaft, and then unscrew the bushing from the traversing clip, which will allow the shaft to be withdrawn. To assemble the traversing mechanism, the above operations are reversed.

TO REMOVE A WHEEL.

First, remove the hub cap by unscrewing with the spanner furnished, remove the lock washer, undo and throw back the hasp attached to the wheel fastening, and then unscrew the wheel from the wheel fastening, which will allow its being removed.

TO REMOVE A WHEEL FASTENING.

The wheel having been removed as directed above, withdraw the 0.25 split pin; the wheel fastening, being in halves and hinged at the bottom, can then be removed from the axle.

ADJUSTMENT OF SIGHTS.

VERIFICATION OF PARALLELISM OF LINES OF SIGHT AND AXIS OF BORE.

Information in handbook 1659 applies to the 3.8-inch gun, with the exception of that shown in figure 1.

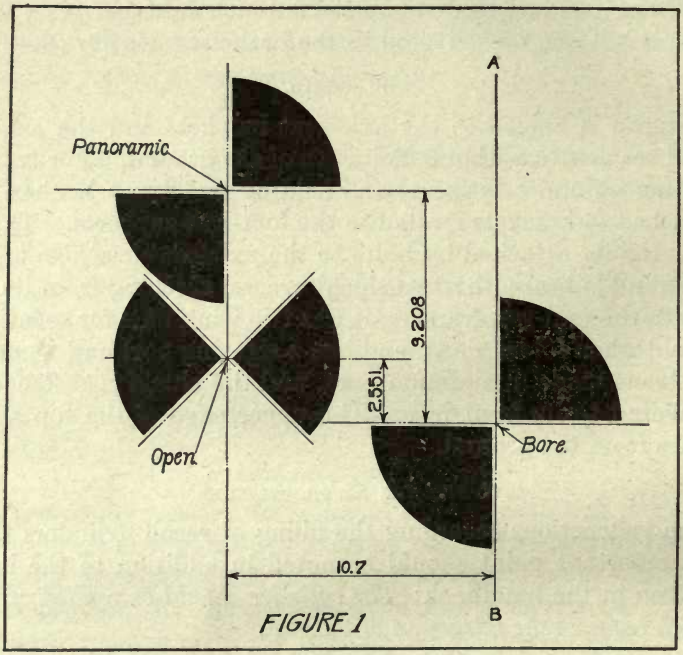


FIGURE 1

THE 3.8-INCH GUN LIMBER, MODEL OF 1904.

[Plate VIII.]

WEIGHTS, DIMENSIONS, ETC.

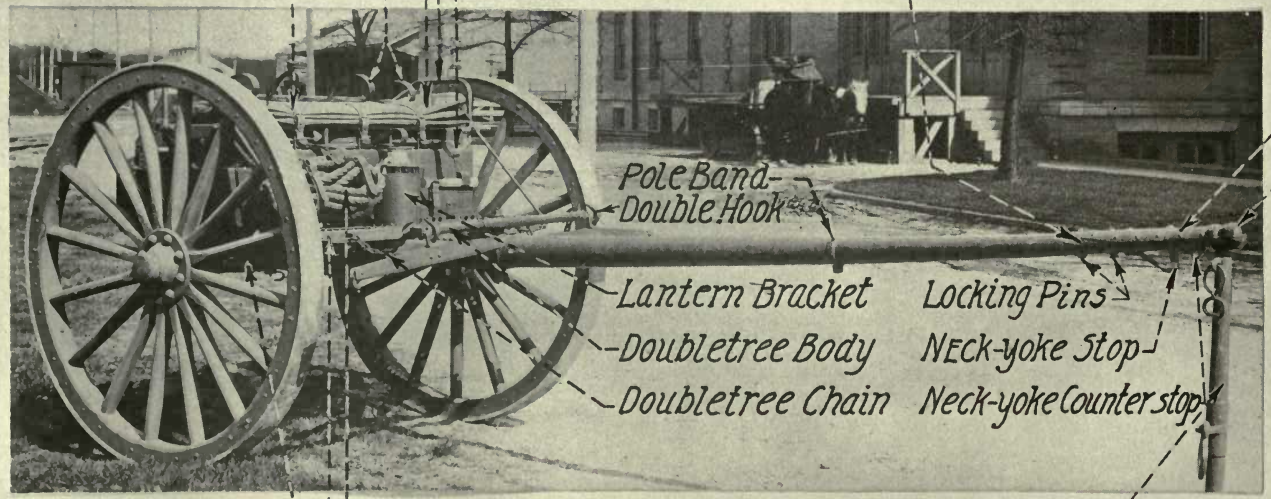
Weight, complete, empty	pounds..	1,102
Weight of tools and equipment carried	do....	91
Weight of ammunition carried	do....	682
Weight, completely equipped and loaded	do....	1,875
Weight of gun, carriage, and limber, completely equipped and with 18 rounds of ammunition	pounds..	5,750
Rounds of ammunition carried in limber chest	number..	18
Diameter of wheels	inches..	58
Width of track	do....	60
Free height under limber (and carriage)	do....	21
Turning angle with carriage	degrees..	76
Turning angle with caisson	do....	75

Nomenclature of parts of limber.

No.	Name of part.	Location.	Property classification.	
			Class.	Section.
2	Wheels and wheel fastenings	Same as on carriage		
1	Axle			
1	Middle rail (upper and lower half), consisting of—	Riveted to axle		
1	Pole clamp	Riveted to middle rail		
1	Pole-prop bracket	Riveted to pole clamp and middle rail with limber prop in place.		
1	Pole-clamp bolt	In pole clamp		
1	Pole-clamp bolt nut			
1	Pole pin	Secures pole in seat		
1	Pole-pin reinforce	Riveted to lower half of middle rail		
1	Pole stop	Riveted between upper and lower half of middle rail.		
1	Dowel	For middle rail, upper section		
1	Doubletree strap	Riveted to middle rail		
1	Doubletree bolt	In bolt clamp and doubletree strap		
1	Doubletree-bolt nut			
1	Side rail, right, consisting of—	Riveted to axle and middle rail		
1	Side-rail connection, right	Riveted to side rail and pole clamp		
2	Separators	For bracing flanges of side rail		
4	Rear reinforce plates			
1	Step	Riveted to side rail		
1	Side rail, left, consisting of—	Riveted to axle and middle rail		
1	Side-rail connection, left	Riveted to side rail and pole clamp		
2	Separators	For bracing flanges of side rail		
4	Rear reinforce plates			
1	Step	Riveted to side rail		
1	Name plate	Riveted to middle rail		
1	Limber prop, consisting of—	Assembled to middle rail by means of prop eye.		
1	Limber-prop foot	Pinned to bottom of prop		
1	Limber-prop eye	Pinned to top of prop		
1	Chain	Secured to prop foot		
1	Prop tube	Hinged to pole by prop eye		
1	Prop-chain fastening	Riveted to chain		
1	Prop bracket	Riveted to pole clamp		
1	Prop-chain button	Riveted to foot rest		
1	Prop-chain button rivet	For prop-chain button		
1	Prop-chain handle	On end of prop chain	IV	3
2	Tie rod, front	Brace middle rail from axle		
2	Tie rod, rear	do		
2	Tie-rod clamp, upper	On axle arms		
2	Tie-rod clamp, lower	do		
2	Tie-rod pins	Fasten front ends of front tie rods		
4	Tie-rod clamp bolts	Fasten tie rods to clamps		
2	Key, for tie-rod clamp	Prevent clamps from turning on axle		
1	Foot rest, consisting of—			
1	Foot-rest bracket, right	Riveted to ammunition chest		
1	Foot-rest bracket, left	do		
1	Foot rest	Riveted to foot-rest brackets		
1	Foot-rest support, right	Supports right side of foot rest		
1	Foot-rest support, left	Supports left side of foot rest		
2	Foot-rest support pin	Pin supports to handrail forward brackets		
1	Doubletree-rod guide, right	Riveted to foot rest		
1	Doubletree-rod guide, left	do		
1	Pick-handle bracket	do		
1	Shovel-handle bracket	do		
1	Pintle with bearing, complete, consisting of—			
1	Pintle	Seated in pintle bearing		
1	Pintle latch	On pintle		
1	Pintle-latch pin with split pin	Forms pivot of latch		
1	Pintle-latch spring	On pintle		
1	Pintle bearing (in two parts)	Rear end of middle rail		
1	Pintle spring	In pintle bearing		
1	Pintle-spring pin	do		
2	Pintle-bearing bolts with nuts	Secures bearing to middle rail		
1	Doubletree, consisting of—			
1	Doubletree body with reinforce			
10	Separators			
1	Nipple separator	Riveted together		
1	Double hook, right			
1	Double hook, left			
1	Doubletree nipple	Renewable		
1	Nipple nut			
2	Doubletree chain	Fastened to doubletree and ends of chest		
1	Doubletree-strap fastener	Fastened to doubletree strap		
1	Reinforce piece	Around doubletree body		

Nomenclature of parts of limber—Continued.

No.	Name of part.	Location.	Property classification.	
			Class.	Section.
1	Pole, complete, consisting of—			
1	Pole body			
1	Pole plug	Riveted in body		
1	Neck-yoke counter-stop spring	Bears on neck-yoke counter stop		
1	Neck-yoke counter-stop pin	Riveted in body		
1	Neck-yoke counter stop	Hinges on counter-stop pin		
1	Neck-yoke stop	Riveted to body		
1	Neck-yoke chafing plate	Riveted to upper side of body		
1	Neck-yoke stop separator	Inside of body		
1	Neck-yoke stop-rivet separator	do		
1	Pole-pin bushing	do		
1	Butt reinforce	Riveted to inside of body		
1	Oil-can holder, complete, consisting of—			
1	Oil-can holder	Riveted to right side of chest and brackets.		
1	Oil-can holder bracket	Riveted to right side of chest near top		
1	Oil-can holder hasp	Fastened to hasp hinge		
1	Hasp hinge	Riveted to bracket		
1	Hasp-hinge pin	Pins hasp to hasp hinge		
1	Ammunition chest, complete, consisting of—			
1	Chest bottom			
1	Chest door	Constitute body		
1	Chest front			
1	Chest top			
1	Front diaphram	Riveted to chest body		
1	Middle diaphram	do		
1	Rear diaphram	do		
18	Connecting piece	Connect rear and middle diaphram		
1	Chest front reinforce	Riveted to chest front		
1	Door stiffener	Riveted around edge of door		
2	Outer bearing plate	Riveted to door		
2	Small bearing plate	do		
1	Do	do		
1	Do	do		
1	Chest rail, right	Riveted to bottom of chest		
1	Chest rail, left	do		
4	Chest rail connection	Riveted to chest rails		
4	Connection pin	Pin-chest rail connections to side rails	IV	3
4	Door hinge (in two pieces)	Riveted to door and chest top		
4	Door-hinge pin	For door hinges		
4	Door-hinge reinforce	Riveted to chest top with hinges		
1	Door handle	Riveted to door		
2	Door-handle reinforce	Riveted to door with handle		
1	Bucket holder	Riveted to top of chest; forms seat		
2	Bucket-holder transom, right	Riveted to bucket holder and chest top		
2	Bucket-holder transom, left	do		
4	Corner reinforce	Reinforce corners of bucket holder		
1	Lock bar, right	Supported at ends by hinges		
1	Lock bar, left	do		
2	Lock-bar hinge	Riveted to chest bottom		
2	Lock-bar hinge reinforce	Riveted to chest bottom with hinge		
1	Lock-bar outer hinge, right	Supports outer end of right lock bar		
1	Lock-bar outer hinge, left	Supports outer end of left lock bar		
1	Lock-bar outer hinge reinforce, right	Riveted to chest bottom with outer hinge		
1	Lock-bar outer hinge reinforce, left	do		
2	Handrail	Riveted in handrail brackets		
4	Handrail foot	Riveted to sides of chest		
1	Handrail forward bracket, right	Riveted to right handrail		
1	Handrail forward bracket, left	Riveted to left handrail		
1	Handrail rear bracket, right	Riveted to right handrail		
1	Handrail rear bracket, left	Riveted to left handrail		
14	Reinforce washer	8 under handrail-foot rivets; 4 under pick-head bracket rivets; 2 under ax-head bracket rivets.		
2	Hinge bearing plate	Riveted to door with two middle hinges		
1	Left pole prop bracket	Riveted to top of chest		
1	Right pole prop bracket	do		
1	Ax-handle bracket	Riveted to left side of chest		
1	Ax-head bracket	do		
1	Ax-handle guard	do		
1	Hatchet-blade bracket	Riveted to chest front		
1	Hatchet-handle fastener	do		
1	Lantern bracket	do		
1	Lantern-strap fastener	Fastened to lantern bracket		
1	Pick-ax chafing plate	Riveted to bottom of chest		



3.8-INCH GUN LIMBER, MODEL OF 1904. FRONT VIEW.

Nomenclature of parts of limber—Continued.

No.	Name of part.	Location.	Property classification.	
			Class.	Section.
	Ammunition chest, complete, consisting of—Continued.		IV	2
1	Pick-ax head bracket	Riveted to bottom of chest		
1	Shovel-blade bracket	do		
2	Wing-nut pin	Riveted to chest door		
2	Wing nuts	On wing-nut pins		
1	Wing-nut pin	Riveted to oil-can holder		
1	Wing nut	On wing-nut pin		
3	Grip-strap fasteners	Riveted to chest		
3	Strap fasteners for paulin strap	Riveted to bucket holder		
1	Ax-strap fastener	Riveted to left side of chest		
1	Shovel-strap fastener	Riveted to shovel-blade bracket		
2	Right pole-prop bracket strap fastener.	Riveted to right pole prop bracket		
8	Limber-blanket strap fastener	4 riveted to chest top; 4 to bucket holder		
1	Hatchet-strap fastener	Riveted to chest front		
2	Pick-strap fastener	Riveted to pick-ax head bracket		
2	Rope-strap fasteners	Riveted to chest front		

DESCRIPTION OF THE 3.8-INCH GUN LIMBER, MODEL OF 1904.

The 3.8-inch gun limber is of the same general design as the 3-inch gun limber, Model of 1902, and therefore the description of the latter, given in handbook 1659, will be used for the 3.8-inch gun limber.

The 3.8-inch has a few differences, however, in the chest, the wheels, and location of the tools, which are described below.

The differences in the wheels and the wheel fastenings are the same as described for the gun carriage in this handbook.

The chest door is hinged at the top and swings upward and to the front. The chest front and door have not the corrugations mentioned in handbook 1659, but the door has riveted to its inner face tees, called bearing plates, which not only serve to strengthen the door but are so spaced that their stem falls between the vertical rows of cartridges and their flange rests against the head of the cartridge, securing the latter in position (when the door is closed) and protecting the cartridge percussion cap.

The door is held closed by two lock bars hinged to the bottom of the chest. A hasp and two eccentric lugs are formed upon each of these bars. In locking the door the lugs come into contact with its lower edge pressing it forward, while the hasp engages a wing nut on its rear face. On the left lock bar is riveted a chain, to the end of which is attached a padlock and a bolt snap. The padlock may be slipped through an eye in the wing nut, which will lock the hasp in position.

The capacity of this limber is 18 cartridges. The capacity of the 3-inch gun limber is 39 cartridges.

The differences in the location of the tools are as follows:

The ax is carried in brackets on the left side of the chest

The pickax is carried in brackets under the chest to the left of the middle rail, the shovel being carried to the right of the rail.

The hatchet is carried in two brackets riveted to the front of the chest, and the pole prop is carried in brackets attached near the rear edge of the top plate.

The oil cans are carried in a holder made of flange steel riveted to the right side of the chest.

No ammunition is carried in limbers used with the gun, since the weight would be too great.

THE 3.8-INCH GUN CAISSON, MODEL OF 1904.

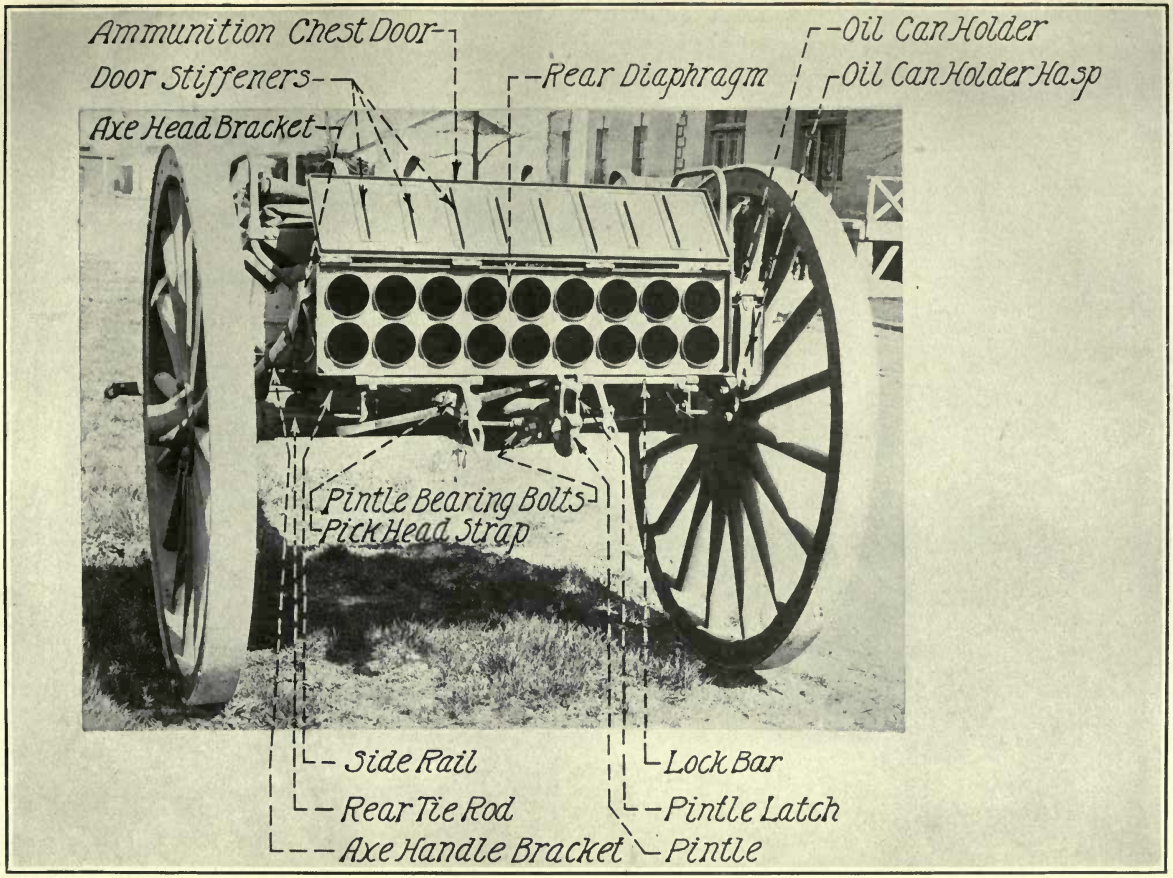
[Plate IX.]

WEIGHTS, DIMENSIONS, ETC.

Weight, empty, without implements and ammunition	pounds	1,426
Weight of tools and equipment carried	do	99
Weight of ammunition carried	do	1,516
Weight, complete, equipped and loaded	do	3,041
Weight with limber, completely equipped and with 58 rounds of ammunition, pounds		4,916
Rounds of ammunition carried	number	40
Diameter of wheels	inches	58
Width of track	do	60
Free height under caisson	do	22
Turning angle	degrees	75

Nomenclature of parts of caisson.

No.	Name of part.	Location.	Property classification.	
			Class.	Section.
2	Wheels and wheel fastenings	Same as on carriage	IV	2
1	Axle			
1	Middle-rail angle, right	Riveted to axle and side rail		
1	Middle-rail angle, left	do		
1	Middle-rail plate	Riveted to middle rail angles		
1	Side rail, right	Riveted to axle lugs		
1	Side rail, left	do		
4	Filler plates	Riveted to side rail flanges		
1	Pintle with bearing, complete, consisting of—			
1	Pintle	Seated in pintle bearing		
1	Pintle latch	On pintle		
1	Pintle-latch pin with split pin	Forms pivot of latch		
1	Pintle-latch spring	On pintle		
1	Pintle bearing (in 2 parts)	Rear end of middle rail		
1	Pintle spring	In pintle bearing		
1	Pintle-spring pin	do		
2	Pintle-bearing bolts with nuts	Secures bearing to middle rail		
1	Name plate	Riveted near rear end of middle rail		
1	Brake channel	Fastened to side rails		
4	Channel supports	Fasten channel to side rails		
1	Cross brace	Riveted to side rails		
1	Frame handle, right	Front end of side rails		
1	Frame handle, left	do		
1	Frame reinforce plate	do		
1	Lunette bracket	do		
1	Lunette bracket filler plate	Under lunette bracket		
1	Lunette with nut	Secured in lunette bracket		



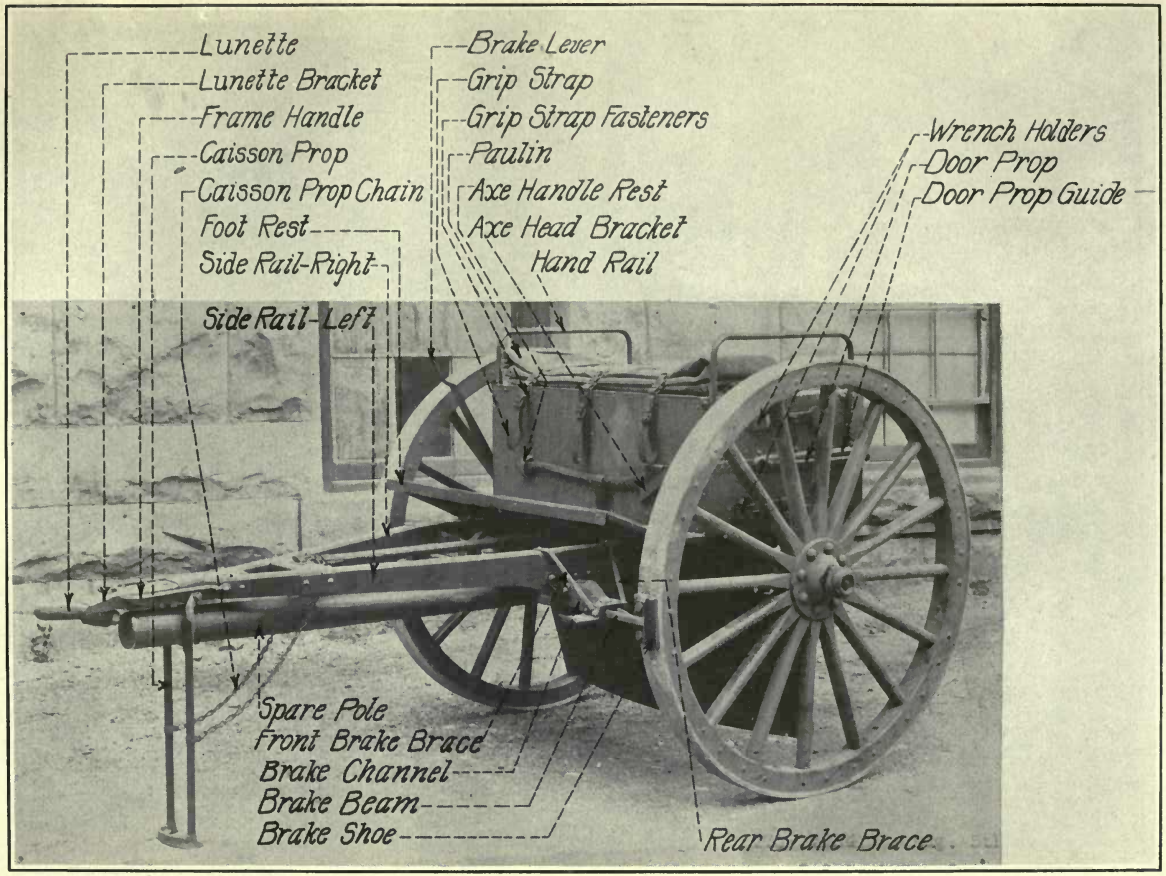
3.8-INCH GUN LIMBER, MODEL OF 1904. REAR VIEW.

Nomenclature of parts of caisson—Continued.

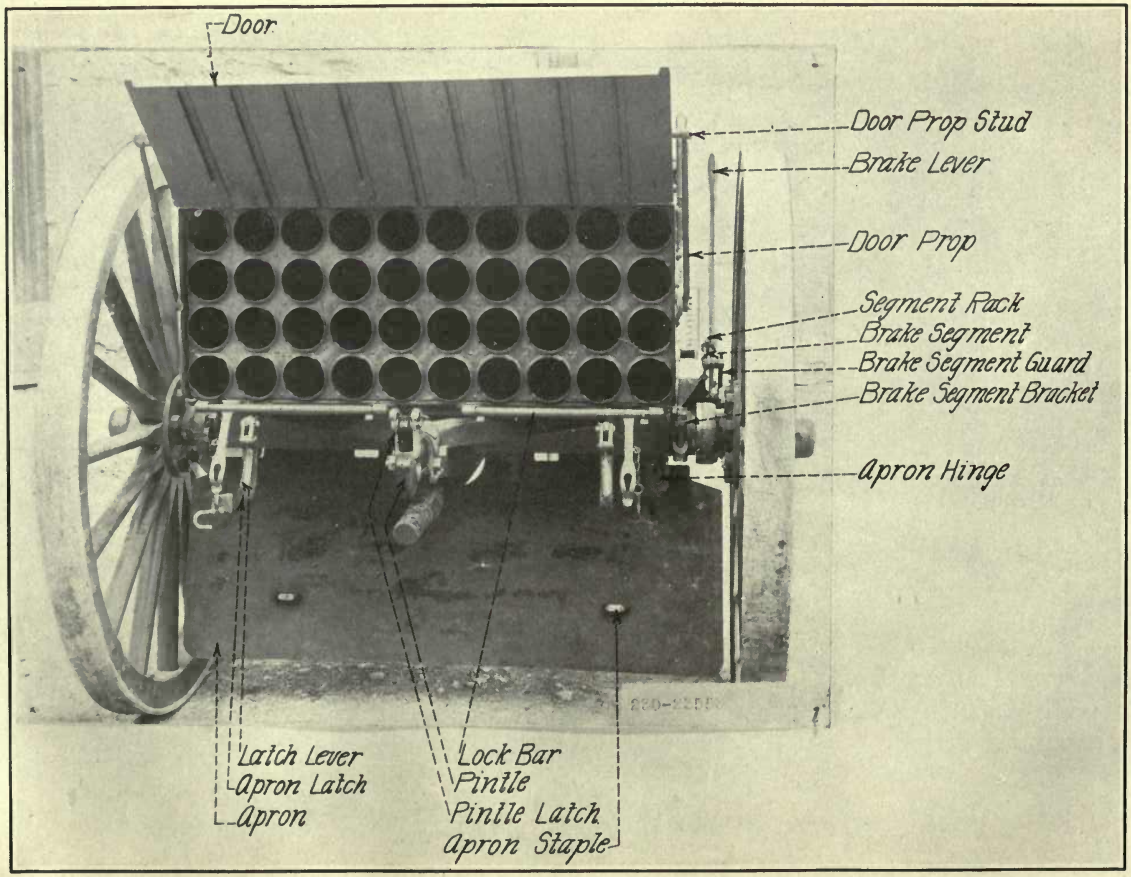
No.	Name of part.	Location.	Property classification.	
			Class.	Section.
1	Caisson prop, complete, consisting of—			
1	Prop eye, right	Riveted to right tube		
1	Prop eye, left	Riveted to left tube		
2	Prop tubes	Support pole		
1	Prop foot	Riveted to lower ends of tubes		
1	Fastening pin	Through prop eyes		
1	Fastening-pin washer nut	On fastening pin		
1	Fastening nut	Secures prop to vehicle		
2	Prop-chain clamps	On prop tubes		
2	Prop chain	Secured to prop		
1	Prop hook	On chain		
1	Prop-chain button	Riveted into lunette bracket		
2	Prop-chain guides	Riveted to cross brace		
1	Box bottom, right	Riveted to ends of brake channel		
1	Box bottom, left	do		
2	Brake-box fillers	do		
1	Brake-beam guide, right	Riveted to brake channel		
1	Brake-beam guide, left	do		
1	Front brake brace, right	Brake channel to side rails		
1	Front brace brake, left	do		
1	Rear brake brace, right	do		
1	Rear brake brace, left	do		
2	Brake beams	Seated in brake boxes		
2	Brake shoes	On end of brake beams		
4	Brake-shoe tap bolts	Secure shoes to beams		
2	Brake-beam pins	Form pivots		
2	Brake-rod ends	Connect rods to brake beams		
2	Brake rods	Connect beams to cranks		
	Including—			
2	Brake-rod springs	On brake rods		
2	Brake-spring covers	do		
2	Brake-spring cover heads	do		
2	Brake-spring cover ends	do		
4	Brake-rod pins	Secure rods to beams and cranks		
2	Brake cranks	On brake shaft		
2	Brake-crank bolts with nuts	Clamp cranks on shaft		
1	Brake shaft with two keys	In shaft bearings on axle		
3	Brake-shaft bearings	Riveted to axle lugs	IV	3
3	Brake-shaft bushings			
1	Brake-segment bracket	Clamped on right end of axle		
1	Brake-segment bushing	On brake-segment bracket		
1	Brake-segment bracket bolt and nut	Clamps bracket to axle		
1	Brake segment	Riveted to bracket		
1	Brake-segment brace	Riveted to brake segment		
1	Brake-segment guard	Riveted to segment		
1	Segment rack	do		
1	Front separator	Between segment and guard		
1	Rear separator	do		
1	Rear-separator bolt	Through rear separator		
1	Brake lever	On end of shaft		
1	Brake-lever catch	Riveted on brake lever		
1	Spare-pole fastening	On caisson-prop pin		
1	Fastening nut	On spare-pole fastening		
2	Fastening washers	On spare pole		
1	Spare-pole bracket	Riveted to middle rail		
1	Spare-pole rest	Riveted to brake channel		
1	Pick-mattock bracket	do		
1	Shovel-handle support	Riveted to cross brace		
2	Strap fasteners for pick mattock	Riveted to pick-mattock bracket and brake channel.		
1	Ammunition chest, complete, consisting of—			
1	Chest top plate	Constitute chest body		
1	Chest bottom plate			
1	Chest front plate			
1	Chest door			
1	Rear diaphragm	Riveted to chest		
1	Middle diaphragm	do		
1	Front diaphragm	do		
1	Diaphragm brace, right	Between front and middle diaphragms		
1	Diaphragm brace, left	do		
10	Diaphragm tees	4 for rear diaphragm; 3 for middle, and 3 for front diaphragms		
40	Connecting pieces	Connect rear and middle diaphragms		
1	Chest reinforce	Riveted to bottom of chest		
1	Chest-front angle	Riveted around edges of chest front		

Nomenclature of parts of caisson—Continued.

No.	Name of part.	Location.	Property classification.	
			Class.	Section.
1	Ammunition chest, complete, consisting of—Continued.			
3	Chest-front brace	Stiffens chest front		
1	Ax-head bracket	Riveted to front plate		
1	Ax-handle support	do		
1	Ax-strap fastener	do		
3	Grip-strap fasteners	Riveted to chest		
3	Paulin-strap fasteners	do		
1	Shovel support	Riveted to bottom of chest		
4	Reinforce washers	Under rivet heads for pick-mattock handle support and shovel support		
1	Pick-mattock handle support			
1	Wrench holder for spanner wrench	Riveted to left side of chest		
1	Do	do		
1	Wrench holder for nut wrench	do		
1	Do	do		
2	Strap fasteners for wrenches	Riveted to chest		
1	Chest rail, right	Riveted to bottom plate		
1	Chest rail, left	do		
2	Filler pieces	Riveted to chest bottom and chest rails		
1	Apron-latch hinge, right	Riveted to chest rails		
1	Apron-latch hinge, left	do		
1	Foot rest	do		
4	Handrail shanks	Riveted to sides of chest		
2	Handrails	Riveted to handrail shanks		
1	Door-prop guide, right	Riveted to sides of chest		
1	Door-prop guide, left	do		
4	Door tees	Riveted to inside of door		
5	Do	do		
1	Door angle	Riveted to door		
1	Lock bar, right	Lock bar hinges		
1	Lock bar, left	do		
2	Lock-bar hinges	Riveted to bottom plate		
2	Padlock-chain rivets	On lock bars		
2	Wing-nut pins	Riveted to door		
2	Wing nuts	On wing-nut pins		
2	Wing-nut pin washers	On pins	IV	3
1	Padlock with chain and bolt snap	On lock bar		
1	Chain with two chain rings and bolt snap	Attached to lock bar		
1	Padlock-chain staple	Riveted to bottom plate		
2	Door-prop studs	Riveted to door		
2	Nuts	For studs		
2	Door props	Pivoted on studs		
2	Door-prop rivets			
4	Door-hinge pins	For hinges		
4	Door hinges, male	Riveted to door		
4	Door hinges, female	Riveted to top plate		
1	Door handle	Riveted to door		
1	Fuze setter latch hinge	do		
1	Apron, complete, consisting of—			
1	Apron	Hinged under axle		
2	End hinge filler pieces	Riveted to apron		
1	Center hinge, right	do		
1	Center hinge, left	do		
1	End hinge, right	do		
1	End hinge, left	do		
1	Apron staple, right	do		
1	Apron staple, left	do		
4	Hinge pins	Secure apron to axle		
2	Apron latches, complete, consisting of—	Pivoted on hinges on chest rails		
2	Hinge pins	Attach latch body to hinge		
2	Latch bodies	Pivoted to latch hinges		
2	Latch levers	Pivoted on bodies		
2	Lever pins	Form pivots for levers		
2	Latch plungers	Seated in body		
2	Latch clevises	Screwed on end of plunger		
2	Latch-clevis pins	Attach clevis to lever		
2	Latch springs	In body around plunger		
2	Latch bushings	Screwed into body		
2	Latch hinges	Riveted to chest rails		



3.8-INCH GUN CAISSON, MODEL OF 1904. SIDE VIEW.



3.8-INCH GUN CAISSON, MODEL OF 1904. REAR VIEW.

DESCRIPTION OF THE 3.8-INCH GUN CAISSON, MODEL OF 1904.

The first three paragraphs in the description of the 3.8-inch gun limber will also apply to the caisson, the description of the 3-inch gun caisson, Model of 1902, in handbook 1659 being used.

The following paragraphs in regard to the ammunition chest will take the place of the corresponding ones in handbook 1659:

The caisson ammunition chest is rectangular, and is built up of flange steel formed to shape and riveted together in a similar manner to that of the limber, but is larger, having provision for 40 rounds of ammunition arranged in 4 horizontal rows of 10 rounds each. The front of the chest is made of armor plate 0.15 inch thick. A steel angle is riveted to the armor plate all around its edge and the projecting leg of the angle, riveted to the body of the chest. Three steel tees placed vertically and riveted to the inside of the front plate give stiffness to the latter.

Inside of the chest the cartridges are supported by three vertical diaphragms flanged all around and riveted to the body of the chest. Each diaphragm is perforated with 40 flanged cartridge holes. Corresponding holes in the middle and rear diaphragms are connected by conical brass connecting pieces which are similar to those used in the limber chest. The front and middle diaphragms are rigidly braced to each other by two flanged steel braces riveted between the two.

To the front and middle diaphragms are riveted vertically three steel tees and to the rear diaphragm four steel tees.

Nine instead of seven steel tees are riveted to the inner face of the door.

The description of the bracket fuze setter and attachments in handbook 1659 will be disregarded, as there is no bracket fuze setter on this caisson.

OTHER 3.8-INCH GUN MATÉRIEL.

The following vehicles are also used in the 3.8-inch batteries:

The 3.8-inch gun forge limber, Model of 1902,

The 3.8-inch gun battery wagon, Model of 1902,

The 3.8-inch gun store limber, Model of 1902, and

The store wagon, Model of 1902.

The descriptions of these vehicles will be found in handbook 1659 under the following names:

The 3.8-inch gun forge limber, Model of 1902, under the head of 3-inch gun and 3.8-inch howitzer, forge limber, Model of 1902.

The 3.8-inch gun battery wagon, Model of 1902, under the head of 3-inch gun battery wagon, Model of 1902.

The 3.8-inch gun store limber, model of 1902, under the head of 3-inch gun and 3.8-inch howitzer store limber, model of 1902.

The store wagon, model of 1902, will be found under the same heading in the handbook.

On all four vehicles, however, the wheels are 58 inches in diameter instead of 56 inches, as given for the 3-inch gun matériel. As the hubs and wheel fastenings on the 58-inch wheels are of another type, the axles are necessarily different. In all other respects these vehicles conform to the descriptions mentioned above.

REPAIRS FOR FIELD ARTILLERY MATÉRIEL ISSUED TO THE UNITED STATES ARMY AND THE NATIONAL GUARD.

The following is an addition to the instructions found in Form No. 1659:

A small amount of oil should be put in each wheel before using, as this is the only way to insure that the wheels are properly lubricated unless they are removed.

After any test that requires retracting the gun, the recoil cylinder should be refilled, since in this position the three holes in the piston rod which permit oil to flow from the interior to the rod into the cylinder when filling are in front of the piston-rod gland, thus permitting some oil to escape.

METHOD OF LOADING ONE 3.8-INCH GUN BATTERY ON WAR FOOTING FOR TRANSPORTATION BY RAIL.

The flat cars usually obtained from railroad companies vary in length from 34 to 44 feet. Cars longer than 42 feet are unusual. It is desirable that cars 40 feet in length be obtained if possible.

In loading a battery on cars during service operations gun sections should be kept together when possible. Pursuing this idea, a 3.8-inch gun battery may be loaded as follows when cars at least 34 feet in length are obtained:

	Gun and carriage.	Gun limber.	Gun caisson.	Forge limber.	Battery wagon.	Store limber.	Store wagon.
First flat car	1	3	2	.....	.....	.....	.....
Second flat car	1	3	2	.....	.....	.....	.....
Third flat car	1	3	2	.....	.....	.....	.....
Fourth flat car	1	3	2	.....	.....	.....	.....
Fifth flat car	.....	2	2	1	1	.....	.....
Sixth flat car	.....	2	2	.....	.....	1	1
Total	4	16	12	1	1	1	1

One box car is to carry harness and all accessories of the vehicles which are not carried in the compartments of these vehicles or rigidly attached to them.

The fifth and sixth cars will be only about three-fourths filled if 34-foot cars are procured. The additional space may be utilized as the battery commander sees fit.

If cars less than 34 feet long are obtained one limber and one caisson will have to be omitted. If cars 44 feet long are obtained one additional limber or caisson can be loaded on each.

In loading the cars, if there are permanent loading platforms along the railroad tracks in the vicinity, the vehicles should be run onto these platforms and loaded from them. If there is no permanent platform in the vicinity it will be necessary to build a temporary ramp. This should be built at the side of the track and the vehicles run on near one end of the car. When loading short cars it may be necessary to remove the pole of the limber last loaded in order to get the limber onto the car. The pole should be replaced in its socket, however, as soon as the vehicle is placed in position.

When loading the cars care must be taken to so load them that there can be no movement of the vehicles on the cars longitudinally, transversely, or vertically. All vehicles, trails of carriages, poles of limbers, and lunettes of caissons and wagons must be secured to the floor of the car. The vehicles are secured as follows:

Two by four inch timbers nailed to the floor of the car on both sides of all wheels hold the wheels securely against transverse motion.

Two by four inch chocks, nailed to the 2 by 4 inch pieces which lie along the sides of the wheels, hold the wheels against longitudinal motion. For the end vehicles of each section of three vehicles four 4 by 4 inch chocks should be used.

A 2 by 4 inch crosspiece placed on the felloes between the two lowest spokes of both wheels of each vehicle and bolted to the floor of the car with two one-half-inch bolts holds the wheels against vertical motion. These bolts should, if possible, be bolted through the crosspieces on the outside of the wheels. If bolts for holding these crosspieces can not be obtained they should be securely nailed down with 7 or 8 inch spikes. Each pole and lunette should be secured to the floor by nailing two 2 by 4 inch blocks to the floor, one on each side, and one 2 by 4 inch piece across the top, near the end of each pole and lunette.

The trails should be secured to the floor by using four 2 by 4 inch blocks, nailing one close up in the rear, one longitudinally along each side, and one across their top in the rear of the trail. Four 2 by 6 inch timbers brace the wheel hubs of the two end vehicles on each car. The hub ends should be hollowed out, the lower ends being spread well apart, forming lateral as well as longitudinal braces and nailed to the floor of the car and to four cleats which are nailed to the floor of the car.

For carrying all harness and all accessories of the vehicles which are not carried in compartments of these vehicles or rigidly attached

to them one box car should be obtained. The matériel in this box car should be packed in boxes if on hand. In case no box car can be obtained all of the harness, etc., should be packed in boxes and placed on the flat cars near the vehicles. These boxes must be securely fastened to the floor of the car to prevent them from sliding off the car or from striking and injuring the vehicles.

To load a 3.8-inch gun battery on war footing will require 1,150 linear feet of 2 by 4 inch lumber, 200 linear feet of 2 by 6 inch lumber, and 50 linear feet of 4 by 4 inch lumber.

EQUIPMENT.

The following table shows the total equipment of one 3.8-inch gun battery on war footing. A place is designated for most of the articles, but the battery commander may use his discretion as to the disposition of many articles for which no particular fitting or receptacle is provided.

Statement of total equipment of one 3.8-inch gun battery.

War footing (4 guns, 12 caissons).	Article.	Where carried.	Property classification.	
			Class.	Section.
4	Guns and gun carriages		IV	3
12	Caissons			
16	Limbers			
1	Battery wagon			
1	Forge limber		IV	9
1	Store wagon			
1	Store limber			
1	Reel, 2-horse			
	Tools and accessories for guns and carriages.			
8	Axle seat cushions	On axle seat	IV	3
4	Breech covers	On gun		
4	Front-sight covers	On front sight		
8	Hand-fuze setters	In cases		
8	Hand-fuze setter cases	In trail box		
8	Lanyards	do		
4	Leather pouches for spare parts	do		
4	Muzzle covers	On gun		
4	Oil-can boxes, horizontal oilers	In trail box		
4	Oilers, horizontal	In oil can boxes		
4	Rear-sight bracket covers	On bracket on cradle		
4	Rear-sight shank covers	On sight in trail sight box		
4	Spanner and wrench	In trail box		
4	Sponge covers	On sponge		
4	Sponges and rammers	In fastenings on trail		
4	Spools copper wire No. 20 (3 pounds each)	In trail box		
4	Tool kits, canvas, each containing—			
	1 cold chisel ¾ by 8 inches	do		
	1 drift, bronze, large			
	1 drift, bronze, small			
	1 file, dead smooth, 6 inches, 3 inches square.			
	1 file, hand, smooth, 8 inches, flat			
	1 hammer, hand, cross-peen			
	1 pliers, wire cutting, 8-inch			
	1 punch, small			
	1 screw driver, 10 inches			
	1 screw-slot wrench			
	1 wrench, filling and drain plugs			
	1 wrench, range quadrant			
4	Wrenches, ¾ and 1 inch	do		
4	Wrenches for assembling recoil springs and grindstone.	do		

Statement of total equipment of one 3.8-inch gun battery—Continued.

War footing (4 guns, 12 caissons).	Article.	Where carried.	Property classification.	
			Class.	Section.
	Spare parts for guns and gun carriages.			
	For gun:			
1	Breech mechanism	In top rear compartment of battery wagon	IV	3
4	Block latch	In leather pouch for spare parts		
4	Block latch spring	do		
4	Firing pin	do		
4	Firing-pin spring	do		
4	Firing-pin sleeve	do		
8	Handy oilers	do		
4	Hinge-pin catch	do		
4	Lever-latch spring	do		
4	Locking bolt, nut, and pin	do		
4	Locking-bolt spring	do		
4	Sear	do		
8	Trigger-shaft detent	do		
	For hand-fuze setter, Model of 1905M:			
4	Range-ring screw	In leather pouches for spare parts	IV	3
6	Handle screw	do		
3	Stop pins	do		
4	Corrector-scale screw	do		
2	Clamping shoe	do		
2	Wing nut	do		
2	0.063 by 0.47 steel pin	do		
4	Stop screw	do		
2	Index	do		
4	Plunger	do		
4	Plunger spring	do		
	For hand fuze setter, Model of 1913:			
16	Range-ring screw	do	IV	3
6	Corrector-scale screw	do		
4	Range index	do		
4	Index plunger	do		
4	Index spring	do		
4	Oil-hole screw	do		
8	Index-bar screw	do		
12	Guide-plate screw	do		
3	Stop-pin screw	do		
	For carriage:			
1	Apron-latch body	In chest for miscellaneous spare parts	IV	3
1	Apron-latch bushing			
1	Apron-latch lever			
1	Apron-latch lever pin			
1	Apron-latch plunger			
1	Apron-latch plunger eye			
1	Apron-latch plunger eye pin			
2	Apron-latch spring			
4	Apron-latch split pins			
1	Apron-latch (body) pin with split pin if required.			
1	Brake lever with catch (or pawl)	Carried loose		
4	Brake shoe	Carried in store wagon		
8	Brake-shoe tap bolt			
1	Segment rack with rivets	In chest for miscellaneous spare parts		
1	Brake-rod spring			
1	Cylinder-end stud nut			
3	Counter recoil spring, inner	In store wagon		
3	Counter recoil spring, outer	do		
1	Elevating pin	In chest for miscellaneous spare parts		
4	Elevating bevel pinion taper pins	do		
1	Firing-mechanism adjusting screw	do		
2	Firing-mechanism bracket studs			
3	Firing-mechanism bracket-stud nuts			
1	Firing-mechanism adjusting-screw check nut.			
1	Firing handle			
1	Firing-handle hub			
1	Firing-handle pin			
1	Firing-handle plug			
1	Firing-handle plunger			
4	Firing-handle spring			
1	Firing shaft			
2	Firing-handle return spring			
2	Shaft return spring			
1	Firing-shaft trip collar			
1	Firing-shaft trip latch			

Statement of total equipment of one 3.8-inch gun battery—Continued.

War footing (4 guns, 12 caissons).	Article.	Where carried.	Property classification.	
			Class.	Section.
	Spare parts for guns and gun carriages—Continued.			
	For carriage—Continued.			
1	Firing-shaft trip-latch pin	In chest for miscellaneous spare parts.		
1	Firing-shaft trip-latch plunger			
2	Firing-shaft trip-latch spring			
1	Firing-shaft trip-collar pin			
4	Filling and drain plug (cylinder)	In leather pouch for spare parts		
4	Filling plug (piston rod)			
1	Front sight, complete, with bracket	In trail sight box		
20	Garlock's waterproof packing, ¼ rings	In leather pouch for spare parts		
2	Lunette with nut	In store wagon		
1	Panoramic sight	In box on shield		
2	Handspike web	In store wagon		
4	Handspike body with rivets and steel washers.			
2	Handspike lower bands with rivets			
2	Handspike middle bands with rivets			
2	Handspike tips with rivets			
6	Handspike bolts with nuts			
2	Handspike rivets			
4	Spade edge	In chest for miscellaneous spare parts.	IV	3
1	Sponge cover			
24	Spade-edge rivets			
12	Spring cover No. 1 with screw and washer.			
1	Carpet with lacing where required			
1	Rammer with rivets where required			
1	Staff coupling, male			
1	Staff coupling, female			
1	Staff, end			
1	Staff, head			
2	Tube collars			
1	Sponge tube			
1	Sponge retaining ring with taper pin			
2	Hub liner			
4	Lock washer			
2	Wheel fastenings, complete			
4	Wheel-fastening hasps			
1	Hub cap			
1	Oil valve, complete, consisting of valve, spring, washer, and split pin.			
1	Range quadrant	In box on shield		
1	Rear-sight bracket	On cradle		
1	Rear sight shank	In trail sight box		
2	Recoil indicators			
240	Split pins, assorted	Carried equally in leather pouches for spare parts.		
	Nuts, crown, special, set, consisting of—			
2	0.875 by 20 threads			
2	1.25 by 7 threads			
2	1.187 ($1\frac{1}{8}$) by 16 threads			
	Nuts, crown, standard, set, consisting of—			
14	0.375 by 16 threads			
	Nuts, hexagon, special, set, consisting of—			
4	0.5 by 13 threads			
40	0.625 by 11 threads			
4	0.75 by 10 threads			
2	1.375 by 10 threads			
	Nuts, hexagon, standard, set, consisting of—			
4	0.5 by 13 threads			
16	0.625 by 11 threads			
	Tools and accessories for limbers.			
16	Axes	On limber, under chest	IV	9
48	Buckets, water, canvas	On limber		
32	Dust guards, leather	On wheels		
16	Hatchets	On limber, in bracket, on left of chest		
16	Lanterns	On limber, in holder, front of chest		
16	Lantern bracket pads	In brackets		
16	Neck yokes	On pole		
48	Oil cans, tubular	On limber, in ammunition chest		
16	Paulins, 12 by 12 feet	On limber, on seat as cushion		
16	Pickaxes	On limber, on foot rest		
16	Picket ropes	On limber, on front of chest		

Statement of total equipment of one 3.8-inch gun battery—Continued.

War footing (4 guns, 12 caissons).	Article.	Where carried.	Property classification. Class.	Section.
	Tools and accessories for limbers—Contd.			
16	Pole props	On limber, in fastenings under frame	IV	3
16	Shovels, short handled	On limber, under chest		
32	Singletrees	On doubletree		
	Straps:			
16	Ax	In fasteners		
48	Grip			
16	Hatchet			
64	Limber blanket, front			
64	Limber blanket, rear			
48	Paulin			
16	Pick handle			
16	Pick head			
64	Picket rope, upper			
64	Picket rope, lower			
16	Pole prop			
16	Shovel handle			
	Spare parts for limbers.			
16	Ammunition chest connection pins	In chest for miscellaneous spare parts	IV	3
8	Ammunition chest door lock bars, complete.			
4	Bolt snaps			
4	Doubletrees			
4	Doubletree bolts			
8	Doubletree bolt nuts			
4	Hub caps, complete			
8	Hub liners			
4	Lantern bracket pads			
8	Lock washers			
2	Neck yokes	In store wagon		
4	Neck-yoke pads	do		
4	Padlocks, chains, clevises, and bolt snaps	In chest for miscellaneous spare parts		
4	Pintles, complete with bearings and bearing bolts.	Carried loose		
4	Pintle latch	do		
8	Pintle latch spring	Carried in chest for miscellaneous spare parts.	IV	3
8	Pintle spring			
2	Poles, complete	On caisson		
4	Pole prop	In store wagon		
8	Singletree	do		
8	Wheel fastening, complete	do		
16	Fastening hasps	do		
	Tools and accessories for caisson.			
12	Axes	On caisson, front of chest	IV	9
12	Paulins	On caisson, on seat as cushion		
12	Pick mattocks	On caisson, under chest		
12	Shovels, long handled	do		
12	Spanners, caisson	On caisson, on left of chest		
	Straps:			
12	Ax	In fasteners		
36	Grip			
36	Paulin			
12	Pick mattock			
12	Shovel handle			
12	Spanner			
12	Wrench			
12	Wrenches, 0.625 and 0.75 inch	On caisson, on left of chest		
	Spare parts for caissons.			
6	Ammunition chest door lock bars, complete.	In chest for miscellaneous spare parts	IV	3
6	Apron latches, complete			
6	Apron latch springs			
3	Bolt snaps	In store wagon		
3	Brake levers with catches			
12	Brake shoes			
24	Brake shoe tap bolts			
3	Caisson props with chains and hooks			
6	Caisson prop chains and hooks			
3	Brake rod springs			
3	Hub caps, complete			
6	Hub liners			
6	Lock washers	In chest for miscellaneous spare parts		

Statement of total equipment of one 3.8-inch gun battery—Continued.

War footing (4 guns, 12 caissons).	Article.	Where carried.	Property classification.	
			Class.	Section.
	Spare parts for caissons—Continued.			
3	Lunettes	In store wagon	IV	3
6	Lunette nuts			
3	Padlocks, chains, clevises, and bolt snaps.			
3	Pintles, complete, with bearings and bearing bolts.			
3	Pintle latches			
6	Pintle-latch springs			
6	Pintle springs			
300	Split pins	Pouches for spare parts		
6	Wheels, complete	Where convenient		
12	Wheel fastenings, complete	In store wagon		
12	Fastening hasps	do		
	Tools and accessories for battery wagon.			
1	Carpenter's chest, with tools, set	In battery wagon	IV	9
1	Chest for cleaning material and small stores.	do		
1	Chest for spare breech mechanism	do		
1	Chest for spare sights, containing—			
	1 bore sight, breech	do	IV	3
	1 bore sight, muzzle			
1	Double tackle block	do	IV	9
1	Forge coal bag	On battery wagon	IV	3
1	Filling funnel, cylinder	In battery wagon	IV	9
1	Grindstone, with frame, complete	do		
1	Jackscrew	do		
1	Marking outfit for stamping leather	In cleaning material and small stores chest.	X	5
1	Marking outfit for stamping metal			
3	Oil cans, 5-gallon	In oil-can supports	IV	9
1	Ordnance Department insignia stencil	In cleaning-material chest	X	5
1	Packing chest for supplies	In battery wagon	IV	3
1	Packing chest for spare parts	do		
1	Paulin, 12 by 12 feet	On battery wagon	IV	9
1	Rope for block and tackle	In battery wagon		
1	Saddler's chest, with tools, set	do	X	9
1	Seal stamp	In cleaning-material chest	X	5
1	Triple tackle block	In battery wagon	IV	9
2	Spare wheel hub covers	On spare wheels	IV	3
2	Spring compressors, No. 3	In battery wagon	X	9
1	Stencil outfit	In cleaning-material chest	X	5
	Straps:			
2	Grip	In strap fasteners	IV	3
2	Jackscrew			
2	Paulin			
1	Testing level and chest	In battery wagon	IV	9
1	Vise	Attached to lunette frame	X	9
2	Water buckets, galvanized steel	In battery wagon	IV	9
1	Wrench, grindstone and recoil-spring assembling.	do	IV	3
	Tools and accessories for store wagon.			
20	Bolos	In store wagon	VII	5
20	Bolo scabbards	do		
1	Chest for miscellaneous spare parts	do	IV	3
1	Crowbar	On store wagon, under body		
2	Dust guards	On wheels		
1	Filling funnel, cylinder	In store wagon		
3	Oil cans, 5-gallon	On store wagon, in oil-can holders		
1	Paulin, 12 by 12 feet	On store wagon	IV	9
1	Slush brush	do		
	Straps:			
1	Crowbar	In strap fasteners	IV	3
2	Grip			
2	Paulin			
2	Spare wheel hub covers	In store wagon		
	Tools and accessories for forge limber.			
1	Ax	On limber, under chest	IV	9
3	Buckets, watering, canvas	On limber, in bucket holder		
2	Dust guards	On wheels	IV	3
1	Hatchet	In bracket on left of chest	IV	9

Statement of total equipment of one 3.8-inch gun battery—Continued.

War footing (4 guns, 12 caissons).	Article.	Where carried.	Property classification. Class.	Section.
	Tools and accessories for forge limber—Con.			
1	Hub liner driving tool	In forge limber	IV	3
1	Lantern	On limber, in bracket on front of chest	IV	9
1	Lantern bracket pad	In lantern-bracket pad	IV	3
1	Neck yoke	On pole		
2	Oil cans, tubular	On limber, in supports under chest		
1	Paulin 12 by 12 feet	On limber chest as cushion	IV	9
1	Pickax	On limber foot rest		
1	Picket rope	On limber, in front of chest		
1	Pole prop	On limber, in fastenings under chain	IV	3
1	Shovel, short-handled	On limber, under chest	IV	9
2	Singletrees	Attached to doubletree		
	Straps:			
1	Ax			
3	Grip			
1	Hatchet			
4	Limber blanket, front			
4	Limber blanket, rear			
3	Paulin		IV	3
1	Pick handle	In strap fasteners		
1	Pick head			
4	Picket rope, upper			
4	Picket rope, lower			
1	Pole prop			
1	Shovel handle			
1	Sledge			
	Tools and accessories for store limber.			
1	Ax	On limber, under chest	IV	9
3	Buckets, watering, canvas	In bucket holder		
1	Cyclometer for 58-inch wheel	On axle of limber	IV	3
2	Dust guards	On wheels	IV	9
1	Hatchet	On limber in bracket		
1	Lantern	On limber, in bracket on chest front	IV	3
1	Lantern bracket pad	In brackets		
1	Neck yoke	On pole	IV	9
2	Oil cans, tubular	On limber, in supports		
1	Paulin, 12 by 12 feet	On limber chest as cushion		
1	Pickax	On limber foot rest	IV	3
1	Picket rope	On limber in front of chest	IV	9
1	Pole prop	In fastening under frame	IV	9
1	Shovel, short-handled	On limber, under chest		
2	Singletrees	Attached to doubletrees		
	Straps:			
1	Ax			
3	Grip			
1	Hatchet			
4	Limber blanket, front			
4	Limber blanket, rear			
3	Paulin		IV	3
1	Pick handle	In strap fasteners		
1	Pick head			
4	Picket rope, upper			
4	Picket rope, lower			
1	Pole prop			
1	Shovel handle			
1	Lantern strap			
	Spare parts of accessories.			
4	Ax helves	In store wagon	IV	9
2	Handles, shovel, long			
3	Handles, shovel, short			
4	Handles, hatchet			
4	Handles, pickax			
3	Padlocks, with chains, clevises and bolt snaps.			
	Sights and quadrants.			
4	Front sights	In bracket	IV	3
4	Front-sight brackets, with holders	In fastenings, on cradle		
4	Rear-sight brackets, with shank sockets.	In bracket		
4	Rear-sight shanks	In fastenings, on cradle		
4	Panoramic sights	In case on shield		
4	Range quadrants	In case on right side of trail		
4	Teat wrenches for panoramic sights	In case on shield		

Statement of total equipment of one 3.8-inch gun battery—Continued.

War footing (4 guns, 12 caissons).	Article.	Where carried.	Property classification. Class.	Section.
	Spare sights and quadrants.			
1	Front sight, complete	In spare-sights chest, in battery wagon.	IV	3
1	Rear sight, complete			
1	Panoramic sight			
1	Range quadrant			
1	Teat wrench for panoramic sight			
	Range-finding and fire-control equipment.			
[1] 1	Aiming circle	On pack horse		
[1] 1	Aiming-circle case			
[1] 1	Aiming-circle tripod			
[1] 1	Aiming-circle tripod case			
[2] 10	Battery commander's ruler, wooden	In store limber		
[3] 2	Battery commander's telescope and mount, model of 1904 or 1905.	In store limber		
[3] 2	Battery commander's telescope case: Accessories carried in case—			
	1 camel's-hair brush			
	1 pin wrench			
	1 screw driver			
	1 teat wrench			
[3] 2	Battery commander's telescope tripod			
[3] 2	Battery commander's telescope-tripod case.			
[1] 1	Board, map and plotting	To be carried on 2-horse reel, when available.	V	1
2	Chains for time-interval recorder	In store limber		
5	Flashlights with hoods			
16	Flashlights without hoods			
[1] 2	Prismatic compass	To be carried on 2-horse reel, when available.		
[1] 2	Prismatic-compass tripod			
[1] 2	Prismatic-compass case			
[1] 2	Prismatic-compass tripod case			
[1] 6	Protractors, xylonite, rectangular			
[1] 1	Ruler for solution of triangles			
[1] 1	Observation tower	On fifth section caisson		
[1] 1	Adjustment bar	On pack horse		
[1] 1	Range finder, 1-meter base, model of 1916.			
[1] 1	Range-finder case			
[1] 1	Range-finder tripod			
[1] 1	Range-finder tripod case			
[1] 1	Reel for caisson	On caisson		
1	Tape, steel, 100-feet	In store limber		
2	Time-interval recorder (Furnished by Signal Corps.) [4]			
	Harness.			
[5] 37	Lead, sets	On horses	IV	8
[5] 19	Wheel, sets			
56	Sacks	Not carried in field		
1	Reel, 2-horse			
[6] 1	Pack harness, set	On instrument horse		
1	Stirrup, hooded, with guidon socket	On saddle	IX	5
	Special pack equipment.			
1	Pack frame, model of 1911	On pack horse	IV	3
1	Hanger, 1 meter base range finder and B. C. telescope tripod.			
1	Case rest			
1	Hanger, aiming circle and tripod and range finder, 1 meter base and tripod			

[1] Will be issued when available.
[2] Metal battery commander's rulers with cases are no longer part of the equipment. Those on hand may be retained.
[3] One on pack horse.
[4] For list of these parts see Unit Accountability Equipment Manual.
[5] One set is spare.
[6] Consists of 1 aparejo, 1 aparejo cincha, 1 blinder, 1 corona, 1 crupper, 1 halter bridle, 1 lead rein, leather.

Statement of total equipment of one 3.8-inch gun battery—Continued.

War footing (4 guns, 12 caissons).	Article.	Where carried.	Property classification. Class.	Section.
	Spare parts of harness.			
6	Breast straps	In battery wagon	IV	8
1	Bridle, Artillery, off			
1	Bridle, Artillery, near			
12	Cinchas, lead			
6	Cinchas, wheel			
5	Collar pads, canvas	Not part of harness		
8	Collar straps	do		
20	Curb bits	do		
20	Curb chain, with hooks	do		
8	Feed bags	do		
8	Grain bags	In battery wagon	IX	5
6	Halter headstalls			
20	Halter tie ropes			
6	Martingales, with cincha straps			
4	Mogul springs, 320 pounds			
6	Side straps for breeching			
4	Steel collars, with 2 hame tugs each			
12	Stirrup straps		IV	8
8	Traces, lead, with chain			
4	Traces, wheel			
4	Whips, Artillery			
	Spare parts of collars.			
6	Bolts for bottom of collar	In miscellaneous spare-parts chest, store wagon.	IV	8
6	Bolts for extension			
6	Bolts for top connection			
6	Bolts for trace plate			
2	Buckle latches			
6	Buckle springs			
4	Draft springs	Carried loose		
6	Pad bolts	In miscellaneous spare-parts chest		
6	Pad hooks, with collar back-strap connection.	Carried loose		
6	Nuts for bottom bolt	In miscellaneous spare-parts chest		
6	Nuts for extension bolt			
6	Nuts for top connection bolt			
6	Nuts for pad bolt			
6	Nuts for trace-plate bolt			
2	Trace plate and loop			
6	Washers for trace-plate bolt			
	Instruction equipment.			
1	Sectionalized shell	Not carried in field	V	4
1	Sectionalized shrapnel			
	Miscellaneous equipment.			
1	Reloading and cleaning outfit, consisting of—	In chest for reloading and cleaning outfit, in store wagon.	V	5
	1 bushing			
	1 cleaning brush (16.75 inches long)			
	1 case holder			
	1 case-holder stand			
	1 decapping tool (17.9 inches long)			
	1 hammer			
	1 primer-inserting press, small			
	1 saluting-powder measure			
	1 storage chest			
4	Subcaliber and drill cartridge kit, consisting of—	Not carried in field		
	3 drill cartridges, 1 extra base			
	1 subcaliber cartridge			
	1 bristle cleaning brush			
	1 cleaning rod			
	2 closing cap set screws			
	1 extension piece			
	2 extractor springs			
	2 extractor-spring screws			
	1 eyepiece			
	1 graduated ring, with felt washer			
	4 ring screws			
	6 rotating pins			
	6 stop pins			
	1 storage chest			
	1 wrench pin			

Statement of total equipment of one 3.8-inch gun battery—Continued.

War footing (4 guns, 12 caissons).	Article.	Where carried.	Property classification. Class.	Section.
	Miscellaneous equipment—Continued.			
1	Pistol-cleaning kit	Where convenient	X	9
2	Arm racks for automatic pistols		X	1
	(For targets, see O. O. Pamphlet No. 1994.)			
	Ammunition.[1]			
696	Shrapnel, H. E., rounds, or	In ammunition chests	VI	3
464	Shrapnel, rounds, and			
232	Shell, rounds			
	Personal equipment.			
	The equipment of the enlisted men of Field Artillery is as follows:			
	(*a*) For each enlisted man—			
1	Can, bacon	Carried by man	IX	1
1	Canteen, model of 1910	do		
1	Canteen cover, dismounted	do		
21	Cartridges, ball, pistol, or 20 cartridges, ball, revolver.	do	VIII	2
1	Cup, model of 1910	do	IX	1
1	Knife	do		
1	Fork	do		
2	Magazines, pistol, extra, if pistol is used.	do	VII	2
1	Meat can	do	IX	1
1	Pistol or revolver	do	VII	2
1	Pistol belt or revolver cartridge belt without saber ring.	do	IX	3
1	Pistol holster or revolver holster	do		
1	Spoon	do	IX	1
1	Pouch for first-aid packet	do		
	Packet, first-aid (Medical Department).			
	Furnished by Quartermaster Corps—			
1	Identification tag	do	.....	.....
1	Shelter-tent half	do	.....	.....
1	Shelter-tent pole	do	.....	.....
5	Shelter-tent pegs	do	.....	.....
	(*b*) For each enlisted man individually mounted, in addition to (*a*)—			
1	Currycomb	Carried on horse	IX	5
1	Horse brush	do		
1	Link	do		
[2] 1	Saddle, McClellan, Field Artillery.	do		
1	Saddlebags, pair	do	IX	2
1	Spurs, pair	On man	IX	5
1	Spur straps, set	do		
1	Bridle, Field Artillery	Carried on horse	IX	5
	(*c*) For each driver, in addition to (*a*)—			
1	Currycomb	do	IX	5
1	Horse brush	do		
1	Spurs, pair	Carried by man	IX	2
1	Spur straps, set	do		
	(*d*) Dismounted men (including cannoneers when not mounted) in addition to (*a*)—			
1	Can, condiment	do	IX	1
[3] 1	Haversack, model of 1910	do		
	Horse equipment for each horse.			
[4] 1	Halter tie rope	Carried on horse	IX	5
[4] 2	Halter headstall	do		
1	Feed bag	do		
1	Grain bag	do		

[1] No ammunition is carried in gun limbers.
[2] Saddles to be equipped with 1 stirrup guidon socket per battery.
[3] Until the model of 1910 haversack is supplied, the haversack (old model) and 2 canteen-haversack straps may be used.
[4] Part of harness for all draft horses.

Statement of total equipment of one 3.8-inch gun battery—Continued.

War footing (4 guns, 12 caissons).	Article.	Where carried.	Property classification.	
			Class.	Section.
	Horse equipment for each horse—Contd.			
[1] 1	Saddle blanket	Carried on horse	IX	5
1	Surcingle	do		
1	Horse cover	Not carried in field		
	For spare horse:			
1	Feed bag	Carried on horse		
1	Grain bag	do		
1	Halter headstall	do		
1	Saddle blanket	do		
1	Surcingle	do		
	Saddler's tools.			
12	Awl blades, harness, assorted Nos. 43 to 48, inclusive	In saddler's chest in battery wagon	X	9
1	Awl, pegging	do		
1	Awl, seat, handled	do		
1	Carriage, pricking, 3 wheels	do		
1	Compass, 6 inches	do		
1	Creaser, double, lignum-vitæ	do		
1	Claw tool	do		
1	Edge tool, No. 1	do		
1	Edge tool, No. 2	do		
2	Extra blades with followers for draw gage.	do		
1	Gauge, draw, brass	do		
1	Hammer, riveting, No. 3	do		
1	Handle, peg, awl, with wrench	do		
1	Knife, round	do		
1	Knife, splitting, 6-inch	do		
1	Needle case, leather	do		
1	Needle, glovers' No. 3, paper	do		
2	Needles, harness, No. 4, papers	do		
2	Needles, harness, No. 5, papers	do		
2	Needles, harness, No. 6, papers	do		
12	Needles, sacking, assorted	do		
1	Nipper, cutting, 10-inch	do		
1	Oilstone, unmounted	do		
1	Pliers, 6-inch	do		
4	Punches, hand, round, assorted	do		
1	Punch, revolving	do		
1	Rivet set	do		
1	Rule, boxwood, 2-foot, 4-fold	do		
1	Screw driver, 3-inch blade	do		
1	Sewing palm, leather	do		
1	Shears, 10-inch bent trimmers	do		
1	Shoe knife, square point	do		
1	Shoe knife, broad point	do		
1	Slicker, steel	do		
2	Thimbles	do		
1	Stitching clamp	do		
1	Tool kit, sheepskin	do		
1	Supply chest, tools	do		
	Carpenter's tools.			
1	Bench ax	In carpenter's chest, in battery wagon	X	9
2	Bags, canvas, for small stores			
1	Bevel, 8-inch			
6	Bits, auger			
1	Bit, wood, countersink			
1	Bit, expansive, two cutters			
3	Bits, screw driver			
1	Brace, ratchet, 10-inch sweep			
3	Chisels, socket, framing			
1	Dividers, wing, 10-inch			
4	Drills, twist			
1	File, 10-inch, flat, bastard			
6	Files, saw, 4 and 6 inch (3 of each)			
1	Gage, marking, brass, thumbscrew shoe and face.			
2	Gouges, socket firmer			
1	Hammer, claw, adze eye			
1	Handle, tool, containing 10 tools			

[1] Part of harness for all draft horses.

Statement of total equipment of one 3.8-inch gun battery—Continued.

War footing (4 guns, 12 caissons).	Article.	Where carried.	Property classification.	
			Class.	Section.
	Carpenter's tools—Continued.			
2	Handles, file, aluminum alloy	In carpenter's chest, in battery wagon	X	9
1	Knife, drawing, 9-inch blade			
1	Mallet, 2¾ by 5 inches, maple, hickory handled.			
1	Nail set			
1	Oiler			
1	Oilstone, unmounted			
1	Pincer, small, 8-inch			
1	Plane, jack, wood			
1	Plane, smoothing, wood			
1	Plate, auger handle			
1	Rasp, wood, 10-inch			
1	Reamer, half round, for wood or soft metal.			
1	Rule, boxwood, 2-foot, 4-fold			
1	Saw, crosscut, 24-inch			
1	Saw, rip, 24-inch			
1	Saw set			
1	Screw driver, 5-inch blade, 10-inch			
1	Spokeshave, adjustable			
1	Square, steel, 12-inch body, 8-inch tongue.			
1	Tape line, linen			
1	Vise, table, 2½-inch			
1	Wrench, screw, 12-inch			
	Blacksmith's tools.			
1	Anvil, 100-pound	In forge limber chest	X	9
2	Aprons, blacksmith			
2	Bags, canvas, for nails			
1	Box, shoeing, leather			
1	Chisel, cold, 8-inch			
1	Chisel, handled, for cold iron, 2 pounds			
1	Chisel, handled, for hot iron, 1.5 pounds			
1	Clinching iron			
6	Drills, flat			
1	File, 12-inch, flat, bastard			
1	Fire rake			
1	Fire shovel			
1	Flatter, handled, 1.5 inch, square face			
1	Fore punch and creaser			
1	Forge, Empire, portable			
1	Hammer, hand, 2 pounds			
1	Hammer, riveting, 1 pound, 2 ounces			
1	Hammer, shoeing, 10 ounces			
1	Handle, file, aluminum			
1	Hardie, 0.75 square shank, 1.25 bit			
1	Cutting nippers, 14-inch			
1	Oiler			
1	Pritchel, 0.75 flats, 9-inch			
1	Punch, round, 0.375-inch			
1	Punch, round, 0.312 ($\frac{5}{16}$)-inch			
1	Punch, nail			
1	Punch, square			
1	Ratchet drill for square shank drill			
5	Rivet sets, 5 sizes			
1	Rule, boxwood, 2-foot, 4-fold			
1	Screw plates, taps and dies, with tap wrench, including chest.			
2	Shoeing knives			
1	Shoeing pincers			
1	Shoeing rasp, 16-inch			
1	Sledge, 11-pound			
1	Square			
1	Toe knife			
1	Tongs, horseshoer's, 1.5-pound, 12-inch			
1	Tongs, for 0.25 iron			
1	Tongs, for 0.5 iron			
1	Whetstone, farrier's, 10-inch			
1	Wrench, forge			
1	Wrench, screw, 12-inch			

Statement of total equipment of one 3.8-inch gun battery—Continued.

Horse battery.	Light battery.	Article.	Where carried.	Property classification.	
				Class.	Section.
		Materials for cleaning and preservation. (6 months' supply, all expendable.)			
5	5	Borax, pounds, lump	In store wagon		
1	1	Brush, camel's hair, No. 1, round	do		
3	3	Brushes, sash, No. 3	do		
3	3	Brushes, sash, No. 5	do		
1	1	Brush, varnish, No. 4–0	do		
2	2	Brushes, varnish, No. 5–0	do		
2	2	Brushes, varnish, No. 6–0	do		
2	2	Burners, lantern, Dietz, Vesta	do		
2	2	Cloth, crocus, quires	do		
1	1	Cloth, emery, No. ½, quire	do		
1	1	Cloth, emery, No. 0, do	do		
1	1	Cloth, emery, No. 00, do	do		
2	2	Cosmic, No. 80, soft, quarts (1-quart cans).	do		
2	2	Chamois skins	do		
4	3	Dressing, russet leather, boxes	do		
21	21	Eveready tungsten battery No. 793	do		
6	6	Eveready 2.7V. Mazda bulb No. 1197	do		
2	2	Globes, lantern	do		
[1] 7	7	Lavaline, 16-ounce cans	do		
25	25	Lye, powdered, cans, 1-pound	5 pounds in store wagon; rest to be retained at post.		
20	15	Naphthaline, pounds	Not carried in field		
1	1	Oil, clock, ounce, 1-ounce bottles	In cleaning material and small-stores chest.		
5	5	Oil, hydroline, gallons, 5-gallon cans	In oil cans under battery and store wagons.		
6	6	Oil, linseed, boiled, gallons	In store wagon		
1	1	Oil, linseed, raw, pints	In cleaning material and small-stores chest.		
15	15	Oil, lubricating, gallons	In oil cans on battery and store wagons.		
20	20	Oil, neat's-foot, do	4 gallons in store wagon; rest to be retained at post.		
5	5	Oil, slushing, light, do	2 gallons in store wagon; rest to be retained at post.	X	10
5	5	Oil, coal, do	In oil cans under battery and store wagons.		
2	2	Oil, sperm, do	1 gallon in store wagon; rest to be retained at post.		
75	75	Paint, olive-drab, second coat, pounds	5 pounds in store wagon; rest to be retained at post.		
75	75	Paint, olive-drab, third coat, do	do		
5	5	Paint, rubberine, gallons, 1-gallon cans.	Not carried in field		
5½	5½	Petrolatum (vaseline), ounces (in tin box).	In cleaning material and small-stores chest.		
[1] 7	7	Po'ish, Gibson's soap, 16-ounce cans	In store wagon		
6	6	Primer, brown enamel, quarts	In store at post		
75	75	Sal soda, pounds, bulk	20 pounds in cleaning-material chest.		
1	1	Sandpaper, No. 2½, quires	In cleaning material and small-stores chest.		
1	1	Sandpaper, No. 1½, do	do		
1	1	Sandpaper, No. ½, do	do		
1	1	Sandpaper, No. 00, do	do		
72	52	Soap, castile, pounds	In store wagon		
6	4	Soap, H & H, cakes or "Paco"	do		
100	80	Soap, saddle, Frank Miller's, pounds, 1-pound tins.	do		
100	65	Sponges, 5-inch	35 in store wagon; rest to be retained at post.		
10	10	Sponges, large size, 5½ or 6 inch	In store wagon		
8	8	Turpentine, gallons	In store at post		
40	40	Waste, cotton, pounds, white	10 pounds in store wagon; rest to be retained at post.		
5	5	Wicks, lantern, size 0	In cleaning-material chest		
1	1	Tape, black adhesive, ¾-inch wide, ½-pound roll.	In store wagon		

[1] Only one of these items will be issued to an organization.

Statement of total equipment of one 3.8-inch gun battery—Continued.

Horse battery.	Light battery.	Article.	Where carried.	Property classification.	
				Class.	Section.
		Saddler's material. (6 months' supply, all expendable.)			
6	6	Awl blades, harness, assorted	In saddler's chest	X	9
1	1	Awl haft, patent, No. 146, with wrench.	do		
3	2	Buckles, bar, 1-inch, Saalbach, bronze.	In canvas bag for small stores, battery wagon.		
8	8	Buckles, bar, tongueless, ⅝-inch, brass.	do		
21	13	Buckles, bar, tongueless, 1-inch, brass.	do		
6	5	Buckles, bar, tongueless, 1½-inch brass.	do		
40	30	Buckles, center bar, ⅝-inch, bronze	do		
12	6	Buckles, center bar, ¾-inch, bronze	do		
12	9	Buckles, center bar, ⅞-inch, bronze	do		
3	2	Buckles, center bar, 1-inch, bronze	do		
12	10	Buckles, center bar, 1¼-inch, M. I.	do		
12	10	Buckles, center bar, 1⅜-inch, M. I.	do		
8	7	Buckles, roller, ⅝-inch, M. I.	do		
2	2	Buckles, roller, ¾-inch, M. I.	do		
15	15	Buckles, roller, ⅞-inch, M. I.	do		
4	4	Buckles, roller, 1-inch, M. I.	do	X	10
50	46	Buckles, roller, 1¼-inch, M. I.	do		
3	3	Buckles, roller, 1½-inch, M. I.	do		
6	6	Buckles, satchel, ½-inch, M. I.	do		
6	3	Buckles, wire, ½-inch, bronze	do		
3	1	Buckles, wire, ⅝-inch	do		
36	24	Buckles, wire, ¾-inch, brass	do		
3	3	Buckles, roller, Royal, 1¼-inch, M. I.	do		
6	3	Cheek "D," bronze	do		
11	11	Conway loop, ⅞-inch, bronze	do		
25	20	Duck, cotton, olive-drab, 22-inch, No. 1, yards.	do		
12	12	End buckle, 1-inch, bronze, with clip.	do		
25	22	End clip, ⅝-inch, brass	do		
30	12	End clip, 1-inch, brass	do		
30	21	End clip, 1½-inch, brass	do		
12	9	Foot staple, high, bronze	In saddler's chest		
24	18	Foot staple, low, bronze	do	IX	5
12	9	Foot staple, semicircular, bronze	do		
4	4	Hook, back strap, steel	In canvas bag for small stores, battery wagon.	IV	8
2	2	Hook, breast strap, steel	do		
4	4	Hook, collar strap, steel	do		
6	10	Hook, double, brass wire	In saddler's chest	IX	1
6	10	Hook, end, brass wire	do	IX	5
2	2	Hook, side strap, steel	In canvas bag for small stores, battery wagon.	IV	8
3	2	Hook, wire (for link), brass	do	IV	5
6	4	Leather, bridle, backs	In battery wagon		
6	5	Leather, collar, backs	do	X	10
160	150	Leather, harness, backs, pounds	do		
1	1	Leather, latigo, sides	do		
10	8	Nails, saddle, ½-inch head, 1¼ inches long.	In saddler's chest		
1	1	Needles, glovers, No. 3 papers	do	X	9
1	1	Needles, harness, No. 4 do	do		
1	1	Needles, harness, No. 5 do	do		
1	1	Needles, harness, No. 6 do	do		
10	8	Ornaments, brow band, copper	do		
10	8	Ovals, saddle	do	IX	5
5	3	Ovals, saddle bag	do		
1	1	Pins, screw, brass, ¾-inch, No. 2, 1-gross packages.	do		
10	6	Ring, ⅞ inch diameter (saddle bag), bronze.	do	X	10
4	4	Ring (rifle scabbard), 1 inch diameter, M. I.	do	X	5
24	18	Ring, 1¼ inches diameter (saddle), bronze.	do	IX	5
3	3	Ring, 1⅜ inches diameter (back strap), M. I.	do		
6	5	Ring, 1¾ inches diameter (throat strap), M. I.	do	X	10
3	3	Ring, 1¾ inches diameter (breeching), M. I.	do		

Statement of total equipment of one 3.8-inch gun battery—Continued.

Horse battery.	Light battery.	Article.	Where carried.	Property classification. Class.	Section.
		Saddler's material. (6 months supply, all expendable)—Continued.			
12	10	Ring, 2 inches diameter (halter), M. I.	Small stores bag, battery wagon...		
12	6	Ring, 4 inches diameter (quarter strap)			
8	8	Ring D, 1 inch diameter (feed bag), M. I.	In saddler's chest		
6	6	Ring D, 1¼ inches diameter, with clasp, steel.	do		
3	3	Ring D, 1¾ inches diameter, steel	do		
3	3	Ring D, 2 inches diameter (special), steel.	do		
1	1	Rivets and burrs, brass, ⅜-inch, No. 12, pounds, belt.	do	X	1
1	1	Rivets and burrs, brass, ½-inch, No. 10, pounds, belt.	do		
1	1	Rivets and burrs, brass, ⅝-inch, No. 10, pounds, belt.	do		
1	1	Rivets and burrs, brass, 1-inch, No. 8, oval heads, pounds.	do		
3	3	Rollers, lead rein, steel	do		
1,600	1,260	Rope, ½-inch (halter), feet, manila hemp.	In battery wagon	IV	8
1	1	Screws, brass, 1-inch, No. 6, wood, gross.	In saddler's chest	X	10
15	10	Sheepskins with wool on	In battery wagon		
2	1	Shields, saddle, 11-inch, brass	In saddler's chest		
2	1	Shields, saddle, 11½-inch, brass	do		
4	3	Shields, saddle, 12-inch, brass	do		
5	3	Snap hook, canteen, Cavalry, bronze	do	IX	5
2	2	Snap hook, coverts, ⅞-inch, M. I	do		
2	2	Snap, covert, 1-inch, M. I	do		
3	2	Snap, German, ⅞-inch, M. I., bronzed	do	X	10
3	5	Snap hook, haversack, 1-inch	do	IX	1
6	5	Snap, swivel, 1-inch, No. 16, M. I	do	X	10
8	8	Snap, German, 1-inch, M. I., bronzed	do		
36	28	Square, halter, M. I	In canvas bag for small stores, battery wagon.		
2	2	Strap loop, coupling, ¾-inch (for bridle), brass.	do		
8	8	Strap loop, feed bags, 1 by ½ inch, brass wire.	do	IX	5
3	3	Stud hook, bronze	do		
6	5	Studs, saddle bag, bronze	In saddler's chest		
1	1	Tacks, copper, No. 12, ½-pound paper	do		
1	1	Tacks, copper, No. 20, ½-pound paper	do		
1	1	Thimble, aluminum lined, steel, size ¾-inch.	do		
1	1	Thread, carpet, No. 18, olive-drab, pounds.	do		
2	1	Thread, shoe, No. 3, brown..pounds	do		
2	1	Thread, shoe, No. 10, brown....do	do		
2	2	Wax, stitching, brown.....do	In battery wagon		
20	16	Webbing, olive-drab, cotton, heavy, ⅝-inch.....yards..	do		
35	28	Webbing, olive-drab, cotton, heavy, 1-inch.....yards..	do		
15	11	Webbing, olive-drab, halter, 1½-inches, ...yards..	do		
20	14	Webbing, jute, 3½-inch.....yards..	do	X	10
		For polo equipment.			
2	2	Buckles, wire, ½-inch, bronze	In saddler's chest		
2	2	Buckles, wire, ⅝-inch bronze	do		
12	12	Buckles, wire, ¾-inch, bronze	do		
4	4	Buckles, wire, ⅞-inch, bronze	do		
2	2	Buckle, nickel-plated, stirrup strap, 1⅜-inch, bronze.	do		
6	6	Buckle, nickel-plated, girth, 1-inch, bronze.	do		
4	4	Ring, ⅞-inch, bronze	do		
5	5	Web, linen straining, 3½-inch...yards..	In battery wagon		
7	7	Web, linen straining, 5-inch.....do....	do		

Statement of total equipment of one 3.8-inch gun battery—Continued.

No.	Article.	Where carried.	Property classification.	
			Class.	Section.
	Reserve supplies for war service.[1]			
3	Buckles, bar, tongueless, ⅝-inch, brass	In store		
5	Buckles, bar, tongueless, 1-inch, brass	do		
10	Buckles, center bar, ⅝-inch, bronze	do		
3	Buckles, center bar, ¾-inch, bronze	do		
3	Buckles, center bar, ¾-inch, bronze	do		
3	Buckles, center bar, 1¼-inch, M. I	do		
3	Buckles, center bar, 1⅜-inch, M. I	do		
2	Buckles, roller, ⅝-inch, M. I	do		
5	Buckles, roller, ¾-inch, M. I	do	X	10
12	Buckles, roller, 1¼-inch, M. I	do		
10	Buckles, wire, ¾-inch, M. I	do		
2	Burners, lantern	do		
1	Cheek "D"	do		
1	Chamois skin	do		
4	Conway loops, ¾-inch	do		
3	Dressing, russet leather	do		
4	End buckles	do		
2	Globes, lantern	do		
2	Hooks, back strap	do	IV	8
2	Hooks, collar strap	do		
3	Hooks, double, brass wire	do	IX	1
3	Hooks, end, brass wire	do	IX	5
2	Leather, bridle, backs	do		
2	Leather, collar, backs	do	X	10
30	Leather, harness, pounds	do		
1	Leather, latigo, side	do		
3	Nails, saddle	do	IX	5
1	Oil, clock, ounce	do		
4	Oil, coal, gallons	do		
4	Oil, hydroline, do	do		
12	Oil, lubricating, do	do	X	10
16	Oil, neat's-foot, do	do		
2	Oil, slushing, light, do	do		
1	Oil, sperm, gallon	do		
3	Ornaments, brow band	do	IX	5
2	Rings, ⅞-inch diameter, saddle bag	do		
8	1½-inch diameter, saddle	do		
4	Rings, 2-inch diameter, halter	do	IV	8
3	Rings, 4-inch diameter, cincha strap	do		
3	Rings, 4-inch diameter, quarter strap	do		
3	Rings "D," 1-inch diameter, feed bag	do		
1	Rivets and burrs, ½-inch, brass, No. 10, pound.	do		
1	Rivets and burrs, ⅝-inch, brass, No. 10, pound.	do	X	10
18	Sal soda, pounds	do		
2	Snap hook, haversack, 1-inch	do	IX	1
3	Snap hook, feed bag	do	IV	8
12	Squares, halter	do	IX	5
40	Soap, castile, pounds	do		
3	Soap, H and H, cakes or Paco	do	X	10
60	Soap, saddle, Frank Miller's, pounds	do		
25	Sponges, 5-inch	do		
2	Strap loops, feed bag	do	IV	8
2	Studs, saddle bag	do		
1	Tacks, copper, 12-ounce, paper	do	IX	5
1	Tacks, copper, 20-ounce, do	do		
1	Thread, carpet, No. 18, olive-drab, pound	do		
1	Thread, shoe, No. 3, brown, do	do		
1	Thread, shoe, No. 10, brown, do	do	X	10
25	Waste, cotton, do	do		
1	Wax, stitching, brown, do	do		
2	Wicks, lantern, size 0	do		
	Ammunition.			
	See general orders pertaining to annual allowance of ammunition.			

[1] No material will be drawn from this supply for making repairs and replacements except in sudden calls for field service if necessary to replace missing items of the regular supplies. To avoid deterioration, all perishable articles should be replaced by similar ones received with the regular 6 months' allowance.

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WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ORDNANCE,
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