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SERVICE HANDBOOK

OF THE

SLIDING RAILWAY MOUNT

MODEL OF 1919

FOR 10-INCH GUN

PREPARED IN THE OFFICE OF
THE CHIEF OF ORDNANCE

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The following publication, entitled "Service Handbook of the Sliding Railway Mount, Model of 1919, for 10-Inch Gun," is published for the information and guidance of all concerned.

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BY ORDER OF THE SECRETARY OF WAR:

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TABLE OF CONTENTS.

PART I.—Sliding Railway Mount, Model of 1919, for 10-Inch Gun—Description and Operation.

Page.

Section A. General description 9
Section B. Structural body 10
(a) Description 10
(b) To disassemble structural body 10
(c) To disassemble folding platforms 11
(d) To assemble folding platforms 11
(e) Disposition of folding platforms and railings for traveling. 11
Section C. Trunnion bearings 11
(a) Description 11
(b) To disassemble trunnion bearings 11
(c) To assemble trunnion bearings 11
(d) To remove gun from trunnion bearings 12
(e) To replace gun in trunnion bearings 12
(f) Instructions 12
Section D. Antifriction mechanism 12
(a) Description 12
(b) To disassemble antifriction mechanism 13
(c) To assemble antifriction mechanism 13
(d) To adjust antifriction mechanism 13
Section E. Elevating mechanism 14
(a) Description 14
(b) To disassemble elevating mechanism 14
(c) To assemble elevating mechanism 15
(d) To adjust slip-friction mechanism 15
(e) Instructions 16
Section F. Mounts, panoramic sight 16
(a) Description 16
(b) To remove sight from mounting 16
(c) To replace sight in mounting 16
(d) To disassemble mounts, panoramic sight 16
(e) To assemble mount, panoramic sight 17
Section G. Mounts, quadrant 17
(a) Description 17
(b) To remove elevation quadrant 17
(c) To replace elevation quadrant 17
(d) To disassemble quadrant mounting 17
(e) To assemble quadrant mounting 18
Section H. Side roller bearings 18
(a) Description 18
(b) To disassemble side roller bearings 18
(c) To assemble side roller bearings 19
Section I. Jackscrews and sleepers 19
(a) Description 19
(b) To disassemble jackscrews and sleepers 19
(c) To assemble jackscrews and sleepers 20

Page.
Section J. Gun support, gun rest, and gun transport tie 21
(a) Description 21
(b) To fold gun support and gun transport tie 21
(c) To set up gun support and gun transport tie 21
(d) To disassemble gun rest and gun support 21
(e) To disassemble gun transport tie 21
(f) To assemble gun transport tie 21
Section K. Loading rig 22
(a) Description 22
(b) To disassemble loading stand 22
(c) To assemble loading stand 23
(d) To disassemble loading crane 23
(e) To assemble loading crane 24
(f) To disassemble loading rig extension 24
(g) To assemble loading rig extension 24
(h) To disassemble shot truck 24
(i) To assemble shot truck 25
Section L. Platform 25
(a) Description 25
(b) To disassemble folding platforms, front and rear 25
(c) To disassemble folding platform 25
(d) To assemble folding platform 26
(e) Disposition of folding platforms and railings for traveling. 26

PART II.—TRUCKS.

Section A. General description 27
(a) To remove truck from structural body 27
(b) To replace truck under structural body 27
(c) To disassemble trucks 27
(d) To assemble trucks 28
Section B. Coupler and draft gear 28
(a) Description 28
(b) To disassemble coupler and draft gear 28
(c) To assemble coupler and draft gear 28
Section C. Brakes 29
(a) Description 29
(b) To disassemble hand brake, rear truck 29
(c) To assemble hand brake, rear truck 29
(d) To disassemble hand brake, front truck 30
(e) To assemble hand brake, front truck 30
(f) To disassemble air-brake lever system 30
(g) To assemble air-brake lever system 31
(h) To take up brake-shoe wear 31
(i) To disassemble air brake, air system 32
(j) To assemble air brake, air system 32
(k) To disassemble brake cylinder 32
(l) To assemble brake cylinder 32
(m) To disassemble triple valve 32
(n) To assemble triple valve 33
(o) To clean and oil triple valve 33
(p) To clean centrifugal dirt collector 33

Page.
Section D. Translating mechanism 33
(a) Description 33
(b) To disassemble translating mechanism 34
(c) To assemble translating mechanism 35
(d) Instructions 35
Section E. Truck jackscrew 35
(a) Description 35
(b) To disassemble truck jackscrew 35
(c) To assemble truck jackscrew 36
(d) Instructions 36
Section F. Spring suspension mechanism 36
(a) Description 36
(b) To disassemble suspension mechanism 36
(c) To assemble suspension mechanism 37
(d) To remove truck body from wheels 37
(e) To replace truck body on wheels 37
(f) To disassemble journal box 37
(g) To assemble journal box 37

PART III.—CAMOUFLAGE.

(a) Description 38
(b) Paints 39
(c) To apply paint 39
(d) To remove paint 39

PART IV.

Lists of parts 40

PART V.

List of total equipment 82

PART VI.

List of oil holes, oil plugs, oil cups, and handy oilers 83

PART VII.

Data table 84

LIST OF PLATES.

Sliding railway mount, model of 1919, for 10-inch guns:

I. Right side view assembly.
II. End views assembly.
III. Longitudinal cross section assembly.
IV. Left girder inside assembly.
V. Train line assembly.
VI. Antifriction bearing assembly.
VII. Elevating gearing assembly.
VIII. Rear gear case assembly.
IX. Sight and quadrant, right side assembly.
X. Sight, left side assembly.
XI. Side roller bearing assembly.
XII. Roller bearing arrangement.
XIII. Jack screw assembly.
XIV. Loading rig assembly.
XV. Loading platform assembly.
XVI. Asbestos lining for powder bins.
XVII. Loading stand assembly.
XVIII. Loading stand lock assembly.
XIX. Loading rig crane assembly.
XX. Gilmartin shot tongs and powder tray assembly.
XXI. Loading rig crane gearing assembly.

Twelve-wheel truck, standard gauge, 5.5 by 10-inch journals:

XXII. Loading rig extension assembly.
XXIII. Shot truck lock assembly.
XXIV. Sliding railway mount, model of 1919, for 10-inch guns—Firing track assembly and details.

Twelve-wheel truck, standard gauge, 5.5 by 10-inch journals:

XXV. General arrangement, front truck.
XXVI. General arrangement, rear truck.
XXVII. Underframe, front truck.
XXVIII. Center plate arrangement.
XXIX. M. C. B. coupler and draft gear assembly.
XXX. Brake arrangement.
XXXI. Triple valve.
XXXII. Air-brake cylinder and dirt collector.
XXXIII. Translating mechanism, plan.
XXXIV. Translating mechanism, end elevation.
XXXV. Translating mechanism, side elevation.
XXXVI. Translating mechanism, section.
XXXVII. Translating mechanism, section.
XXVIII. General arrangement of jack screw.
XXXIX. Journal box and spring arrangement.
XL. Sliding railway mount, model of 1919, for 10-inch guns—Right side view, camouflage arrangement.

HANDBOOK OF SLIDING RAILWAY MOUNT, MODEL OF 1919, FOR 10-INCH GUNS.

PART I.

SLIDING RAILWAY MOUNT, MODEL OF 1919—DESCRIPTION AND INSTRUCTION.

SECTION A. GENERAL DESCRIPTION.

(Refer to Plates I, II, and III.)

For list of parts, with their numbers, piece marks, drawing numbers, and material of which they are made, see page 40.

The sliding railway mount, model of 1919, as its name implies, utilizes the friction of the parts in contact with the firing track to absorb the energy of recoil, thus eliminating the necessity of a recoil mechanism.

The gun is swung directly by means of its trunnions in bearings mounted rigidly on the girders of the structural body. When fired, the gun and mount together slide along the track in recoil. The rearward travel is limited by the friction between the special jacking beams or sleepers in the bottom of the structural body and special firing beams or I-beam stringers attached to the ties of the track.

The guns used with this mount are the 10-inch models of 1888MI and the 1888MII, all of 34 calibers in length. All of these guns are provided with fixed trunnions and interrupted thread breechblock, the latter being fitted with mechanical firing mechanism. The guns are rifled with 60 grooves and the twist of the rifling is to the right, progressing in pitch from one turn in 50 calibers to one turn in 25 calibers.

The rearward travel (average about 18 inches) of the mount along the curved track for each shot necessarily involves a change in the azimuth training of the gun. Returning the gun to its proper position or retraining in azimuth brings the translating mechanism (see Section D, Part II) into play. This last operation corresponds to counterrecoil in the recoil type of mount.

Provision is made for elevating the gun between minus 7 degrees, the loading angle, to plus 54 degrees. The elevating rack is bolted to the right side of the gun. The pinion meshing with this rack is connected with the handwheel provided on each side of the structural body through a slip friction device, a wormwheel and worm, and bevel gears. One revolution of the handwheel moves the gun through an angle of 1.37 degrees. To reduce the effort required in elevating and depressing the gun an antifriction device has been provided on each trunnion. (See Plate VI.)

To train the gun in azimuth the mount must be moved along a curved track for the reason that it is not possible to move the gun with respect to the trucks. The mechanism used in moving the mount along the track, termed a translating mechanism, is incorporated in the front truck. A gear case carrying a crank is located on each side of the front truck. The right gear case is connected to the forward adjacent axle through a sprocket and chain. The left gear case is similarly connected to the rear adjacent axle. A clutch is provided by which the mechanism can be thrown out of gear for firing. For traveling, however, it is necessary to remove chains connecting gearing to axle. It is possible for four men to move the mount along the

track by means of this mechanism at the rate of about 3 feet per minute. The ratio between crank and axle in revolutions is as 117 to 1.

The gun carriage is made up of two structural-steel box girders connected by cover plates and a series of structural-steel transoms. The jackscrews required for the operation of the jacking beams, the elevating mechanism, and the loading mechanism are all incorporated in this structural body. The success of this type of mount depends upon the structural body having a rigidity approximating as closely as possible that of a steel casting. As a consequence, it is necessary to have the web plates of all the transoms come into contact with the web plates of the side girders and to have the seats for all of the fittings carefully machined. The riveting must likewise be well-nigh perfect.

The only anchorage with which this mount is provided is the friction between the sliding beams and the I-beam stringers or firing beams attached to the ties. The I-beam stringers are placed on the firing track, or epis, as shown on Plates XIV and XXIV.

When the gun has been properly trained in azimuth the six sleepers of structural body and the two on the rear truck are forced down on the firing track first by means of the crank. The sleepers under the structural body are then seated more firmly through the ratchet levers. All men engaged with any part of this anchoring process must work in unison, the various operations being performed at the call of the sergeant in charge. After the shot has been fired, jacks must be released (all operations again in unison), the mount again trained in azimuth, and the sleepers seated as before.

The mount is provided with two special 12-wheel trucks having 5.5 by 10 inch journals and 36-inch wheels. The truck frames are of structural steel of a design as shown on Plates XXV and XXVI.

Spring-supported conical rollers, of a design shown on Plates XI and XII, provide lateral stability to the structural body.

The ammunition car to be used with this mount differs from the standard only in so far as regards interior arrangement for accommodation of ammunition for 10-inch gun. A track called loading rig extension is provided on rear truck. A shot truck traveling over the track transports the ammunition from ammunition car to loading platform. Provision is made for storing four shells on rear truck (two on each side of loading rig extension). Two identical cranes are provided on loading platform, by means of which projectiles may be transported from rear or side of loading platform, to loading stand. This loading stand, of a new design, is collapsible for traveling. The loading angle is minus 7 degrees, and when the projectile is given motion along the tray it acquires sufficient velocity to ram itself. To the rear of loading stand and between loading cranes in the loading platform are four asbestos-lined bins, providing storage space for 16 charges of powder.

SECTION B. STRUCTURAL BODY.

(a) Description. (Refer to Plates III and IV.)

For list of parts, with their numbers, piece marks, drawing numbers, and material of which they are made, see page 40.

The structural body consists of girders made up of web plates, reinforcing plates, and diaphragms; of transoms, cover plates—top and bottom; platforms, fixed and folding, see Section 1, Part I; jackscrew guides, ladders, railings, and handholds. In construction this mount differs somewhat from other mounts in that all joints are made metal to metal to secure greater rigidity.

(b) To Disassemble Structural Body.

The various parts which go to make up the structural body are held together with rivets. In case of damage only the minor parts, such as railings, handholds, etc., may be repaired in field. Damage to other parts necessitates the shipment of mount to repair base where necessary facilities are available.

(c) To Disassemble Folding Platforms.

See Section L, Part I, paragraphs *b* and *c*.

(d) To Assemble Folding Platforms.

See Section L, Part I, paragraph *d*.

(e) Disposition of Folding Platforms and Railings for Traveling.

See Section L, Part I, paragraph *e*.

SECTION C. TRUNNION BEARINGS.

(a) Description. (Refer to Plates VI and VII.)

For list of parts with their numbers, piece marks, drawing numbers, and material of which they are made, see page 55.

The trunnion bearings are large steel castings designed to carry the gun indirectly through the agency of the antifriction mechanism (see Section D) and to directly transmit the shock of firing to the structural body. These bearings contain the whole of the antifriction mechanism and further serve as a foundation for the sight mounting. (See Section F.)

(b) To Disassemble Trunnion Bearings. (Refer to Plates VI and VII.)

Men required, two.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 1.625 and 1.75 inch nuts, U43CA.
1 hammer, U47AG.

1. Dismount panoramic telescope, right and left. (See Part I, Section F, paragraph *b*.)
2. Dismount elevation quadrant. (See Part I, Section G, paragraph *b*.)
3. Disassemble elevation quadrant mounting. (See Part I, Section G, paragraph *d*.)
4. Disassemble sight mounting, right and left. (See Part I, Section F, paragraph *d*.)
5. Unscrew oil pipe projecting through trunnion dust guard.
6. Take out six tap bolts securing trunnion dust guard to trunnion bearing and remove dust guard.
7. Withdraw two keys securing trunnion bearing cap to trunnion bearing.
8. Remove trunnion bearing cap from trunnion bearing.
9. Remove gun from trunnion bearings. (See Part I, Section C, paragraph *d*.)
10. Unscrew nuts and remove lock washers from bolts securing trunnion bearing to girder, taking care to prevent bolts from dropping free of hole into jack-screw mechanism directly below.
11. After bolts have been withdrawn the trunnion bearings may be lifted free of girders by means of a hoist.
12. The bronze bushings should be removed from bearings only for purpose of replacement.

(c) To Assemble Trunnion Bearings. (Refer to Plates VI and VII.)

Men required, two.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 1.625 and 1.75 inch nuts, U43CA.
1 hammer, U47AG.

To assemble trunnion bearings, reverse preceding operations.

(d) To Remove Gun from Trunnion Bearings. (Refer to Plates VI and VII.)

Men required, two.

Tools needed:

1 wrench for 0.375 and 0.5 inch nut, U43C.
1 wrench for 0.625 and 0.75 inch nut, U43F.
1 wrench for 1.125 and 1.25 inch nut, U43AU.

1. Dismount elevation quadrant. (See Part I, Section G, paragraph *b*.)
2. Dismount panoramic telescope, right and left. (See Part I, Section F, paragraph *b*.)
3. Disassemble elevation quadrant mounting. (See Part I, Section G, paragraph *d*.)
4. Disassemble sight mounting, right and left. (See Part I, Section F, paragraph *d*.)
5. Unscrew oil pipe projecting through trunnion dust guard.
6. Take out six tap bolts securing trunnion dust guard to trunnion bearing and remove dust guard.
7. Withdraw two keys securing trunnion bearing cap to trunnion bearing.
8. Remove trunnion bearing cap from trunnion bearing.
9. Take out six bolts securing elevating rack to rack bracket and remove former.
10. Unscrew two bolts by which rack bracket is clamped to gun.
11. Slide rack bracket toward trunnions sufficient to uncover key. Lift key out of recess in gun.
12. Draw rack bracket off of gun toward breech.
13. With gun properly supported, fold gun transport tie. (See Part I, Section J, paragraph *b*.)
14. Fold down gun support. (See Part I, Section I, paragraph *b*.)
15. Loosen crown nut on adjusting bolt and screw adjusting bolt into lever as far as possible. This will lower gun upon large bearings and leave antifriction mechanism free of any load.
16. Gun may now be lifted free of trunnion bearings.

(e) To Replace Gun in Trunnion Bearings. (Refer to Plates VI and VII.)

Men required, two.

Tools needed:

1 wrench for 0.375 and 0.5 inch nut, U43C.
1 wrench for 0.625 and 0.75 inch nut, U43F.
1 wrench for 1.125 and 1.25 inch nut, U43AU.

To replace gun in trunnion bearings, reverse preceding operations.

Antifriction mechanism must be adjusted as final operation. (See Part I, Section D, paragraph *d*.)

(f) Instructions.

It is of first importance that all bolts and nuts pertaining to trunnion bearings be drawn up tight and kept so.

Small bearing upon which gun is supported should be kept well lubricated with a high grade of hard oil.

SECTION D. ANTIFRICTION MECHANISM.

(a) Description.

For list of parts with their numbers, piece marks, drawing numbers, and material of which they are made, see page 56.

The antifriction mechanism, a unit composed of a trunnion bracket, trunnion bracket pin, crutch, crutch bushing, lever, clutch spool, step, spring retaining bolt adjusting bolt, Belleville spring washers, and various nuts and washers, are located on the trunnion bearings.

The function of the antifriction mechanism is to reduce the effort required in elevating and depressing the gun. This reduction of effort is made possible through the bearing combination of hardened steel on bronze.

(b) To Disassemble Antifriction Mechanism. (Refer to Plates VI and IX.)

Men required, two.

Tools needed:

1 wrench for 0.875 and 1 inch nut, U43G.
1 wrench for 1.375 and 1.5 inch nut, U43AV.
1 pipe wrench, 18-inch.
1 screw driver, U55T.

1. Dismount panoramic sight. (See Part I, Section F, paragraph *b*.)
2. Dismount elevation quadrant. (See Part I, Section G, paragraph *b*.)
3. Dismount connecting link from sight bracket and sight actuating bracket (left side) centering bracket (right side) by withdrawing two connecting link bearing pins.
4. Take out tap bolts securing sight actuating bracket (left side) centering bracket (right side) and remove.
5. Unscrew oil pipe from crutch.
6. Take out tap bolts securing dust guard and remove latter.
7. Loosen crown nut on adjusting bolt and screw latter into lever as far as possible. This will lower gun upon large bearings and leave antifriction mechanism free of any load.
8. Withdraw cotter pin passing through spring retaining bolt and crown nut. The load may now be taken off of Belleville spring washers by removing crown nut.
9. The retaining bolt washer (upper), Belleville spring washers, retaining bolt washer (lower) and retaining bolt may now be severally removed, the while supporting outer end of lever.
10. Lowering outer (adjustable) end of lever slightly will lower crutch and trunnion bracket pin, when the latter may be withdrawn.
11. Raising crutch as high as possible, the while lowering the outer (adjustable) end of lever as far as possible will raise the lower face of lever away from clutch spool, permitting the latter to be lifted out of bearing in step.
12. Remove lever from trunnion bearing.
13. If it is necessary to remove crutch from trunnion bearing, the gun must be removed from trunnion bearing. (See Section C, paragraph *d*.)
14. If step must be removed, partial rotation with continuous upward pressure applied at base may suffice. This failing, the trunnion bearing must be removed from girder (see Part I, Section C, paragraph *b*), when step may be forced out, working from lower face of trunnion bearing.

(c) To Assemble Antifriction Mechanism. (Refer to Plates VI and IX.)

Men required, two.

Tools needed:

1 wrench for 0.875 and 1 inch nut, U43G.
1 wrench for 1.375 and 1.5 inch nut, U43AV.
1 pipe wrench, 18-inch.
1 screw driver, U55T.

To assemble antifriction mechanism, reverse preceding operations, taking care to replace Belleville spring washers, as shown on Plate VI.

Finally adjust antifriction mechanism properly. (See Section D, paragraph *d*.)

(d) To Adjust Antifriction Mechanism. (Refer to Plate VI.)

Men required, one.

Tools needed:

1 wrench for 0.875 and 1 inch nut, U43G.
1 wrench for 1.375 and 1.5 inch nut, U43AV.
1 pliers, 7-inch, U47AQ.

1. Screw crown nut down spring retaining bolt until set of Belleville spring washers has been compressed to prescribed assembled height. (See Plate VI.) Lock crown nut with split pin.

2. Screw adjusting bolt downward, out of lever until bearing surfaces of large trunnion bearings are at all points separated a minimum distance of 0.02 inch as revealed by feeler gauge. Lock adjusting bolt with crown nut.

SECTION E. ELEVATING MECHANISM.

(a) Description. (Refer to Plates VII and VIII.)

For list of parts with their numbers, piece marks, drawing numbers, and material of which they are made, see page 53.

The elevation and depression of the gun is accomplished through a rack and pinion connected through proper reduction gearing and a slip-friction mechanism, to two handwheels, one on either side of structural body.

The mechanism consists essentially of the rack bracket, elevating rack pinion, rear gear case, pinion shaft, slip-friction mechanism, worm gear and worm, longitudinal shaft, front and rear; front gear case, housing longitudinal shaft gear and cross shaft gear; cross shaft and two handwheels.

The gun, through the elevating mechanism, may be made to travel between the limits minus 7 degrees and plus 54 degrees. One revolution of the handwheel moves the gun through 1.37 degrees of arc.

(b) To Disassemble Elevating Mechanism. (Refer to Plates VII and VIII.)

Men required, two.

Tools needed:

1 wrench for 0.375 and 0.5 inch nut, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nut, U43G.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 wrench for 1.625 and 1.75 inch nuts, U43CA.
1 monkey wrench, 21-inch.
1 monkey wrench, 18-inch, U45K.
1 screw driver, U45QB.
1 screw driver, U55T.
1 hammer, machinist, U48F.
1 hammer, copper, U47AG.
1 pliers, 7-inch, U47AQ.

1. Before disassembling elevating mechanism bring the gun to 3.5 degrees elevation and secure it in traveling rest by means of gun transport tie.

2. Withdraw taper pin passing through hub of handwheel and cross shaft and draw handwheel off of cross shaft. Repeat with remaining handwheel.

3. Remove nuts and withdraw bolts holding front gear case cover to front gear case. Draw cover off of cross shaft the while holding front portion of longitudinal shaft in place.

4. Take out bolts holding together the coupling on longitudinal shaft, the while supporting both front and rear sections of longitudinal shaft. The front section may now be removed.

5. If necessary longitudinal shaft gear may be removed from longitudinal shaft (front) after driving out taper pin. If necessary the gear may be driven off with copper or babbitt hammer.

6. Next remove coupling from cross shaft after taking out bolts holding halves together.

7. Draw right and left cross shafts out of their respective bearings.

8. Take out four bolts securing front gear case to girder and remove gear case.

9. Take out four bolts securing cross shaft bearing to girder and remove bearing.

10. Loosen nuts on cover bolts and swing latter up, out of notches in gear case cover. The cover may then be allowed to swing down, thus exposing mechanism in rear gear case.

11. Loosen up set screw securing worm shaft bushing. The latter may now be unscrewed from rear gear case. Draw longitudinal shaft (rear) toward the rear out of rear gear case, permitting worm to fall into oil retainer.

12. Remove crown nut from pinion shaft and unscrew and remove nut holding Belloville spring washers in compression.

13. Adjusting collar, Belleville spring washers, friction washers, and friction discs may be severally removed.

14. Take out two tap bolts securing oil retainer to case. Worm wheel and oil retainer bearing worm may now be drawn out simultaneously.

15. Take out headless set screw from pinion end of pinion shaft. Drive pinion shaft out of pinion and out of bearings in rear gear case by light blows delivered through block of wood or directly with copper or babbitt hammer. When free of pinion, the pinion shaft may be drawn out of rear gear case.

16. Take out six bolts securing elevating rack to rack bracket and remove rack.

17. If necessary the rear gear case may be removed after securing bolts (three tap and three through bolts) are taken out.

18. If necessary to remove rack bracket, unscrew two bolts by which bracket is clamped to gun. The bracket being loosened, slide it forward toward trunnion until key is uncovered. Lift key out of seat and draw bracket off of gun toward rear.

(c) To Assemble Elevating Mechanism. (Refer to Plates VII and VIII.)

Men required, two.

Tools needed:

1 wrench for 0.375 and 0.5 inch nut, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 wrench for 1.625 and 1.75 inch nuts, U43CA.
1 monkey wrench, 18-inch, U45K.
1 monkey wrench, 21-inch.
1 screw driver, U45QB.
1 screw driver, U55T.
1 hammer, copper, U45AG.
1 hammer, machinist, U48F.
1 pliers, 7-inch, U47AQ.

To assemble elevating mechanism, reverse preceding operations taking care to replace Belleville spring washers in proper position as shown on Plate VIII.

(d) To Adjust Slip-Friction Mechanism. (Refer to Plate VIII.)

Men required, one.

Tools needed:

1 wrench for 1.625 and 1.75 inch nut, U43CA.
1 pliers, 7-inch, U47AQ.

To adjust slip-friction mechanism, compress Belleville spring washers by means of large nut on pinion shaft, until assembled height is 1.062 ($1\frac{1}{16}$) inches. The adjusting collar should with this adjustment be firmly clamped against front shoulder of pinion shaft. Lock adjusting nut in this position with crown nut, which latter lock with split pin.

(c) **Instructions.**

Oil retainer must be constantly kept sufficiently filled with a clean high grade of oil that working surfaces of worm may be always covered. All oil holes should be kept clean and preferably stopped with a wooden plug.

All nuts and bolts pertaining to elevating mechanism should be drawn up tight and kept so.

SECTION F. MOUNTS, PANORAMIC SIGHT.

(a) **Description.** (Refer to Plates IX and X.)

The mounting for the panoramic telescope, model of 1917, is of standard design, modified to meet conditions incident to this particular design of mount. The mechanism consists essentially of the following parts, namely—cradle, carrying cross and longitudinal levels; connecting link, sight bracket, sight bracket bearing, sight leveling bracket, sight actuating bracket (left side) centering bracket (right side) and rocker arm. For detailed information concerning panoramic telescope, refer to publication "Panoramic Telescope, 4 and 10 Power, for Railway Mounts."

(b) **To Remove Sight from Mounting.** (Refer to Plates IX and X.)

Men required, one.

Tools needed, none.

Turn ratchet wheel on clamp screw to left until possible to turn no farther. Sight may now be drawn vertically out of ways in cradle.

(c) **To Replace Sight in Mounting.** (Refer to Plates IX and X.)

Men required, one.

Tools needed, none.

Replace telescope in ways on cradle and turn ratchet wheel to right until possible to turn no further. Turning ratchet slightly more will securely clamp telescope in ways preventing all possible motion.

(d) **To Disassemble Mounts, Panoramic Sight.** (Refer to Plates IX and X.)

Men required, one.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 drive punch, U47AF.

1. Remove quadrant. (See Part I, Section G, paragraph *b*.)
2. Remove sight. (See Part I, Section F, paragraph *b*.)
3. Drive out pins securing cross pins on long axis of cross. Draw out cross pin from each end of long axis of cross and carefully lift lower end of cradle out of bearing in rack.
4. Disconnect connecting link from sight bracket and sight actuating bracket (left side) centering bracket (right side), by withdrawing two connecting link bearing pins.
5. Drive out pin securing knob to longitudinal leveling screw and unscrew knob from latter.
6. Unscrew leveling screw from rocker and sight leveling bracket.
7. Take out four tap bolts securing sight leveling bracket to trunnion bearing and remove bracket.
8. Remove split pin securing washer crown nut on inner end of sight bracket and unscrew washer crown nut. Withdraw sight bracket from bearing.
9. Withdraw rocker from sight bracket bearing.
10. Take out tap bolts securing sight actuating bracket (left side) centering bracket (right side) and remove.

11. Drive out taper pin passing through ratchet and clamp screw. Unscrew clamp screw from cradle and remove ratchet. Detent and detent spring may now be withdrawn from cradle.

12. Levels should be removed only at base repair shop.

13. Unscrew washer crown nut from inner end of cross leveling worm shaft.

14. Drive out pin passing through cross leveling worm shaft and cross leveling worm shaft knob and remove latter.

15. Unscrew cross leveling worm shaft from rack and remove former. The rack may now be withdrawn from rocker.

16. Leveling screw bearing pins may be withdrawn from bearings in rocker and sight leveling bracket.

(c) To Assemble Mounts, Panoramic Sights. (Refer to Plates IX and X.)

Men required, one.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 drive punch, U47AF.

To assemble panoramic sight mount, reverse preceding operations.

SECTION G. MOUNTS, QUADRANT.

(a) Description. (Refer to Plate IX.)

The mounting for the elevating quadrant model of 1917 is of standard design modified to meet conditions incident to this particular design of mount. The mechanism consists essentially of the following parts, namely: Rocker, rocker arc support, quadrant body, leveling gear, elevation micrometer, leveling screw, throwout cam, lever, throwout lever rod, elevation disk, outer and inner friction disk, quadrant bracket, cam lever, and various other parts. For detailed information concerning elevation quadrant, refer to publication "Elevation Quadrant, Model of 1917."

(b) To Remove Elevation Quadrant. (Refer to Plate IX.)

Men required, one.

Tools needed, none.

To remove quadrant, swing cover upward and to rear, and draw cam lever toward rear. This will loosen taper stem of quadrant bracket from centering bracket when the quadrant unit may be withdrawn.

(c) To Replace Elevation Quadrant. (Refer to Plate IX.)

Men required, one.

Tools needed, none.

With cover swung up away from stud and holding cam lever slightly inclined to rear of perpendicular, carefully insert taper stem of quadrant bracket into centering plug. After locating stud on centering plug has entered rectangular recess in quadrant bracket, carefully continue motion toward centering plug until quadrant is brought to rest. Now withdraw unit a very short distance, approximately one-eighth inch, and with slight force return unit to seating in centering plug when friction between taper surfaces will hold unit rigidly.

(d) To Disassemble Quadrant Mounting. (Refer to Plate IX.)

Men required, one.

Tools needed:

1 screw driver, U55T.
1 screw driver, U45QB.

1. Remove nut from end of bracket fulcrum and carefully withdraw latter the while supporting quadrant.

2. Withdraw quadrant bracket from centering bracket, first loosening with cam lever.

3. Take out screw holding cam lever on quadrant bracket and remove cam lever.

4. Quadrant should be disassembled only in base repair shop.

(c) To Assemble Quadrant Mounting. (Refer to Plate IX.)

Men required, 1.

Tools needed:

1 screw driver, U55T.

1 screw driver, U45QB.

To assemble quadrant mounting, reverse preceding operations.

SECTION II. SIDE ROLLER BEARINGS.

(a) Description. (Refer to Plates XI and XII.)

For list of parts with their numbers, piece marks, drawing numbers, and material of which they are made, see page 51.

The side roller bearings apart from transmitting a small part of the weight of structural body to trucks provides lateral stability to former. A single roller bearing consists essentially of a roller, roller pin, yoke, Belleville spring washers, yoke nut and adjusting nut with necessary pins, washers, etc., all within a roller-bearing housing. Four complete roller bearings properly located in girders and bearing upon roller path on trucks constitute a unit. Plates XI and XII will make clear the functioning of the mechanism and its relation to structural body and truck.

(b) To Disassemble Side Roller Bearings. (Refer to Plates XI, and XII.)

Men required, three.

Tools needed:

1 wrench for 0.375 and 0.5 inch nut, U43C.

1 wrench for 1.125 and 1.25 inch nut, U43AU.

1 wrench, special, U558C.

1 monkey wrench, 6-inch, U45DA.

1 wrench, pipe, 18-inch.

1 screw driver, U45AN.

1 pliers, 7-inch, U47AQ.

1. Remove truck from under structural body. (See Part II, Section A, paragraph *a*.)

2. Unscrew oil pipe projecting through girder.

3. With the housing supported, take out four through bolts securing it to girder.

4. Carefully remove support and lower housing out of girder. All roller bearing housing may be removed in the same manner.

5. Tip housing over on side and take out set screw of yoke nut. The mechanism may now be drawn out of housing from underside.

6. Unscrew yoke nut from yoke and draw off washer and Belleville spring washers.

7. Take out 0.5-inch pin securing roller pin in yoke. Force roller pin out of yoke and roller. Bushing should be taken out of roller only when replacement is necessary, in which case the small headless set screws should be removed. The bushing may then be forced out.

8. Adjusting nut may be unscrewed from top of suspension bearing housing.

(c) To Assemble Side Roller Bearings. (Refer to Plates XI and XII.)

Men required, three.

Tools needed:

1 wrench for 0.375 and 0.5 inch nut, U43C.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 wrench, special, U558C.
1 monkey wrench, 6-inch, U45DA.
1 pipe wrench, 18-inch.
1 screw driver, U45AN.
1 pliers, 9-inch, U47A2.

To assemble side roller bearings, reverse preceding operation, taking care to replace Belleville spring washers in order shown on Plate XI.

SECTION I. JACKSCREWS AND SLEEPERS.

(a) Description. (Refer to Plate XIII.)

For list of parts with their numbers, piece marks, drawing numbers, and material of which they are made, see page 51.

The function of the jackscrews and sleepers is to take the firing load and provide sufficient friction surface to control recoil.

The jackscrew consists of a lifting nut, lifting screw, anchor pin, pin, screw socket, operating shaft, lifting screw gear, operating shaft bearing, bushing, operating lever, ratchet lever, lever lock and bracket, traveling lock brackets (top and bottom), jackscrew housing, and various pins and washers.

All of the jackscrews, six on either side, are located between the web plates of the girders. Six sleepers each connecting two jackscrews located directly opposite one another provide the necessary friction surface. The sleeper proper consists of a sleeper plate and heavy oak timbers also called sleepers. Plates XIII and XIV will make clear the mechanism of the jackscrews and sleepers and its relation to the mount.

(b) To Disassemble Jackscrews and Sleepers. (Refer to Plate XIII.)

Men required, two.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 wrench for 1.625 and 1.75 inch nuts, U43CA.
1 monkey wrench, 18-inch, U45K.
1 pipe wrench, 18-inch.
1 screw driver, U55T.
1 pliers, 7-inch, U47AQ.
1 spanner wrench.

1. Lower the sleeper upon firing track or temporary support.

2. Take out pin passing through jackscrew socket and anchor pin. Remove same pin on corresponding jackscrew on other side of car. This will disconnect the sleeper from the jackscrew.

3. Elevate lifting nut sufficiently to clear sleeper and draw latter out from under car.

4. Lower lifting nut until it is free of lifting screw. While lowering lifting nut support it with a plank of sufficient strength to carry it when released from lifting screw. Support and carefully lower lifting nut until free of jackscrew housing and remove. Turn nut upside down and allow anchor pin to drop out.

5. Take out three tap bolts holding operating-shaft bearing to girder and carefully withdraw unit.

6. Take out two tap bolts and one countersunk screw holding lever-lock bracket to girder and remove.

7. Remove oil pipe leading to jackscrew housing.

8. Place support under jackscrew housing and remove four through bolts holding it to girders; also remove housing retaining pin. Lower housing carefully and remove from girder.

9. Take out split pin and unscrew crown nut from upper end of lifting screw. Remove washer and draw off lifting-screw gear, tapping lightly with copper hammer or equal if necessary.

10. The two jackscrew bushings should be removed only when replacement is necessary, in which case they may be forced out.

11. Unscrew tap bolt from end of pinion shaft and remove washer. Draw off operating lever and ratchet lever. Lift keys out of operating shaft and draw latter out of operating-shaft bearing. The bushings should be removed only when replacement is necessary, in which case they may be forced out.

12. Take out fillister head screw from back face of ratchet lever and, using a face spanner wrench, unscrew ratchet-wheel bearing. Lift out ratchet wheel.

13. Take split pin out of pawl-pivot pin and press out the latter while holding pawl back against pawl spring. Allow pawl plunger and spring to come slowly forward and draw out pawl. Allow pawl plunger and pawl spring to drop out of lever in order named.

14. Remove split pin from lever-lock pin in lever-lock bracket. Draw out lever-lock pin, the while holding both the lever-lock bracket and the lever lock.

15. Carefully withdraw lever lock and allow lock plunger and lock spring to fall out in the order named.

16. Take out two countersunk head screws holding traveling lock bracket (top) to girder and remove.

17. The sleepers need be disassembled only when replacement is necessary. Take out eight square head bolts, securing jackscrew socket to sleeper plate. Lift jackscrew socket off of sleeper plate.

18. Take out two countersunk head screws holding traveling-lock bracket (bottom) to socket and remove bracket.

19. Repeat above to remove jackscrew socket at other end of sleeper.

20. Take out remaining seven bolts and sleeper plate may be separated from sleepers.

(c) To Assemble Jackscrews and Sleepers. (Refer to Plate XIII.)

Men required, 5.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 wrench for 1.625 and 1.75 inch nuts, U43CA.
1 monkey wrench, 18-inch, U45K.
1 pipe wrench, 18-inch.
1 screw driver, U55T.
1 pliers, 7-inch, U47AQ.

To assemble jackscrews and sleepers, reverse preceding operation.

SECTION J. GUN SUPPORT, GUN REST, AND GUN TRANSPORT TIE.

(Refer to Plates II and XIV.)

(a) Description. (Refer to Plate II.)

For list of parts with their numbers, piece marks, drawing numbers, and material of which they are made, see page 66.

The function of the gun support is to limit the depression of the gun during loading operations to minus 7 degrees. The function of the gun rest is to support the gun during transportation at an angle of plus 3.5 degrees. The two parts are incorporated in one unit consisting of the following parts, namely, structural gun support, gun rest, gun-support bracket, and bracket hinge. A study of Plate II will make clear the relation of the gun rest and gun support to mount as well the function of the parts.

The gun-transport tie while working in conjunction with gun rest is a distinct unit, the major part of which are upper and lower band, upper and lower tie rods, with necessary turnbuckles, eyebolts, toggle pins, etc. In use the gun-transport tie holds gun in contact with gun rest with a view to eliminating all motion of the gun incident to traveling.

(b) To Fold Gun Support and Gun Transport Tie. (Refer to Plate II.)

Men required, one.

Tools required, none.

1. Unscrew turnbuckles until all strain is taken off of tie rods.

2. Withdraw toggle pins, freeing upper ends of tie rods. Swing the latter down upon top cover plate of girders.

3. Swing gun support to rear, down upon top cover plate. Gun is now free to travel between minus 7 degrees and plus 54 degrees.

(c) To Set up Gun Support and Gun Transport Tie. (Refer to Plate II.)

Men required, one.

Tools needed, none.

To set up gun-support and gun-transport tie, reverse preceding operation.

(d) To Disassemble Gun Rest and Gun Support. (Refer to Plate II.)

Men required, two.

Tools needed, none.

The gun rest and gun support can not be disassembled. If replacement is necessary the proper rivets must be driven out.

(e) To Disassemble Gun Transport Tie. (Refer to Plate II.)

Men required, one.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.

1. Take out two through bolts connecting the upper and lower band. Remove upper band.

2. Take out two toggle pins passing through tie-rod lugs and upper tie rods. Remove lower band.

3. Upper and lower tie rod may be unscrewed from turnbuckles if necessary.

4. Eyebolts should be unscrewed from girder only when replacement is necessary. After replacement, threaded end of bolts should be riveted over.

(f) To Assemble Gun Transport Tie. (Refer to Plate II.)

Men required, one.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.

To assemble gun-transport tie, reverse preceding operations.

SECTION K. LOADING RIG.

(a) Description. (Refer to Plates XIV, XVII, XVIII, XIX, XX, XXI, and XXII.)

For list of parts with their numbers, piece marks, drawing numbers, and the material of which they are made, see page 62.

The loading rig is made up of three units—the loading stand, loading cranes, and loading rig extension.

The loading stand of folding design, when not in use, drops into a pit in platform beneath folding doors. With stand set up for use, the trough extension, reaching from trough surface of loading stand into breech of gun, furnishes means for conveying shell and powder charge into gun.

The loading cranes, two in number, located to rear of loading stand, one on each girder, furnish the necessary means of conveying shells or powder bags from either shot truck, to be described later, or from ground on either side of car to loading stand. The loading cranes may further be used to transfer shells from shot truck to the storage racks, to be described later.

The loading rig extension built on rear truck is essentially a set of rails carrying a shot truck. The portion extending beyond the truck is hinged to permit of folding back over truck during transportation and during firing. On either side of track at the end toward structural body is a rack providing storage space for two shells.

The shot truck, a structural steel tray mounted on four wheels, is provided to convey shells and powder bags from ammunition car to gun or storage racks.

A study of Plates XIV, XVII, XVIII, XIX, XX, XXI, and XXII will make clear the details of construction and the relation of the loading rig to the mount.

(b) To Disassemble Loading Stand. (Refer to Plate XVII.)

Men required, three.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 wrench for 1.375 and 1.5 inch nuts, U43AV.
1 screw driver, U55T.
1 screw driver, U45AN.
1 drive punch, U47AF.
1 pliers, 7-inch, U47AQ.

1. Set loading stand up in position preparatory to disassembling.
2. Fold rear standard and trough.
3. Unscrew crown nut from each end of front shaft and withdraw it, the while supporting trough, struts, front standard, and lifting bail.
4. Remove trough and lifting bail.
5. Draw lower or wheel end of front standard to the rear along rails until wheels are free, when the front standard may be lifted out of pit.
6. Unscrew crown nut from end of rear shaft and draw latter out, the while supporting rear standard and struts. Both rear standard and struts may now be lifted out of pit.
7. Unscrew through bolts connecting struts and strut tie.
8. Wheels should be taken off of axle only when replacement is necessary, in which case drive out pins passing through axle and wheels, draw latter off, and withdraw axle from bearings. None of the bearings should be removed from the structural parts unless replacement is necessary, in which case tap bolts may be withdrawn.
9. Front supports should be removed only when replacement is necessary, in which case the six through bolts may be withdrawn.

10. Unscrew six through bolts and two countersunk head screws holding loading stand lock and remove unit.

11. Withdraw release pivot pin and remove release.

12. Drive out lock-pivot pin, the while holding against tension of lock spring and remove lock.

13. Unscrew eyebolt from lock.

14. Unscrew eyebolt from lock bracket.

15. Take out headless set screw, unscrew knob from release plunger, and withdraw latter.

(c) To Assemble Loading Stand. (Refer to Plate XVII.)

Men required, three.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 wrench for 1.375 and 1.5 inch nuts, U43AV.
1 screw driver, U45AN.
1 screw driver, U55T.
1 pliers, 7-inch, U47AQ.
1 drive punch, U47AF.

To assemble loading stand, reverse preceding operations.

(d) To Disassemble Loading Crane. (Refer to Plate XIX.)

Men required, two.

Tools needed:

1 wrench for 0.312 ($\frac{5}{16}$) inch nuts, U82C.
1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 screw driver, U55S.

1. Remove roller chain and crane hook by releasing pawl from ratchet and pulling on chain until it comes free. Hook can be released from chain by removing split pin from nut and unscrewing hook.

2. Remove pin holding tie to side plates and lower tie and boom to top of rear platform.

3. Remove nut and lock washer from idler shaft and pull shaft out, thus releasing the idler sprocket and dismounting tie bars from boom.

4. Unscrew crown nut from mast pin and disconnect boom from mast by removing mast pin.

5. Unscrew nuts from handwheel shaft and remove handwheels.

6. Remove chain box by unbolting the four bolts holding it to the mast.

7. Remove cover by unbolting it from the side plates.

8. Remove the split pin from pawl lever and remove lever from pawl shaft.

9. Pull pawl shaft free and remove pawl after loosening set screw in pawl.

10. Remove all nuts from left side of left side plate and remove plate.

11. Pull handwheel shaft free from right side plate and remove handwheel shaft pinion.

12. Remove upper gear and sprocket wheel from the upper shaft and remove shaft from side plate. Remove countersunk head screw, hold gear on sprocket wheel, and pull gear off of sprocket-wheel hub.

13. Remove intermediate pinion, idler, and intermediate gear from intermediate shaft and remove shaft from side plate. Remove countersunk head screw holding pinion on gear and pull pinion and idler off of gear hub.
14. Remove bolts and right-side plates.
15. Remove mast from mast bearing.
16. Unbolt and remove mast bearing from rear platform.
17. Unbolt and remove bearing bushing from mast bearing.

(e) To Assemble Loading Crane. (Refer to Plate XIX.)

Men required, two.

Tools needed:

1 wrench for 0.312 ($\frac{5}{16}$) inch nuts, U82C.
1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 screw driver, U55S.

To assemble ammunition crane, reverse preceding operations.

(f) To Disassemble Loading Rig Extension. (Refer to Plate XXII.)

Men required, three.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 drive punch for 0.25 pin, U47AF.

1. Withdraw eye pins connecting two tie bars with left folding extension girder. Girders are now free to swing upon hinge.
2. Take out split pin from lower end of each hinge pin and while supporting extension girders separately withdraw respective hinge pins and remove extension girders. Tie bars may be removed from right extension girder by withdrawing the bolts upon which each is hinged.
3. Release shot truck and draw off end of fixed portion of extension girder.
4. Take out eyebolt holding spring of shot-truck lock in tension.
5. Drive out two pins connecting two pedals to shaft.
6. Drive out pin connecting hook with shaft.
7. Draw shaft out of bearing, at the same time drawing pedals and hook off of shaft.
8. Take out three through bolts holding each bearing to extension girder (stationary) and remove bearings.

(g) To Assemble Loading Rig Extension. (Refer to Plate XXII.)

Men required, three.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 drive punch for 0.25-inch pin, U47AF.

To assemble loading rig extension, reverse preceding operations.

(h) To Disassemble Shot Truck. (Refer to Plate XXIII.)

Men required, two.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.

1. Take out two through bolts holding stop plate to axle bracket and remove stop plate.

2. Take nut off of each axle and draw latter out of axle bracket. Draw wheels off of axle.

(l) To Assemble Shot Truck. (Refer to Plate XXIII.)

Men required, two.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.

To assemble shot truck reverse preceding operations.

SECTION L. PLATFORM.

(Refer to Plates XIV, XV, and XVI.)

(a) Description.

For list of parts with their number, piece marks, drawing numbers, and material of which they are made, see page 61.

There are three sets of folding platforms and one auxiliary platform, a set comprising two platforms, one on each side of car. The front folding platform located below the elevating handwheels consist of a fixed portion connected to girder by means of a structural bracket and a hinged portion secured to fixed portion through hinges. During transit the hinged portion is folded over the fixed portion to afford the proper clearance for tunnels, bridges, etc.

The rear folding platforms form a continuation toward the rear of the front folding platform and are of the same general design to permit of folding within clearance limits for transportation.

On the right side of mount and above rear folding platform is a small folding platform differing in design from those previously mentioned and so located as to put the elevation quadrant within easy access of the operator. The whole of the platform is hinged directly to girder and supported in extended position by two swinging brackets.

The remaining set of folding platforms is located at the rear of the car to provide sufficient footing for the use of loading cranes. This platform hinged directly to loading platform is of the same general design as small folding platform of preceding paragraph.

A set of railing stanchions spaced at intervals along the outer edge of front and rear folding platforms as well as along outer edge of loading platform are connected at the upper ends by a light chain. Previous to folding the platforms the railings must be removed.

(b) To Disassemble Folding Platforms, Front and Rear. (Refer to Plate XIV.)

Men required, one.

Tools needed, none.

The various parts of the front and rear folding platforms are, with the exception of the railing stanchions, connected with rivets. The railing stanchions may be lifted out of stanchion sockets for traveling or repair. If the repair or replacement of any part is necessary, the proper rivets must be driven out.

(c) To Disassemble Folding Platforms. (Refer to Plate XIV.)

Men required, two.

Tools needed:

1 wrench for 0.625 and 0.75 inch nut, U43F.

1 pliers, 7-inch, U47AQ.

1. Take out the two hinge pins upon which each platform bracket swings and remove the latter the while supporting the platform.

2. Take out two bolts securing each platform bracket hinge (bottom) to girder and remove hinge.

3. Take out two bolts securing two platform bracket hinges (top) to girder, the while supporting platform and remove platform and hinge.

4. Hinge should be removed from platform only for replacement, in which case the proper rivets must be driven out.

(d) To Assemble Folding Platform. (Refer to Plate XIV.)

Men required, two.

Tools needed:

1 wrench for 0.625 and 0.75 inch nut, U43F.

1 pliers, 7-inch, U47AQ.

To assemble folding platforms, reverse preceding operations.

(e) Disposition of Folding Platforms and Railings for Traveling.

Preparatory to traveling the folding platforms must be folded down and the hinged sections of fixed platforms must be swung in over stationery part, the railings having been previously removed and stored in powder bins.

PART II.

TRUCKS.

SECTION A. GENERAL DESCRIPTION.

(Refer to Plates XXV, XXVI, and XXVII.)

For list of parts, with their numbers and material of which they are made, see page 67.

The mount is provided with two special 12-wheel trucks having 5.5 by 10 inch journals and 36-inch wheels. The truck frames are of structural steel and are supported through an equalizing and spring suspension system on the journals.

The truck is provided with a center plate and roller path, which afford the means of properly supporting structural body.

The front and rear trucks differ in that a translating mechanism is incorporated in the design of the front truck, while two sets of jackscrews with sleepers are built in the rear truck.

Plate XXV and XXVI will make clear the major structural difference in trucks incident to last-mentioned units.

(a) To Remove Truck from Structural Body. (Refer to Plate III.)

Men required, four.

Tools needed:

An overhead crane of 100-ton capacity will be required to raise either end of structural body. A winch or car mover will be required to move truck.

1. Disconnect truck air line from train line at couplings to rear of front truck in front of rear truck.

2. Using overhead crane and sling, raise structural body minimum distance of 3.5 inches, when truck is free to be withdrawn from structural body. Withdraw truck and place supports under girder, using care to put no undue strain on roller bearings.

(b) To Replace Truck Under Structural Body. (Refer to Plate III.)

Men required, four.

Tools needed:

An overhead crane of 100-ton capacity will be required to raise either end of structural body. A winch or car mover will be required to move trucks.

To replace truck under body, reverse preceding operations.

(c) To Disassemble Trucks. (Refer to Plates XXV and XXVI.)

Men required—see references (below).

Tools needed—see references (below).

1. Remove truck from structural body. (See Part II, Section A, paragraph *a*.)
2. Remove coupler and draft gear. (See Part II, Section B, paragraph *b*.)
3. Remove hand brake. (See Part II, Section C, paragraphs *b* and *d*.)
4. Remove air brake. (See Part II, Section C, paragraphs *f* and *g*.)
5. Remove translating mechanism, front truck. (See Part II, Section D, paragraph *b*.)
6. Remove jackscrew mechanism, rear truck. (See Part II, Section E, paragraph *b*.)

7. Remove spring suspension mechanism. (See Part II, Section F, paragraph *b*.)
8. Remove truck body from wheels. (See Part II, Section F, paragraph *d*.)

(d) To Assemble Trucks. (Refer to Plates XXV and XXVI.)

Men required—see reference.
Tools needed—see references.
To assemble truck, reverse preceding operations.

SECTION B. COUPLER AND DRAFT GEAR.

(Refer to Plate XXIX.)

(a) Description.

For list of parts, with their numbers, piece marks, drawing numbers, and material of which they are made, see page 73.

The coupler and draft gear, known as the Gould pivoted engine coupler, differs from the standard only as regards design of housing, the latter having been altered with a view to increasing strength and securing proper attachment.

The coupler and draft gear is made up essentially of the following parts, namely: Housing, yoke, wedge, follower pivot pin, wear plates, wedge plates, cover plates, leaf springs, coupler, and various pins and washers.

Plate XXIX will make clear the interrelation of the various parts.

(b) To Disassemble Coupler and Draft Gear. (Refer to Plate XXIX.)

Men required, three.
Tools needed:

1 wrench for 0.375 and 0.5 inch nut, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.

1. Withdraw pin passing through lower clevis and uncoupling link.
2. Take out three tap bolts securing lever bracket (inner) to draft gear housing, meanwhile supporting lever.
3. Take out four tap bolts securing lever bracket (outer) to end sill. Remove lever and two brackets.
4. Take out two screws securing cover plate F. D. G. 259 and remove latter.
5. While supporting coupler, draw out pivot pin. Remove coupler.
6. Take out screws securing cover plate number F. D. G. 317. Remove cover plates.
7. Take out all leaf springs.
8. Lift out the two wedge plates.
9. Remove wedge.
10. Withdraw follower.
11. Withdraw yoke.
12. Take out two tap bolts securing air-pipe brace to draft-gear housing.
13. Support draft-gear housing and take out bolts securing it to truck. Remove draft-gear housing.

(c) To Assemble Coupler and Draft Gear. (Refer to Plate XXIX.)

Men required, three.
Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.

To assemble coupler and draft gear, reverse preceding operation.

SECTION C. BRAKES.

(Refer to Plate XXX.)

(a) Description.

For list of parts, with their numbers, piece marks, drawing numbers, and material of which they are made, see page 70.

In each truck is installed a brake unit, complete in itself. The air system is composed of the following parts, namely: Centrifugal dirt collector, triple valve, auxiliary reservoir, brake cylinder, pressure-retaining valve, reservoir-release valve, and various cocks, all properly connected with suitable pipes and fittings. A brake hose and coupling at the rear of each truck furnishes the means of quickly disconnecting truck air line from train line.

Only four wheels of each truck, the second set from either end, are employed in the braking system. By a suitable arrangement of levers and brake beams two brake shoes are applied to each wheel surface. The wheel is thus clamped in the application of the brakes.

A hand brake is installed in each truck to work in conjunction with lever system of air brake. The installation differs on the two trucks, the brake shaft in the front truck being vertical and accessible from floor plate of truck while that in the rear truck, being installed in a horizontal position and below the level of the truck floor, is accessible from ground level. The construction of the lever system is such that the brakes may be applied by hand without moving brake piston.

(b) To Disassemble Hand Brake, Rear Truck. (Refer to Plate XXX.)

Men required, three.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 drive punch, U47AF.

1. Take out pin connecting clevis of cylinder and hand-brake connecting chain to cylinder connection.
2. Take out pin connecting clevis of cylinder and hand-brake connecting chain to chain-connection crank.
3. Take out pin connecting brake-shaft links and brake-shaft connecting crank.
4. Remove two brake-shaft nut washers from brake-shaft nut and move two brake-shaft links.
5. Remove nut from end of brake shaft and carefully drive off hand-brake wheel.
6. Withdraw two bolts securing brake-shaft bearing (outside) and remove, the while supporting brake shaft.
7. Draw inner end of brake shaft out of brake-shaft bearing (inside) and unscrew brake-shaft nut from inner end of brake shaft. The latter may now be withdrawn.
8. Withdraw two bolts securing brake-shaft bearing (inside) and remove.
9. Withdraw six bolts securing crank-shaft bearing (bottom) and remove, the while supporting crank shaft.
10. Lower crank shaft out of crank-shaft bearing (top) and remove from truck.
11. If necessary to remove either brake-shaft connection crank or chain connection crank, first withdraw set screw securing crank to shaft. Drive crank off of taper key, lift out latter, when crank may be drawn off of shaft.
12. Withdraw six bolts securing crank-shaft bearing (top) and remove.

(c) To Assemble Hand Brake, Rear Truck. (Refer to Plate XXX.)

Men required, three.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 drive punch, U47AF.

To assemble hand brake, reverse preceding operations.

(d) To Disassemble Hand Brake, Front Truck. (Refer to Plate XXX.)

Men required, three.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 screw driver.
1 machinist's hammer, U48F.
1 drive punch, U47AF.

1. Take out pin connecting clevis of cylinder and hand-brake connecting chain to cylinder connection.

2. Take out pin connecting clevis of cylinder and hand-brake connecting chain to chain connecting crank.

3. Take out pin connecting brake-shaft link and brake-shaft connecting crank.

4. Remove two brake-shaft nut washers from brake-shaft nut and remove two brake-shaft links.

5. Remove nut from upper end of brake shaft and carefully drive off handwheel.

6. Take out six bolts securing brake-shaft braces to floor plate and draw them off of upper end of brake shaft.

7. Brake shaft should not be removed from brake-shaft bearing unless replacement is necessary, in which case brake-shaft key must be driven out. The brake shaft may now be drawn out of brake-shaft bearing and brake-shaft ring.

8. Brake-shaft bearing should be removed only when replacement is necessary, in which case the securing rivets must be driven out.

(e) To Assemble Hand Brake, Front Truck. (Refer to Plate XXX.)

Men required, three.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 0.875 and 1 inch nuts, U43G.
1 screw driver.
1 machinist's hammer, U48F.
1 drive punch, U47AF.

To assemble hand brake, reverse preceding operations.

(f) To Disassemble Air Brake Lever System. (Refer to Plate XXX.)

Men required, four.

Tools needed:

1 machinist's hammer, U48F.
1 pliers, 7-inch, U47AQ.

1. While holding release spring fork against compression of spring withdraw brake pin and release compression on spring slowly.

2. Withdraw brake pin connecting release spring to release spring bracket. Remove release spring.

3. Withdraw brake pin connecting cylinder lever and brake cylinder piston rod.

4. Withdraw brake pin connecting cylinder lever and cylinder connection.

5. Withdraw brake pin connecting cylinder lever and cylinder lever fulcrum. Remove cylinder lever. Cylinder lever fulcrum should be removed only for replacement in which case securing rivets must be driven out.

6. Withdraw brake pin connecting cylinder lever connection and equalizer.

7. Withdraw connection rod support pin connecting cylinder connection and connection rod support. Remove cylinder connection.

8. Withdraw brake pin from each end of equalizing lever and remove latter.

9. Withdraw brake pin connecting brake rod No. 1 and truck live lever. Remove brake rod No. 1.

10. Withdraw pin connecting truck live lever and offset connection No. 1 and allow offset connection to rest upon axle.

11. Withdraw brake pin connecting truck live lever No. 1 and brake beam.

12. Withdraw pin connecting offset connection and truck dead lever No. 1.

13. Withdraw pin connecting truck dead lever No. 1 and brake beams.

14. Withdraw brake pin connecting truck dead lever No. 1 and dead lever fulcrum.

15. Withdraw two brake pins connecting hinged and fixed portion of offset connection. Remove hinged portion.

16. Withdraw brake pin connecting brake rod No. 2 and truck live lever No. 2. Brake rod No. 2 need not be removed from car unless for replacement when it may be pulled out rear of truck.

17. Withdraw brake pin connecting truck live lever No. 2 and offset connections Nos. 3 and 4. Allow offset connection No. 4 to rest upon the axle.

18. Withdraw brake pin connecting truck live lever No. 2 and brake beam.

19. Withdraw pin connecting offset connection No. 4 and truck dead lever No. 2.

20. Withdraw pin connecting truck dead lever No. 2 and brake beam.

21. Withdraw brake pin connecting truck dead lever No. 2 and dead lever fulcrum. Remove dead lever.

22. Withdraw two brake pins connecting hinged and fixed portions of offset connection No. 3. Remove hinged portion.

23. Take out bolts securing brake beam safety hangers and remove latter, four on rear truck, eight on front truck.

24. Support brake beam No. 1 and withdraw brake hanger pins connecting brake hangers (one at each end of brake beam) and brake hanger bracket. Remove brake beam No. 1.

25. Repeat operation with brake beams Nos. 2, 3, and 4.

(g) To Assemble Air Brake Lever System. (Refer to Plate XXX.)

Men required, four.

Tools needed:

1 machinist's hammer, U48F.

1 pliers, 7-inch, U47AQ.

To assemble air brake lever system, reverse preceding operations.

(h) To Take Up Brake Shoe Wear. (Refer to Plate XXX.)

Men required, one.

Tools needed:

1 machinist's hammer, U48F.

1 pliers, 7-inch, U47AQ.

1. Brake shoe clearance should be one-half inch or as near one-half inch as means of adjustment permit.

2. To adjust front set of brakes or set nearest to coupler, withdraw brake pin passing through brake rod No. 1 and truck live lever No. 1.

3. Insert brake pin through proper hole in set such that when fully connected the clearance between brake shoe and wheel tread is as near one-half inch as possible.

4. To adjust rear set of brakes take out brake pin passing through brake rod No. 2 and truck live lever No. 2 and adjust as above outlined.

NOTE.—Adjustment of brakes as above outlined should be carried out with truck under full load.

(i) To Disassemble Air Brake Air System. (Refer to Plates V and XXX.)

Men required, three.

Tools needed:

1 wrench for 0.875 and 1 inch nuts, U43G.
1 monkey wrench, 18-inch, U45K.
1 pipe wrench, 18-inch.

1. Disconnect air pipe leading into brake cylinder at union.
2. Take out six bolts securing brake cylinder and remove latter.
3. The piping system may be divided into several sections by disconnecting unions, when the pipes, elbows, couplings, valves, etc., may be severally unscrewed and removed from truck.

(j) To Assemble Air Brake Air System. (Refer to Plates V and XXX.)

Men required, three.

Tools needed:

1 wrench for 0.875 and 1 inch nuts, U43G.
1 monkey wrench, 18-inch, U45K.
1 pipe wrench, 18-inch.

To assemble air brake air system, reverse preceding operations.

(k) To Disassemble Brake Cylinder. (Refer to Plate XXXII.)

Men required, two.

Tools needed:

1 monkey wrench, 12-inch, U45G.
1 machinist's hammer, U48F.
1 pliers, 7-inch, U45AQ.

1. Unbolt and remove pressure head.
2. Unbolt and remove nonpressure head with piston rod and follower.
3. Withdraw push rod from piston rod and draw piston rod out of bearing in nonpressure head.
4. Unscrew nuts from follower studs and remove follower.
5. Remove packing leather and packing expander.

(l) To Assemble Brake Cylinder. (Refer to Plate XXXII.)

Men required, two.

Tools needed:

1 monkey wrench, 12-inch, U45G.
1 machinist's hammer, U48F.
1 pliers, 7-inch, U47AQ.

To assemble brake cylinder, reverse preceding operations.

(m) To Disassemble Triple Valve. (Refer to Plate XXX and XXXI.)

Men required, one.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 Stillson pipe wrench, 18-inch.
1 monkey wrench, 12-inch, U45G.
1 machinist's hammer, U48F.
1 pliers, 7-inch, U47AQ.

1. Unscrew union nut 17 and remove strainer 16.
2. Unscrew graduating stem nut 20 and remove graduating stem 22.
3. Remove nuts from bolts 24 and take off cylinder cap 19 and cylinder cap gasket 23.
4. Withdraw piston and slide valve from casing.

5. Remove cap screws 25 and take off check valve case 13 and emergency valve seat 9.

6. Remove piston 8.

7. Remove emergency valve 10 and check valve 15.

(n) To Assemble Triple Valve. (Refer to Plates XXX and XXXI.)

Men required, one.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 monkey wrench, 12-inch, U45G.
1 Stillson pipe wrench, 18-inch.
1 machinist's hammer, U48F.
1 pliers, 7-inch, U47AQ.

To assemble triple valve, reverse preceding operations.

(o) To Clean and Oil Triple Valve. (Refer to Plate XXXI.)

Men required, one.

Tools needed (see Section M, paragraph 5):

Oil can.
Waste.
Kerosene oil.

1. Disassemble triple valve. (See Part II, Section C, paragraph *m*.)

2. Clean all parts thoroughly with kerosene oil. Using lubricating oil sparingly, oil triple piston and surface between slide valve and slide valve seat, as well as surface between graduating valve and slide valve.

3. Assemble triple valve. (See Part II, Section C, paragraph *n*.)

(p) To Clean Centrifugal Dirt Collector. (Refer to Plate XXXII.)

Men required, one.

Tools needed:

1 monkey wrench, 12-inch, U45G.

1. Remove plug at bottom of collector until all particles of sand, dirt, and water are blown out.

2. Replace plug.

SECTION D. TRANSLATING MECHANISM.

(Refer to Plate XXV.)

(a) Description.

For list of parts with their numbers, piece marks, drawing numbers, and material of which they are made see page 75.

The translating mechanism, made up of two identical units, is located on the front truck, one unit at each side at center.

Essentially the mechanism is a train of reduction gearing—the reduction, 1 to 117, being sufficient to enable four men to move the mount along track at the rate of about 3 feet per minute.

Provision in the form of a clutch is made for breaking the gear train where the transmission changes from chain and sprocket to spur gears. This feature eliminates unnecessary wear on gears due to the rearward travel during recoil. Nor is it necessary to remove crank during firing.

Plates XXXIII, XXXIV, XXXV, XXXVI, XXXVII will make clear names and interrelation of the various parts.

(b) To Disassemble Translating Mechanism. (Refer to Plate XXXVII.)

Men required, three.

Tools needed:

1 wrench for 0.875 and 1 inch nuts, U43G.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 monkey wrench, 12-inch, U45G.
1 screw driver, U55S.
1 machinist's hammer, U48F.
1 pliers, 7-inch, U47AQ.

1. Remove crank from pinion shaft.

2. Unscrew nut from supporting pin. Lift out back plate. Move support pin to left sufficiently that back plate when rotated 180 degrees will fit properly in recess from which it was taken. Replace nut and tighten. The clutch shifter has now been moved sufficient that lugs are clear of groove in gear No. 1.

3. Remove 12 bolts securing gear case cover to gear case.

4. Carefully withdraw gear case cover.

5. Withdraw center pin for clutch lever screw.

6. Remove nut securing supporting pin for clutch. The pin with clutch shifter may now be withdrawn from gear case cover.

7. Withdraw center pin for clutch lever bracket. Remove supporting pin for clutch.

8. Inner screw for clutch lever may be unscrewed from outer screw for clutch lever.

9. Outer screw for clutch lever need be removed only for replacement, in which case thrust screw must first be unscrewed from gear case cover. Outer screw for clutch lever may now be unscrewed from nut for clutch lever.

10. Remove pin passing through plunger cap and plunger. Unscrew plunger cap from plunger. Plunger and spring may now be withdrawn.

11. Withdraw gear No. 1 from shaft.

12. Open driving chain No. 1 at removable link and remove chain.

13. Withdraw sprocket No. 1 from shaft.

14. Remove nut and washer from outer end of intermediate shaft and withdraw sprocket wheel No. 2.

15. Remove 18 bolts securing gear case to gear case bracket. Carefully remove gear case and filler plates, if the latter are used.

16. Remove nut and washer from inside end of pinion shaft No. 1 and withdraw latter from bearing.

17. Remove nut and washer from inside end of pinion shaft No. 2 and withdraw latter from bearing. Pinion No. 2 and gear No. 2 need be removed from pinion shaft No. 2 only when replacement is necessary, in which case they may be driven off with copper hammer or equivalent if necessary.

18. Remove nut and washer from inside end of pinion shaft No. 3 and withdraw latter from bearing.

19. Unscrew nut from outer end of tie rod. Remove bolts securing gear case bracket to truck. Remove gear case bracket.

20. Open driving chain No. 2 at removable link and remove chain from truck.

21. Draw intermediate shaft out of bearings toward inside of truck.

The mechanism need not be further disassembled except for replacement, in which case proceed as follows:

22. Remove 15 bolts securing intermediate shaft bracket to truck. Remove bracket.

23. Remove tie rod.

24. Take out bolts securing bearings No. 1 and No. 2 for intermediate shaft.

25. Take out four bolts holding halves of driving sprocket together and remove latter from axle.

(c) To Assemble Translating Mechanism. (Refer to Plate XXXVII.)

Men required, four.

Tools needed:

1 wrench for 0.875 and 1 inch nut, U43G.
1 wrench for 1.125 and 1.25 inch nut, U43AU.
1 monkey wrench, 12-inch, U45G.
1 screw driver, U55S.
1 machinist's hammer, U48F.
1 pliers, 7-inch, U47AQ.

To assemble translating mechanism, reverse preceding operations.

(d) Instructions.

All nuts should be kept securely drawn up.

Clutch should be in disengaged position at all times when translating mechanism is not in use. Preparatory to traveling, the roller chain passing from sprocket of translating mechanism to sprocket on truck axle must be removed.

SECTION E. TRUCK JACKSCREW.

(Refer to Plate XXXVIII.)

(a) Description.

For list of parts, with their numbers, piece marks, drawing numbers, and material of which they are made, see page 77.

The truck jackscrew unit is composed of two jackscrews connected by a sleeper running parallel with longitudinal axis of truck. Two of these units are incorporated in the rear truck, one unit on either side.

The jackscrew proper, a unit in itself, consists of the following parts, namely: Jackscrew housing, jackscrew leg, jackscrew operating support, jackscrew operating lever, jackscrew operating shaft, bevel gear, bevel pinion, and various bushings, washers, plates, etc.

Plate XXXVIII will make clear the interrelation and functions of the various parts.

(b) To Disassemble Truck Jackscrews. (Refer to Plate XXXVIII.)

Men required, three.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 monkey wrench, 6-inch, U45DA.
1 screw driver.
1 pliers, 7-inch, U47AQ.
1 machinist's hammer, U48F.

1. With sleeper supported in raised position withdraw two cover plate pins connecting sleeper with two jackscrew legs. Remove sleeper from truck.

2. Support jackscrew leg and lower it until free from jackscrew. Bushing for jackscrew need be removed only when replacement is necessary, in which case withdraw two machine screws, when bushing may be drawn out.

3. Remove nut from upper end of jackscrew and lower out of bearing, at the same time removing bevel gear and collar bearing.

4. Remove bolt and washer from inner end of operating lever shaft. Draw off bevel pinion.

5. Remove cap nut from outer end of operating lever shaft and draw off jackscrew operating lever.

6. Draw operating lever shaft out of jackscrew operating support.

7. Remove four bolts securing jackscrew operating support and withdraw latter from truck. Bevel gear adjusting plate need be removed only when replacement is necessary, in which case the four bolts securing it to truck should be removed.

8. Remove bolt securing oil cup bracket to truck floor plate.

9. Remove bolts securing jackscrew housing to truck, the while supporting housing. Carefully lower housing out of truck.

10. Support bushing for jackscrew need not be removed from jackscrew housing unless replacement is necessary, in which case remove bolt securing bushing, when the latter may be drawn out.

(c) To Assemble Truck Jackscrew. (Refer to Plate XXXVIII.)

Men required, five.

Tools needed:

1 wrench for 0.375 and 0.5 inch nuts, U43C.
1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 monkey wrench, 6-inch, U45DA.
1 screw driver.
1 pliers, 7-inch, U47AQ.
1 machinist's hammer, U48F.

To assemble truck jackscrew, reverse preceding operations.

(d) Instructions.

When lowering sleepers, the two cranks on same side must be operated in unison at the call of the sergeant in charge. Sleepers must be raised in same manner. Sleepers should not be raised high enough to interfere with brake beams.

SECTION F. SPRING SUSPENSION MECHANISM.

(Refer to Plate XXXIX.)

(a) Description.

For list of parts with their numbers, piece marks, drawing numbers, and material of which they are made, see page 72.

The load on truck is transmitted to journals through an equalized spring suspension system, each unit of which is composed of the following parts, namely: Bearing spring, spring-hanger cap, spring hanger, and spring-hanger connection. Equalizer levers to which the spring-hanger connections are attached equalize the load on journals.

(b) To Disassemble Suspension Mechanism. (Refer to Plate XXXIX.)

Men required, two.

Tools needed:

1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 wrench for 1.375 and 1.5 inch nuts, U43AV.
1 machinist's hammer, U48F.
1 pliers, 7-inch, U47AQ.

1. Using jackscrews, raise truck sufficiently that all load is taken off of bearing spring.

2. Unscrew both nuts from lower end of spring hanger connection on each side of journal box.

3. Withdraw bolts securing spring hangers to spring-hanger connections and allow latter to drop down upon equalizer.

4. Lift spring hangers out of bearing spring.

5. Lift spring-hanger cap out of bearing spring.

6. Lift bearing spring and spring-seat filler plate out of bearing in journal box.

7. Draw spring-hanger connection upward out of equalizer.

8. Withdraw equalizer pin and remove equalizer.

9. Repeat for all suspension units.

(c) **To Assemble Suspension Mechanism.** (Refer to Plate XXXIX.)

Men required, two.

Tools needed:

1 wrench for 1.125 and 1.25 inch nuts, U43AU.
1 wrench for 1.375 and 1.5 inch nuts, U43AV.
1 machinist's hammer, U48F.
1 pliers, 7-inch, U47AQ.

To assemble suspension mechanism, reverse preceding operations.

(d) **To Remove Truck Body from Wheels.** (Refer to Plate XXXIX.)

Men required, fifteen.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 machinist's hammer, U48F.

1. Remove truck from structural body. (See Part II, Section A, paragraph *a*.)
2. Remove hand-brake. (See Part II, Section C, paragraphs *b* and *d*.)
3. Remove air brake. (See Part II, Section C, paragraphs *f* and *g*.)
4. Remove translating mechanism, front truck. (See Part II, Section D, paragraph *b*.)
5. Remove jackscrew mechanism, rear truck. (See Part II, Section E, paragraph *b*.)
6. Support truck body with jacks or blocking. Remove bolts securing each pedestal tie bar and pedestals. Withdraw all pedestal tie bars from pedestals.
7. Using a sling and crane, truck body may now be carefully raised, permitting journal boxes to slide free of pedestals. Journal boxes should be supported in normal position while free of truck body.

(e) **To Replace Truck Body on Wheels.** (Refer to Plate XXXIX.)

Men required, fifteen.

Tools needed:

1 wrench for 0.625 and 0.75 inch nuts, U43F.
1 machinist's hammer, U48F.

To replace truck body on wheels, reverse preceding operations.

(f) **To Disassemble Journal Box.** (Refer to Plate XXXIX.)

Men required, two.

Tools needed:

1 machinist's hammer, U48F.
1 pliers, 7-inch, U47AQ.

1. Withdraw hinge pin passing through hinge bearings of journal box and lid. Remove the latter.
2. Lift journal box as high as possible and draw journal bearing wedge out through open-end of journal box.
3. Lift journal bearing off of journal and draw out through open end of journal box.
4. Draw journal box off of journal, using care to do no damage to dust guard.
5. Lift dust guard out of recess at rear of journal box.

(g) **To Assemble Journal Box.** (Refer to Plate XXXIX.)

Men required, two.

Tools needed:

1 machinist's hammer, U48F.

To assemble journal box, reverse preceding operations.

PART III.

CAMOUFLAGE.

(a) DESCRIPTION.

The gun carriage and the railway car on which they are mounted may be camouflage painted, using the "Dual Scientific Complementary Camouflage System." This design is shown in black and white with key to the colors on Plate No. XL.

The object of this dual method of camouflage painting is, first, to protect against the enemy detection, either by observation or by photograph at high altitudes.

This is accomplished by the interweaving of groups of complementary colors separated by atmospheric colors. The forms and the colors are so arranged that the complementary colors blend at a given altitude, giving a tone similar to the atmospheric color. The blending of these complementary colors at high altitude, therefore, produces the effect of a nonrecording grayish tone over the entire object so painted, producing no record of form, either upon the eye or the photographic plate.

The second feature of this dual system is the concealment of the object, so camouflaged, from enemy observation at low altitude close range. In order to accomplish this result the pigments are selected and arranged so as to compel the eye to see the forms which are painted to resemble foliage, and the forms that are painted to resemble foliage shadow, and to fail to see the portions painted with the strong contrasting atmospheric colors.

A low altitude close range view or photograph of the object camouflage painted in this system produces the effect either on the eye or the camera of disrupting the object so painted. The observer appears to see several groups of foliage and shadow separated by atmospheric spaces.

All the camouflage paints used in this system should be chemically prepared to resist all ray-filters.

In order to achieve the two separate and distinct results aimed at in this system it is necessary to adhere closely to both the area and shapes of the color patches, as well as to the proper juxtaposition of colors.

In order to properly conceal the shadow silhouette of this railway mount, as cast upon the ground at certain times, as well as the shadows of the prominent parts of the mount which emphasize the structural features, it is necessary to cover the entire mount with a semitransparent tent-formed camouflage canopy. The canopy for each class of gun is especially designed to match with the camouflage design upon the mount itself. The camouflage canopy is further required to conceal the ammunition car and the housing car for the gun crew.

It has been found essential to so arrange the camouflage canopies over the large railway mounts that the gun crew may perform all of their duties without getting from under the tent canopy. With this arrangement all footpaths are eliminated.

The track camouflage used with this design is so arranged that all movements of cars or individuals to and from the canopy are restricted to the camouflaged railway track. This track camouflage is arranged so that it may be readily rolled to one side and replaced in its original form.

(b) PAINTS.

The paints to be used are the United States Government camouflage paints prepared for the Dual Scientific Complementary Camouflage System. These paints are as follows:

	Parts.		Parts.
Brown No. 4011	10	Mauve No. 4016	2
Yellow No. 4012	3	Old rose No. 4017	5
Cream No. 4013	5	Black No. 4015	1
Green No. 4014	10		

The above paint numbers referred to are especially chemically prepared paints, manufactured and put up by the Detroit Graphite Co. in accordance with Government requirements and specifications for this dual system of camouflage painting.

All paints used for this dual system are to be the kind above specified or of equal quality, chemically prepared to resist the action of ray-filters.

The parts referred to indicate the relative proportions of area to be occupied by each color in the camouflage design.

These camouflage paints are prepared to be applied over a finished coat of olive gray or similar low tone.

Each color, for convenience, should be furnished for use in 1-gallon "friction top" cans with handle. Paints should be furnished in the cans mixed ready for use. When paint becomes too thick, and it is necessary to thin, linseed oil and turpentine should be used for that purpose, care being taken not to use too much turpentine. All of the colors used are furnished with dead finish.

(c) TO APPLY THE PAINT.

To apply the paint the surface should be free of all sand, cinders, dirt, and oil. Paint formerly applied, and adhering firmly to the surface, need not be removed. The sections to which the different colors are to be applied are then laid off in accordance with the design shown on Plate XL.

After the mount has been properly marked off into the different sections the colors should be carefully applied, great care being taken to insure an even smooth coat. After the different colors have been applied the lines where the colors meet should be covered with a black border about 1½ inches wide. Precaution should be taken to see that the paint is dry and hard before permitting anyone to walk on the painted surface.

(d) TO REMOVE PAINT.

The paint may be removed by using turpentine or by the use of a paint torch if care is taken not to injure the metal surface with the flame.

PART IV.

SLIDING RAILWAY MOUNT, MODEL OF 1919, FOR 10-INCH GUN.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					SIDE GIRDER.		
1	8AA-	10	28	8	Web plate, outer, front, right	Steel	72.784 by 0.687 ($\frac{11}{16}$) by 248.5.
1	8BA-	10	28	8	Web plate, outer, front, left	do	Do.
1	10CA	10	28	10	Web plate, inner, front, right	do	72.784 by 0.687 ($\frac{11}{16}$) by 244.562 ($244\frac{9}{16}$).
1	10DA	10	28	10	Web plate, inner, front, left	do	Do.
1	7EA	10	28	7	Web plate, outer, middle, right	do	118 by 0.687 ($\frac{11}{16}$) by 332.948.
1	7FA	10	28	7	Web plate, outer, middle, left	do	Do.
1	9GA	10	28	9	Web plate, inner, middle, right	do	Do.
1	9HA	10	28	9	Web plate, inner, middle, left	do	Do.
1	7KA	10	28	7	Web plate, outer, rear, right	do	41.905 by 0.687 ($\frac{11}{16}$) by 146.802.
1	7LA	10	28	7	Web plate, outer, rear, left	do	Do.
1	9MA	10	28	9	Web plate, inner, rear, right	do	41.905 by 0.687 ($\frac{11}{16}$) by 142.864.
1	9NA	10	28	9	Web plate, inner, rear, left	do	Do.
1	7PA	10	28	7	Reinforcing plate, outer, middle, right	do	118 by 0.687 ($\frac{11}{16}$) by 337.5.
1	7QA-	10	28	7	Reinforcing plate, outer, middle, left	do	Do.
1	9RA	10	28	9	Reinforcing plate, inner, middle, right	do	Do.
1	9SA	10	28	9	Reinforcing plate, inner, middle, left	do	Do.
1	7TA	10	28	7	Reinforcing plate, outer, rear, right	do	45.884 by 0.687 ($\frac{11}{16}$) by 71.25.
1	7UA	10	28	7	Reinforcing plate, outer, rear, left	do	Do.
1	9XA	10	28	9	Reinforcing plate, inner, rear, right	do	Do.
1	9ZA	10	28	9	Reinforcing plate, inner, rear, left	do	Do.
4	7AB	10	28	7	Splice plates, front, vertical	do	23.5 by 0.687 ($\frac{11}{16}$) by 67.585.
4	7BB	10	28	7	Splice plates, rear, vertical	do	21.75 by 0.687 ($\frac{11}{16}$) by 38.37.
4	7CB	10	28	7	do	do	21.75 by 0.687 ($\frac{11}{16}$) by 37.62.
2	8DB	10	28	8	Chord angles, top, front, right	do	6 by 8 by 0.812 ($\frac{13}{16}$) by 238.35, approximately.
2	8EB	10	28	8	Chord angles, top, front, left	do	Do.
2	7FB	10	28	7	Chord angles, top, middle, right	do	6 by 8 by 0.812 ($\frac{13}{16}$) by 163.928, approximately.
2	7GB-	10	28	7	Chord angles, top, middle, left	do	Do.
2	7HB	10	28	7	Chord angles, top, rear, right	do	6 by 8 by 0.812 ($\frac{13}{16}$) by 369.063, approximately.
2	7KB	10	28	7	Chord angles, top, rear, left	do	Do.
1	8LB	10	28	8	Chord angle, bottom, outer, front, right	do	6 by 8 by 0.812 ($\frac{13}{16}$) by 227.576, approximately.
1	8MB	10	28	8	Chord angle, bottom, outer, front, left	do	Do.
1	7NP	10	28	7	Chord angle, bottom, inner, front, right	do	6 by 8 by 0.812 ($\frac{13}{16}$) by 223.639, approximately.
1	7PB	10	28	7	Chord angle, bottom, inner, front, left	do	Do.
1	7QB	10	28	7	Chord angle, bottom, outer, rear, right	do	6 by 8 by 0.812 ($\frac{13}{16}$) by 514.727, approximately.
1	7RB	10	28	7	Chord angle, bottom, outer, rear, left	do	Do.
1	7SB	10	28	7	Chord angle, bottom, inner, rear, right	do	6 by 8 by 0.812 ($\frac{13}{16}$) by 510.79, approximately.
1	7TB	10	28	7	Chord angle, bottom, inner, rear, left	do	Do.

2	10UB	10	28	10	Connection angles, right	do	3.5 by 3.5 by 0.375 by 25.25.
2	10XB	10	28	10	Connection angles, left	do	Do.
2	10ZB	10	28	10	Connection angles, right	do	Do.
2	10AC	10	28	10	Connection angles, left	do	Do.
1	9BC	10	28	9	Top cover plate rear connecting angle, right	do	3.5 by 6 by 0.625 by 99.
1	9CC	10	28	9	Top cover plate rear connecting angle, left	do	Do.
1	9DC	10	28	9	Top cover plate rear connecting angle, right	do	3.5 by 4.5 by 0.5 by 21.75.
1	9EC	10	28	9	Top cover plate rear connecting angle, left	do	Do.
1	9FC	10	28	9	Top cover plate rear connecting angle, right	do	3.5 by 6 by 0.625 by 91.5.
1	9GC	10	28	9	Top cover plate rear connecting angle, left	do	Do.
2	7HC	10	28	7	Filler plates	do	2 by 0.687 ($1\frac{1}{16}$) by 8.
					TRANSOMS NOS. 1 AND 22.		
2	13N	10	28	13	Plates	Steel	33.5 by 0.437 ($\frac{7}{16}$) by 85.062 ($85\frac{1}{16}$).
2	13Q	10	28	13	Angles	do	3.5 by 3.5 by 0.375 by 85.
4	13R	10	28	13	do	do	3.5 by 3.5 by 0.375 by 41.
2	13S	10	28	13	Angles, right	do	3.5 by 3.5 by 0.375 by 32.25.
2	13T	10	28	13	Angles, left	do	Do.
2	13U	10	28	13	Angles, right	do	3.5 by 3.5 by 0.375 by 25.25.
2	13W	10	28	13	Angles, left	do	Do.
2	13X	10	28	13	Angles, right	do	4 by 3.5 by 0.375 by 21.
2	13Z	10	28	13	Angles, left	do	Do.
					TRANSOMS NOS. 2 AND 21.		
2	13G	10	28	13	Plates	Steel	32.687 ($32\frac{11}{16}$) by 0.437 ($\frac{7}{16}$) by 53.812 ($53\frac{13}{16}$).
4	13H	10	28	13	Angles	do	3.5 by 3.5 by 0.375 by 46.
4	13K	10	28	13	do	do	3.5 by 3.5 by 0.375 by 40.
4	13L	10	28	13	Angles, right	do	3.5 by 3.5 by 0.375 by 24.5.
4	13M	10	28	13	Angles, left	do	Do.
					TRANSOM NO. 3.		
1	13A	10	28	13	Plate	Steel	37.812 ($37\frac{13}{16}$) by 0.437 ($\frac{7}{16}$) by 53.812 ($53\frac{13}{16}$).
1	13B	10	28	13	Angle, right	do	3.5 by 3.5 by 0.375 by 46.
1	13C	10	28	13	Angle, left	do	Do.
2	13D	10	28	13	Angles	do	3.5 by 3.5 by 0.375 by 40.
2	13E	10	28	13	Angles, right	do	3.5 by 3.5 by 0.375 by 29.
2	13F	10	28	13	Angles, left	do	Do.
					TRANSOM NO. 4.		
1	14F	10	28	14	Plate	Steel	44.75 by 0.437 ($\frac{7}{16}$) by 53.812 ($53\frac{13}{16}$).
1	13B	10	28	13	Angle, right	do	3.5 by 3.5 by 0.375 by 46.
1	13C	10	28	13	Angle, left	do	Do.
2	13D	10	28	13	Angles	do	3.5 by 3.5 by 0.375 by 40.
2	14K	10	28	14	Angles, right	do	3.5 by 3.5 by 0.375 by 35.75.
2	14L	10	28	14	Angles, left	do	Do.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					SIDE GIRDER—Continued.		
					TRANSOM NO. 5.		
1	14A	10	2S	14	Plate	Steel	53.S12 (53$\frac{1}{2}$) by 0.437 ($\frac{7}{16}$) by 57.187 (57$\frac{3}{16}$).
2	14B	10	2S	14	Angles, right	do	3.5 by 3.5 by 0.375 by 47.
2	14C	10	2S	14	Angles, left	do	Do.
1	13B	10	2S	13	Angle, right	do	3.5 by 3.5 by 0.375 by 46.
1	13C	10	2S	13	Angle, left	do	Do.
1	14D	10	2S	14	Angle, right	do	3.5 by 3.5 by 0.375 by 40.
1	14E	10	2S	14	Angle, left	do	Do.
					TRANSOM NO. 6.		
1	15F	10	2S	15	Plate	Steel	72.75 by 0.437 ($\frac{7}{16}$) by 52.437 (52$\frac{7}{16}$).
2	15G	10	2S	15	Angles, right	do	3.5 by 3.5 by 0.375 by 62.5.
2	15H	10	2S	15	Angles, left	do	Do.
1	15K	10	2S	15	Angle, right	do	3.5 by 3.5 by 0.375 by 45.
1	15L	10	2S	15	Angle, left	do	Do.
1	14D	10	2S	14	Angle, right	do	3.5 by 3.5 by 0. 375 by 40.
1	14E	10	2S	14	Angle, left	do	Do.
					TRANSOM NO. 7.		
1	15A	10	2S	15	Plate	Steel	S6 by 0.5 by 53.S12 (53$\frac{1}{2}$).
1	15B	10	2S	15	Angle, right	do	4 by 4 by 0.625 by 77.
1	15C	10	2S	15	Angle, left	do	Do.
1	15D	10	2S	15	Angle	do	4 by 4 by 0.625 by 45.
1	15E	10	2S	15	do	do	4 by 4 by 0.625 by 40.
					TRANSOM NO. 8.		
1	16M	10	2S	16	Plate	Steel	S6 by 0.5 by 53.S12 (53$\frac{1}{2}$).
1	16N	10	2S	16	Angle, right	do	4 by 4 by 0.625 by 77.
1	16P	10	2S	16	Angle, left	do	Do.
1	15D	10	2S	15	Angle	do	4 by 4 by 0.625 by 45.
1	15E	10	2S	15	do	do	4 by 4 by 0.625 by 40.
					TRANSOMS NOS. 9 AND 10.		
1	16A	10	2S	16	Plate	Steel	35.375 by 0.5 by 53.S12 (53$\frac{1}{2}$).
1	16B	10	2S	16	do	do	30.S75 by 0.5 by 53.S12 (53$\frac{1}{2}$).
1	16C	10	2S	16	do	do	1S by 0.5 by 53.S12 (53$\frac{1}{2}$).
1	16D	10	2S	16	Angle	do	4 by 4 by 0.625 by S9.75, approximately.

1	16E	10	28	16	do	do	4 by 4 by 0.625 by 53.25.
2	15E	10	28	15	Angles	do	4 by 4 by 0.625 by 40.
1	16G	10	28	16	Angle, right	do	4 by 4 by 0.625 by 26.625.
1	16H	10	28	16	Angle, left	do	Do.
1	16K	10	28	16	Angle, right	do	4 by 4 by 0.625 by 17.25.
1	16L	10	28	16	Angle, left	do	Do.
					TRANSOMS NOS. 14 AND 15.		
1	17A	10	28	17	Plate	Steel	30.75 by 0.5 by 53.812 ($53\frac{13}{16}$).
1	17B	10	28	17	do	do	23.5 by 0.5 by 53.812 ($53\frac{13}{16}$).
1	17C	10	28	17	do	do	18 by 0.5 by 53.812 ($53\frac{13}{16}$).
1	17D	10	28	17	Angle	do	4 by 4 by 0.625 by 90.75, approximately.
1	17E	10	28	17	do	do	4 by 4 by 0.625 by 46.
1	17F	10	28	17	do	do	4 by 4 by 0.625 by 45.25.
1	15E	10	28	15	do	do	4 by 4 by 0.625 by 40.
1	17H	10	28	17	Angle, right	do	4 by 4 by 0.625 by 26.25.
1	17K	10	28	17	Angle, left	do	Do.
1	17L	10	28	17	Angle, right	do	4 by 4 by 0.625 by 24.5.
1	17M	10	28	17	Angle, left	do	Do.
1	17N	10	28	17	Angle, right	do	4 by 4 by 0.625 by 13.75.
1	17P	10	28	17	Angle, left	do	Do.
2	17Q	10	28	17	Angle	do	6 by 4 by 0.375 by 10.
					TRANSOM NO. 16.		
1	17R	10	28	17	Plate	Steel	47.75 by 0.5 by 53.812 ($53\frac{13}{16}$).
1	17S	10	28	17	Angle, right	do	4 by 4 by 0.625 by 39.25.
1	17T	10	28	17	Angle, left	do	Do.
1	15E	10	28	15	Angle	do	4 by 4 by 0.625 by 40.
1	17W	10	28	17	do	do	3.5 by 3.5 by 0.375 by 58.716, approximately.
					TRANSOM NO. 17.		
1	18F	10	28	18	Plate	Steel	53.812 ($53\frac{13}{16}$) by 0.5 by 54.75.
1	17E	10	28	17	Angle	do	4 by 4 by 0.625 by 46.
1	15E	10	28	15	do	do	4 by 4 by 0.625 by 40.
1	18K	10	28	18	Angle, right	do	4 by 4 by 0.625 by 39.
1	18L	10	28	18	Angle, left	do	Do.
					TRANSOM NO. 18.		
1	18A	10	28	18	Plate	Steel	53.812 ($53\frac{13}{16}$) by 0.5 by 54.75.
1	17E	10	28	17	Angle	do	4 by 4 by 0.625 by 46.
1	18C	10	28	18	do	do	4 by 4 by 0.625 by 40.
1	18D	10	28	18	Angle, right	do	4 by 4 by 0.625 by 39.
1	18E	10	28	18	Angle, left	do	Do.
					TRANSOM NO. 19.		
1	19F	10	28	19	Plate	Steel	32.875 by 0.437 ($\frac{7}{16}$) by 53.812 ($53\frac{13}{16}$).
2	19B	10	28	19	Angles	do	3.5 by 3.5 by 0.375 by 46.
2	13D	10	28	13	do	do	3.5 by 3.5 by 0.375 by 40.
2	19K	10	28	19	Angles, right	do	3.5 by 3.5 by 0.375 by 17.75.
2	19L	10	28	19	Angles, left	do	Do.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					SIDE GIRDER—Continued.		
					TRANSOM NO. 20.		
1	19A	10	28	19	Plate	Steel	33.5 by 0.437 ($\frac{7}{16}$) by 53.812 ($53\frac{13}{16}$).
2	19B	10	28	19	Angles	do	3.5 by 3.5 by 0.375 by 46.
2	13D	10	28	13	do	do	3.5 by 3.5 by 0.375 by 40.
2	19D	10	28	19	Angles, left	do	3.5 by 3.5 by 0.375 by 17.75.
2	19E	10	28	19	Angles, right	do	Do.
					CENTER PLATE TRANSOM, FRONT AND REAR.		
2	20A	10	28	20	Plates	Steel	31.437 ($31\frac{7}{16}$) by 0.625 by 38.8437.
2	20B	10	28	20	Filler plates	do	7.625 by 0.625 by 31.
4	20C	10	28	20	do	do	7.625 by 0.625 by 11.75.
2	20D	10	28	20	do	do	7.625 by 0.375 by 29.187 ($29\frac{3}{16}$).
2	20E	10	28	20	do	do	7.625 by 0.375 by 25.625.
4	20F	10	28	20	Angles	do	4 by 4 by 0.5 by 47.562 ($47\frac{9}{16}$), approximately.
4	20G	10	28	20	do	do	4 by 4 by 0.5 by 31.
2	20H	10	28	20	Angles, right	do	3.5 by 3.5 by 0.375 by 32.312 ($32\frac{5}{16}$).
2	20K	10	28	20	Angles, left	do	Do.
2	20L	10	28	20	Angles, right	do	3.5 by 3.5 by 0.375 by 31.937 ($31\frac{15}{16}$).
2	20M	10	28	20	Angles, left	do	Do.
					DIAPHRAGM NO. 3.		
2	22P	10	28	22	Plates	Steel	14.937 ($14\frac{15}{16}$) by 0.437 ($\frac{7}{16}$) by 29.5.
4	22Q	10	28	22	Angles, right	do	3.5 by 3.5 by 0.375 by 29.5.
4	22R	10	28	22	Angles, left	do	Do.
4	22N	10	28	22	Angles	do	6 by 4 by 0.5 by 7.5.
					DIAPHRAGM NO. 4.		
2	22K	10	28	22	Plates	Steel	14.937 ($14\frac{15}{16}$) by 0.437 ($\frac{7}{16}$) by 36.5.
4	22L	10	28	22	Angles, right	do	3.5 by 3.5 by 0.375 by 36.5.
4	22M	10	28	22	do	do	Do.
4	22N	10	28	22	Angles	do	6 by 4 by 0.5 by 7.5.
					DIAPHRAGM NO. 5.		
2	22E	10	28	22	Plates	Steel	14.937 ($14\frac{15}{16}$) by 0.437 ($\frac{7}{16}$) by 49.25.
4	22F	10	28	22	Angles, right	do	3.5 by 3.5 by 0.375 by 49.25.
4	22G	10	28	22	Angles, left	do	Do.
2	22H	10	28	22	Angles, right	do	6 by 4 by 0.5 by 7.5.
2	22S	10	28	22	Angles, left	do	Do.

					DIAPHRAGM NO. 6.		
2	22A	10	28	22	Plates	Steel	13.562 ($13\frac{9}{16}$) by 0.437 ($\frac{7}{16}$) by 64.5.
4	22B	10	28	22	Angles, right	do	3.5 by 3.5 by 0.375 by 64.5.
4	22C	10	28	22	Angles, left	do	Do.
4	22D	10	28	22	Angles	do	6 by 4 by 0.5 by 6.
					DIAPHRAGMS NOS. 7, 8, 9, AND 10.		
8	23P	10	28	23	Plate	Steel	13.562 ($13\frac{9}{16}$) by 0.5 by 77.75.
8	23Q	10	28	23	Angles, right	do	4 by 4 by 0.625 by 77.75.
8	23R	10	28	23	Angles, left	do	Do.
8	23D	10	28	23	Angles	do	6 by 4 by 0.5 by 5.312 ($5\frac{5}{16}$).
					DIAPHRAGM NO. 11.		
2	23K	10	28	23	Plates	Steel	13.562 ($13\frac{9}{16}$) by 0.5 by 107.5.
2	23L	10	28	23	Angles, right	do	4 by 4 by 0.625 by 107.5.
2	23M	10	28	23	Angles, left	do	Do.
2	23D	10	28	23	Angles	do	6 by 4 by 0.5 by 5.312 ($5\frac{5}{16}$).
					DIAPHRAGM NO. 12.		
2	23E	10	28	23	Plates	Steel	13.562 ($13\frac{9}{16}$) by 0.5 by 102.25.
2	23F	10	28	23	Angles, right	do	4 by 4 by 0.625 by 102.25.
2	23G	10	28	23	Angles, left	do	Do.
2	23D	10	28	23	Angles	do	6 by 4 by 0.5 by 5.312 ($5\frac{5}{16}$).
					DIAPHRAGM NO. 13.		
2	23A	10	28	23	Plates	Steel	13.562 ($13\frac{9}{16}$) by 0.5 by 87.25.
2	23B	10	28	23	Angles, right	do	4 by 4 by 0.625 by 89.25.
2	23C	10	28	23	Angles, left	do	Do.
2	23D	10	28	23	Angles	do	6 by 4 by 0.6 by 5.312 ($5\frac{5}{16}$).
					DIAPHRAGM NO. 14.		
2	24P	10	28	24	Plates	Steel	13.562 ($13\frac{9}{16}$) by 0.5 by 80.
2	24Q	10	28	24	Angles, right	do	4 by 4 by 0.625 by 80.
2	24R	10	28	24	Angles, left	do	Do.
2	23D	10	28	23	Angles	do	6 by 4 by 0.5 by 5.312 ($5\frac{5}{16}$).
					DIAPHRAGM NO. 15.		
2	24K	10	28	24	Plates	Steel	13.562 ($13\frac{9}{16}$) by 0.5 by 71.5.
2	24L	10	28	24	Angles, right	do	4 by 4 by 0.625 by 72.
2	24M	10	28	24	Angles, left	do	Do.
2	23D	10	28	23	Angles	do	6 by 4 by 0.5 by 5.312 ($5\frac{5}{16}$).
					DIAPHRAGM NO. 16.		
2	24E	10	28	24	Plates	Steel	13.562 ($13\frac{9}{16}$) by 0.5 by 69.625.
2	24F	10	28	24	Angles, right	do	4 by 4 by 0.625 by 69.625.
2	24G	10	28	24	Angles, left	do	Do.
2	23D	10	28	23	Angles	do	6 by 4 by 0.5 by 5.312 ($5\frac{5}{16}$).

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					SIDE GIRDER—Continued.		
					DIAPHRAGM NO. 17.		
2	24A	10	28	24	Plates	Steel	13.562 ($13\frac{9}{16}$) by 0.5 by 65.375.
2	24B	10	28	24	Angles, right	do	4 by 4 by 0.625 by 65.875.
2	24C	10	28	24	Angles, left	do	Do.
2	23D	10	28	23	Angles	do	6 by 4 by 0.5 by 5.312 ($5\frac{5}{16}$).
					DIAPHRAGM NO. 18.		
2	25P	10	28	25	Plates	Steel	13.562 ($13\frac{9}{16}$) by 0.5 by 63.5.
2	25Q	10	28	25	Angles, right	do	4 by 4 by 0.625 by 63.5.
2	25R	10	28	25	Angles, left	do	Do.
2	23D	10	28	23	Angles	do	6 by 4 by 0.5 by 5.312 ($5\frac{5}{16}$).
					DIAPHRAGM NO. 19.		
2	25K	10	28	25	Plates	Steel	13.562 ($13\frac{9}{16}$) by 0.437 ($\frac{7}{16}$) by 34.375.
4	25L	10	28	25	Angles, right	do	3.5 by 3.5 by 0.375 by 34.875, approximately.
4	25M	10	28	25	Angles, left	do	3.5 by 3.5 by 0.375 by 34.5, approximately.
4	22D	10	28	22	Angles	do	6 by 4 by 0.5 by 6.
					DIAPHRAGM NO. 20.		
2	25E	10	28	25	Plates	Steel	13.562 ($13\frac{9}{16}$) by 0.437 ($\frac{7}{16}$) by 29.
4	25F	10	28	25	Angles, right	do	3.5 by 3.5 by 0.375 by 29.5, approximately.
4	25G	10	28	25	Angles, left	do	3.5 by 3.5 by 0.375 by 29, approximately.
4	22D	10	28	22	Angles	do	6 by 4 by 0.5 by 6.
					DIAPHRAGMS NOS. 2 AND 21.		
4	25A	10	28	25	Plates	Steel	14.937 ($14\frac{11}{16}$) by 0.437 ($\frac{7}{16}$) by 25.25.
8	25B	10	28	25	Angles, right	do	3.5 by 3.5 by 0.375 by 25.25.
8	25C	10	28	25	Angles, left	do	Do.
4	22N	10	28	22	Angles	do	6 by 4 by 0.5 by 7.5.
					TOP COVER PLATES, FRONT.		
1	27A	10	28	27	Plate	Steel	89 by 0.625 by 268.403, approximately.
1	27B	10	28	27	do	do	89 by 0.625 by 112.911, approximately.
1	27C	10	28	27	do	do	18 by 0.625 by 89.
1	27D	10	28	27	Plate, right	do	17.75 by 0.625 by 277.903, approximately.
1	27E	10	28	27	Plate, left	do	Do.
1	27F	10	28	27	Plate, right	do	17.75 by 0.625 by 120.43, approximately.

1	27G	10	28	27	Plate, left	do	Do.
2	27H	10	28	27	Splice plates	do	6 by 0.625 by 52.5.
1	27K	10	28	27	Plate, right	do	17.75 by 0.625 by 83.75, approximately.
1	27L	10	28	27	Plate, left	do	Do.
1	27M	10	28	27	Plate, right	do	17.75 by 0.875 by 96, approximately.
1	27N	10	28	27	Plate, left	do	Do.
					TOP COVER PLATES, REAR.		
1	28A	10	28	28	Plate	Steel	89 by 0.625 by 226.
1	28B	10	28	28	do	do	53.812 ($53\frac{11}{16}$) by 0.625 by 35.25.
1	28C	10	28	28	Plate, right	do	17.75 by 0.625 by 368.978, approximately.
1	28D	10	28	28	Plate, left	do	Do.
1	28E	10	28	28	Horizontal splice plate	do	6 by 0.625 by 43.
1	28F	10	28	28	Plate, right	do	17.75 by 0.625 by 309.978, approximately.
1	28G	10	28	28	Plate, left	do	Do.
					BOTTOM COVER PLATES, FRONT.		
1	29A	10	28	29	Plate, right	Steel	49.218 ($49\frac{7}{32}$) by 0.625 by 267.901, approximately.
1	29B	10	28	29	Plate, left	do	Do.
1	29C	10	28	29	Plate, right	do	27.562 ($27\frac{9}{16}$) by 0.625 by 277.600, approximately.
1	29D	10	28	29	Plate, left	do	Do.
1	29E	10	28	29	Plate	do	41 by 0.812 ($1\frac{3}{16}$) by 47.25.
2	29F	10	28	29	Splice plates	do	25.44 by 0.625 by 41; 1 lower, 1 upper.
2	29G	10	28	29	do	do	13.25 by 0.625 by 27.
1	29H	10	28	29	Plate	do	6 by 0.625 by 206.
					BOTTOM COVER PLATES, REAR.		
1	30A	10	28	30	Plate, right	Steel	49.218 ($49\frac{7}{32}$) by 0.625 by 291.947, approximately.
1	30B	10	28	30	Plate, left	do	Do.
1	30C	10	28	30	Plate, right	do	49.218 ($49\frac{7}{32}$) by 0.625 by 140.75.
1	30D	10	28	30	Plate, left	do	Do.
1	30E	10	28	30	Plate, right	do	49.218 ($49\frac{7}{32}$) by 0.625 by 41.525, approximately.
1	30F	10	28	30	Plate, left	do	Do.
1	30G	10	28	30	Plate, right	do	27.562 ($27\frac{9}{16}$) by 0.625 by 283.23, approximately.
1	30H	10	28	30	Plate, left	do	Do.
1	30K	10	28	30	Plate, right	do	27.562 ($27\frac{9}{16}$) by 0.625 by 181.293, approximately.
1	30L	10	28	30	Plate, left	do	Do.
1	30M	10	28	30	Plate	do	41 by 0.812 ($1\frac{3}{16}$) by 47.25.
1	30N	10	28	30	Splice plate	do	25 by 0.625 by 41.
2	30P	10	28	30	Splice plates	do	13.25 by 0.625 by 25.
1	30Q	10	28	30	Splice plate	do	6 by 0.625 by 117.
1	30R	10	28	30	do	do	6 by 0.625 by 107.25, approximately.
1	30S	10	28	30	do	do	6 by 0.625 by 80.
1	30T	10	28	30	do	do	6 by 0.625 by 17.
2	30U	10	28	30	Splice plates	do	24 by 0.625 by 41.5.
4	30W	10	28	30	do	do	13.25 by 0.625 by 24.
1	30X	10	28	30	Splice plate	do	25 by 0.625 by 41.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					SIDE GIRDER—Continued.		
					JACKSCREW GUIDE.		
2	33A	10	2S	33	Side plate, right	Steel	30.125 by 0.625 by 302.312 ($302\frac{5}{16}$).
2	33F	10	2S	33	Side plate, left	do	Do.
1	33B	10	2S	33	Connection angle, outer, right	do	6 by 6 by 0.625 by 357.6, approximately.
1	33C	10	2S	33	Connection angle, inner, right	do	Do.
1	33D	10	2S	33	Connection angle, outer, left	do	Do.
1	33E	10	2S	33	Connection angle, inner, left	do	Do.
10	34A	10	2S	34	Partition bottom plates	do	22.208 by 0.625 by 22.208.
24	34B	10	2S	34	Bearing plates	do	9.75 by 0.5 by 14.25.
2	34C	10	2S	34	Rear partition plates	do	15.875 by 0.625 by 29.09, approximately.
20	34D	10	2S	34	Partition plates	do	17.125 by 0.625 by 22.5.
2	34E	10	2S	34	Front partition plates	do	Do.
2	34F	10	2S	34	Front cover plates	do	15.91 by 0.625 by 41.18, approximately.
2	34G	10	2S	34	Rear connection angles, right	do	4 by 4 by .5 by 24.62, approximately.
2	34H	10	2S	34	Rear connection angles, left	do	Do.
2	34K	10	2S	34	Front connection angles, right	do	4 by 4 by .5 by 36.46, approximately.
2	34L	10	2S	34	Front connection angles, left	do	Do.
22	34M	10	2S	34	Partition plate connection, angles	do	4 by 4 by 0.625 by 0.15.
					SIDE PLATFORMS.		
					FRONT PLATFORM, STATIONARY.		
2	36P	10	2S	36	Plates	Steel	13.125, approximately, by 0.187 ($\frac{3}{16}$) by 55.25.
2	36Q	10	2S	36	Angles	do	2 by 2 by 0.25 by 38.25.
					FRONT PLATFORM, FOLDING.		
1	36R	10	2S	36	Plate, right	Steel	20, approximately, by 0.187 ($\frac{3}{16}$) by 55.25.
1	36AA	10	2S	36	Plate, left	do	Do.
2	36Q	10	2S	36	Angles	do	2 by 2 by 0.25 by 38.25.
2	36BA	10	2S	36	Plates	do	4, approximately, by 0.25 by 4.
					FRONT PLATFORM BRACKET, HINGED.		
4	36T	10	2S	36	Plates	Steel	5.07 by by 0.25 by 18.
4	36U	10	2S	36	Angles, right	do	2 by 2 by 0.25 by 23, approximately.
4	36W	10	2S	36	Angles, left	do	Do.

					PLATFORM CATCH.		
2	36X	10	28	36	Catch	Steel	2 by 0.75 by 4.
2	36Z	10	28	36	Bolt, special	Forged steel	0.74 by 1.780, 0.625 standard thread.
					REAR PLATFORM, STATIONARY.		
2	38A	10	28	38	Plates, center	Steel	13.125, approximately, by 0.187 ($\frac{3}{16}$) by 84.5.
2	38B	10	28	38	Plates, right	do	13.125, approximately, by 0.187 ($\frac{3}{16}$) by 45.25.
2	38C	10	28	38	Plates, left	do	Do.
2	38D	10	28	38	Plates, right	do	13.125, approximately, by 0.187 ($\frac{3}{16}$) by 20.25.
2	38E	10	28	38	Plates, left	do	Do.
8	38F	10	28	38	Splice plates	do	$\frac{1}{4}$ by 0.25 by 11.312 ($11\frac{5}{16}$), approximately.
2	38G	10	28	38	Angles, center	do	2 by 2 by 0.25 by 29.5.
2	38H	10	28	38	Angles, right	do	Do.
2	38K	10	28	38	Angles, left	do	Do.
2	38L	10	28	38	Angles, right	do	Do.
2	38M	10	28	38	Angles, left	do	Do.
					REAR PLATFORM, FOLDING.		
2	38N	10	28	38	Plates, center	Steel	11.625, approximately, by 0.187 ($\frac{3}{16}$) by 84.5.
2	38P	10	28	38	Plates, right	do	11.625, approximately, by 0.187 ($\frac{3}{16}$) by 45.25.
2	38Q	10	28	38	Plates, left	do	Do.
2	38R	10	28	38	Plates, right	do	11.625, approximately, by 0.187 ($\frac{3}{16}$) by 20.25.
2	38S	10	28	38	Plates, left	do	Do.
8	38T	10	28	38	Splice plates	do	$\frac{1}{4}$ by 0.25 by 9.937 ($9\frac{15}{16}$), approximately.
2	38G	10	28	38	Angles, center	do	2 by 2 by 0.25 by 29.5.
2	38H	10	28	38	Angles, right	do	Do.
2	38K	10	28	38	Angles, left	do	Do.
2	38L	10	28	38	Angles, right	do	Do.
2	38M	10	28	38	Angles, left	do	Do.
					PLATFORM BRACKET, STATIONARY.		
16	39A	10	28	39	Plates	Steel	9.05 by 0.25 by 13.
16	39B	10	28	39	Angles, right	do	2 by 2 by 0.25 by 27, approximately.
16	39C	10	28	39	Angles, left	do	Do.
96	39D	10	28	39	Tap bolts		0.625 by 1.375.
					PLATFORM BRACKET, HINGED.		
12	39E	10	28	39	Plates	Steel	5.07 by 0.25 by 9.7.
12	39F	10	28	39	Angles, right	do	2 by 2 by 0.25 by 14, approximately.
12	39G	10	28	39	Angles, left	do	Do.
					PLATFORM HINGE.		
24	39H	10	28	39	Platform hinge, female	Forged steel	
24	39L	10	28	39	Platform hinge, male	do	
24	39K	10	28	39	Hinge pin	do	0.498 by 3.875.

Number for 1 gun.	Piece mark.	Drawing. Class.	Drawing. Div.	Drawing. No.	Name of piece.	Material.	Remarks.
					SIDE PLATFORMS—Continued.		
					PLATFORM RAILING.		
14	40A	10	28	40	Railing stanchion socket	Cast steel	
14	40B	10	28	40	Railing stanchion cap	Bronze	With 14 0.25 by 2.125 steel pins.
8	40C	10	28	40	Chains	Steel	No. 6 jack chain.
20	40D	10	28	40	Snaps	do	With 0.5 eye.
2	40F	10	28	40	Chains	do	No. 6 jack chains.
14	40E	10	28	40	Railing stanchion	do	1.25 by 36 standard pipe.
					FOLDING PLATFORM.		
1	41A	10	28	41	Plate	do	14.75 by 0.187 ($\frac{3}{16}$) by 36.
1	41C	10	28	41	Angle	do	2 by 2 by 0 25 by 62.
2	41B	10	28	41	Flat bar	do	1.5 by 0.375 by 3.
2	41D	10	28	41	Bracket	Cast steel	
4	41E	10	28	41	Hinge pin	Forged steel	With 0.187 ($\frac{3}{16}$) by 1 spl t pins.
					PLATFORM BRACKET HINGE.		
1	41F	10	28	41	Platform bracket hinge, top, right	Cast steel	With 1 0.625 by 1.687 ($1\frac{11}{16}$) steel pins.
1	41G	10	28	41	Platform bracket hinge, top, left	do	Do.
4	41H	10	28	41	Tap bolts		0.625 by 1.5.
2	41K	10	28	41	Platform bracket hinge, bottom	Cast steel	
4	41L	10	28	41	Tap bolts		Do.
2	41M	10	28	41	Platform hinge	Cast steel	
					PLATFORM FASTENER.		
1	41N	10	28	41	Plate	Steel	1.25 by 0.25 by 12.437 ($12\frac{7}{16}$).
1	41P	10	28	41	Toggle pin	Forged steel	Complete.
1	41Q	10	28	41	Eyebolt	do	
1	41R	10	28	41	Chain	Steel	No. 8 jack chain 12 inches long.
2	41S	10	28	41	Chain rings	do	
					LADDERS.		
					LADDER, REAR.		
2	42A	10	28	42	Bars	Steel	2 by 0.5 by 180.083, approximately.
2	42B	10	28	42	do	do	2 by 0.5 by 29.571, approximately.
10	42C	10	28	42	Rods	do	0.875 diameter by 17.75.
6	42D	10	28	42	Tap bolts		0.625 by 1.562 ($1\frac{5}{16}$).

					LADDER, CENTER.		
2	42E	10	28	42	Bars	Steel	2 by 0.5 by 142.978, approximately.
2	42B	10	28	42	....do	....do	2 by 0.5 by 29.571, approximately.
8	42C	10	28	42	Rods	....do	0.875 diameter by 17.75.
4	42D	10	28	42	Tap bolts		0.625 by 1.562 ($1\frac{9}{16}$).
					LADDER, FRONT.		
2	42F	10	28	42	Bars	Steel	2 by 0.5 by 168.978, approximately.
2	42B	10	28	42	....do	....do	2 by 0.5 by 29.571, approximately.
10	42C	10	28	42	Rods	....do	0.875 diameter by 17.75.
4	42D	10	28	42	Tap bolts [1]		0.625 by 1.562 ($1\frac{9}{16}$).
					GRAB HANDLE.		
2	42G	10	28	42	Rods	Steel	0.875 diameter by 28.985, approximately.
4	42D	10	28	42	Tap bolts [1]		0.625 by 1.562 ($1\frac{9}{16}$).
					CENTER PLATE.		
2	45A	10	28	45	Center plate	Cast steel, No. 2.	
16	45C	10	28	45	Bolts [5]		1.125 by 5.562 ($5\frac{9}{16}$).
24	45D	10	28	45	....do [5]		Do.
2	45E	10	28	45	Filler plate	Steel	0.625 thick, finish 0.4724 thick.
					ROLLER BEARING.		
4	47A	10	28	47	Suspension bearing housing, right	Cast steel, No. 2.	
16	47B	10	28	47	Bolts [5]		1.125 by 5.25, fitted.
4	47C	10	28	47	Suspension bearing housing, left	Cast steel, No. 2.	
16	47B	10	28	47	Bolts [5]		Do.
8	47D	10	28	47	Filler plate	Steel	0.562 ($\frac{9}{16}$) thick.
8	48A	10	28	48	Adjusting nut	Forged steel, No. 2.	
8	48B	10	28	48	Yoke nut	....do	
8	48C	10	28	48	Square-head set screws	Steel	0.625 by 0.75.
8	48D	10	28	48	Yoke	Forged steel, No. 2.	With 8 0.5 by 4.312 ($4\frac{5}{16}$) steel pins driven.
8	48E	10	28	48	Roller pin	....do	
8	48F	10	28	48	Roller	....do	
16	48G	10	28	48	Headless set screws	Steel	0.375 by 0.5.
16	48H	10	28	48	Roller bushing	Bronze, No. 2	
8	48K	10	28	48	Oil pipe	Copper	0.375 by 5.5 extra heavy seamless tubing.
8	48L	10	28	48	Oil-hole cover	....do	Winkley, style "D," No. 5; 0.25 pipe thread.
48	48M	10	28	48	Belleville washer	Spring steel	
8	48N	10	28	48	Washer	Forged steel	
					JACKSCREW.		
12	51A	10	28	51	Jackscrew housing	Cast steel, No. 2.	
48	51B	10	28	51	Bolts [5]		1.125 by 4.625.
12	51C	10	28	51	Bushing	Bronze, No. 3	
12	51D	10	28	51	....do	....do	
12	51E	10	28	51	Oil pipe	Copper	0.375 by 7. extra heavy seamless tubing.

[1] With lock washers.

[5] With nuts and lock washers.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					LADDERS—Continued.		
					JACKSCREW—continued.		
12	51F	10	2S	51	Oil-hole cover	Copper	Winkley, style "D," No. 5; 0.25 pipe thread.
12	51G	10	2S	51	Housing filler plate	Steel	
12	52A	10	2S	52	Lifting nut	Forged steel, No. 3.	
12	52B	10	2S	52	Anchor pin	Forged steel, No. 2.	
12	52C	10	2S	52	Pin	do	With 12 0.25 by 1.75 split pins.
12	52D	10	2S	52	Washer	Forged steel	
12	52E	10	2S	52	Lifting screw	Forged steel, No. 3.	
12	52F	10	2S	52	Crown nuts	Forged steel	1.75 with 0.281 ($\frac{9}{32}$) special slots.
12	53A	10	2S	53	Jackscrew socket	Cast steel, No. 2.	
6	54A	10	2S	54	Sleeper plate	Steel	37.56 by 0.625 by 94.5.
6	55A	10	2S	55	Sleepers	White oak	8.66 by 7.75 by 94.5.
12	55B	10	2S	55	do	do	8.57 by 7.75 by 94.5.
48	55C	10	2S	55	Square-head bolts		1 by 8.5.
24	55D	10	2S	55	do		1 by 9.
12	55E	10	2S	55	do		1 by 7.75.
24	55F	10	2S	55	do		1 by 7.625.
24	55G	10	2S	55	Bolts [5]		1 by 30.
6	55H	10	2S	55	do		1 by 28.25.
12	56A	10	2S	56	Jackscrew housing support	Cast steel, No. 2.	
12	56B	10	2S	56	Lifting screw gear	Forged steel, No. 2.	
12	56C	10	2S	56	Washer	Forged steel	
12	56D	10	2S	56	Operating shaft	Forged steel, No. 2.	
12	56E	10	2S	56	Tap bolts		0.625 by 1.125.
24	56F	10	2S	56	Bushing	Bronze, No. 3	
12	56G	10	2S	56	Operating shaft bearing	Cast steel, No. 2.	
36	56H	10	2S	56	Tap bolts [1]		0.5 by 1.812 ($1\frac{13}{16}$).
12	56K	10	2S	56	Filler plate	Steel	
12	57A	10	2S	57	Operating lever handle	do	
12	57B	10	26	57	Operating lever	Forged steel, No. 2.	
12	57C	10	2S	57	Lever	Cast steel, No. 2.	
12	57D	10	2S	57	Fillister head screws	Steel	0.375 by 0.375.

12	57E	10	2S	57	Pawl	Forged steel, No. 3.	
12	57F	10	2S	57	Pawl pivot pin	do	With 12 0.156 ($\frac{5}{32}$) by 1.5 split pins.
12	57G	10	2S	57	Ratchet wheel	do	
12	58A	10	2S	58	Ratchet wheel bearing	Bronze, No. 4	
12	58B	10	2S	58	Pawl plunger	Tool steel	Tempered.
12	58C	10	2S	58	Pawl spring	Spring steel	Helically wound.
12	58D	10	2S	58	Lever lock bracket	Cast steel, No. 2.	
24	58E	10	2S	58	Tap bolts [1]		0.625 by 1.625.
12	58F	10	2S	58	Countersunk head screws	Steel	0.625 by 1.625, 60° countersunk head.
12	58G	10	2S	58	Lever lock	Bronze, No. 2	
12	58H	10	2S	58	Lock plunger	Tool steel	Tempered.
12	58K	10	2S	58	Lock spring	Spring steel	Helically wound.
12	58L	10	2S	58	Housing retaining pin	Forged steel, No. 3.	
12	58M	10	2S	58	Lever lock pin	do	With 12 0.125 by 1 split pins.
12	59A	10	2S	59	Traveling lock bracket, bottom	Cast steel, No. 2.	
24	59B	10	2S	59	Countersunk head screws	Steel	0.625 by 1.625, 60° countersunk head.
12	59C	10	2S	59	Traveling lock bracket, top	Cast steel	
12	59D	10	2S	59	Eyebolt	Forged steel	
12	59E	10	2S	59	Chain	Steel	No. 8 jack chain 12 inches long.
24	59F	10	2S	59	Rings	do	
12	59G	10	2S	59	Toggle pin	Forged steel	Complete.
12	59H	10	2S	59	Direction plate	Bronze	
24	59K	10	2S	59	Round-head screws	Brass	0.25 by 0.625.
					ELEVATING MECHANISM.		
					REAR GEAR CASE AND DETAILS.		
1	63A	10	2S	63	Rear gear case	Cast steel, No. 2.	With 1 0.5 handy oiler; with 1 0.437 ($\frac{7}{16}$) by 3.3 brass pin.
3	63B	10	2S	63	Tap bolts [1]		1.125 by 2.375.
3	63C	10	2S	63	Bolts [5]		1.125 by 4.
1	63L	10	2S	63	Pipe plug	Cast iron	0.5.
1	63D	10	2S	63	Pinion shaft bushing	Bronze, No. 2	With 1 0.25 by 2.5 steel pin, driven.
1	63E	10	2S	63	do	do	Do.
1	63F	10	2S	63	Set screw	Steel	
1	63G	10	2S	63	do	do	
1	63H	10	2S	63	Worm shaft bushing	Bronze, No. 2	
1	63K	10	2S	63	do	do	With 1 0.25 by 1 steel pin, driven.
					REAR GEAR-CASE COVER.		
1	64A	10	2S	64	Plate	Steel	16.625 by 0.433 by 23.187 ($23\frac{3}{16}$).
1	64B	10	2S	64	do	do	0.75 by 0.125 by 50.
1	64C	10	2S	64	do	do	0.75 by 0.125 by 6.625.
1	64D	10	2S	64	Strip	Felt	1.687 ($1\frac{11}{16}$) by 0.187 ($\frac{3}{16}$) by 59.75.
18	64E	10	2S	64	Countersunk machine screws	Steel	0.242 by 0.625.
1	64F	10	2S	64	Cover hinge	Bronze	
1	64G	10	2S	64	Pin	Steel	0.610 by 8.25, type A (A=7.).
1	64H	10	2S	64	Cover cap	Bronze	
4	64K	10	2S	64	Cover bolt bracket	Cast steel	With 4 0.437 ($\frac{7}{16}$) by 2.125 brass pins.

[1] With lock washers.

[5] With nuts and lock washers.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					ELEVATING MECHANISM—Continued.		
					REAR GEAR-CASE COVER—continued.		
1	64L	10	28	64	Cover bolt	Forged steel	
4	64M	10	28	64	....do	....do	
5	64N	10	28	64	Round-head screw	Steel	
5	64P	10	28	64	Nut	....do	
1	64Q	10	28	64	Oil retainer	Bronze	
2	64R	10	28	64	Tap bolts [1]		0.5 by 1.312 ($1\frac{5}{16}$).
1	64S	10	28	64	Rear gear case filler	Steel	
1	65A	10	28	65	Worm wheel	Bronze, No. 4	
1	65B	10	28	65	Worm	Forged steel, No. 3.	
1	65C	10	28	65	Pinion shaft	....do	With 1 1.625 nut, 1 0.875 by 3.125 sq., forged steel, No. 3 key, fitted.
1	65D	10	28	65	Headless set screw	Steel	0.625 by 1.
1	65F	10	28	65	Pinion	Forged steel, No. 3.	
3	66A	10	28	66	Belleville washer	Spring steel	
1	66B	10	28	66	Crown nut	Forged steel	With 1 0.25 by 3. split pin.
5	66C	10	28	66	Friction disk (outer)	Bronze, No. 3	
5	66D	10	28	66	Friction disk (inner)	Forged steel No. 3.	
1	66E	10	28	66	Friction washer	....do	
1	66F	10	28	66	Adjusting collar	Forged steel	
					FRONT GEAR CASE.		
2	67A	10	28	67	Washer	Steel	
1	67B	10	28	67	Front gear case	Bronze, No. 2	With 1 0.5 handy oiler.
4	67C	10	28	67	Bolts [5]		0.875 by 3.187 ($3\frac{1}{16}$).
2	67D	10	28	67	....do		0.75 by 1.875.
1	68A	10	28	68	Front gear case cover	Bronze, No. 2	With 1 0.5 handy oiler.
4	68B	10	28	68	Bolts [5]		0.75 by 1.875.
1	69A	10	28	69	Cross shaft gear	Bronze, No. 4	
1	69H	10	28	69	Taper pin	Steel	No. 6 by 3.812 ($3\frac{13}{16}$).
1	69B	10	28	69	Longitudinal shaft gear	Forged steel, No. 2.	
1	69K	10	28	69	Taper pin	Steel	No. 6 by 3.562 ($3\frac{9}{16}$).
1	69C	10	28	69	Longitudinal shaft, rear	Forged steel, No. 2.	With 1 0.5 by 2.375 sq., forged steel, No. 2, key, fitted; 1 0.625 by 7 sq., forged steel, No. 2, key, staked.

1	69D	10	28	69	Longitudinal shaft, front	do	With 1 0.375 by 1.875 sq., forged steel, No. 2, key, staked; with 1 0.5 by 2.5 sq., forged steel, No. 2, key, staked.
2	69E	10	28	69	Half coupling	Cast steel	
2	69F	10	28	69	do	do	
8	69G	10	28	69	Bolts [5]		0.625 by 4.
1	70A	10	28	70	Cross shaft, right	Forged steel, No. 2.	With 1 0.5 by 1.75 sq., forged steel, No. 2, key, staked with 1 0.5 by 2.375 sq., forged steel, No. 2, key, fitted.
1	70B	10	28	70	Cross shaft, left	do	With 1 0.5 by 2.5 sq., forged steel, No. 2, key, staked.
2	70C	10	28	70	Elevating handwheel	Cast steel	
2	70R	10	28	70	Taper pin	Steel	No. 6 by 3.562 ($3\frac{2}{16}$).
2	70D	10	28	70	Handle	Forged steel	With 2 0.312 ($\frac{5}{16}$) by 1 drill rods, thread 0.5 long.
1	70E	10	28	70	Handle sleeve	Brass	1 standard brass tubing.
1	70S	10	28	70	do	do	Do.
2	70F	10	28	70	Nut	Forged steel	
2	70G	10	28	70	Knob	do	
2	70H	10	28	70	Plunger	do	
2	70K	10	28	70	Plunger spring	Spring steel	Helically wound.
1	70L	10	28	70	Direction plate	Bronze	
1	70M	10	28	70	do	do	
4	70N	10	28	70	Round-head screw	Steel	0.25 by 0.5.
1	70P	10	28	70	Cross shaft bearing	Bronze, No. 2	
4	70Q	10	28	70	Bolts [5]		0.5 by 2.875.
					ELEVATING RACK.		
1	71A	10	28	71	Rack	Forged steel, No. 2.	
4	71B	10	28	71	Tap bolts [1]		1.25 by 3.375.
2	71C	10	28	71	Bolts [5]		1.25 by 5.125, fitted.
1	71D	10	28	71	Key	Forged steel, "C."	Staked in gun.
1	71E	10	28	71	Rack bracket	Cast steel, No. 3.	
2	71F	10	28	71	Bolt [5]		1.25 by 5.625.
					ELEVATING STOP.		
1	73A	10	28	73	Elevating stop	Cast steel	
4	73B	10	28	73	Bolts [5]		1 by 2.625.
					TRUNNION BEARING.		
1	74A	10	28	74	Trunnion bearing, right	Cast steel, No. 3.	
1	74B	10	28	74	Trunnion bearing, left	do	
36	74C	10	28	74	Bolts [5]		1.75 by 8.25.
1	74D	10	28	74	Trunnion bearing cap, right	Cast steel, No. 3.	
1	74E	10	28	74	Trunnion bearing cap, left	do	
2	74F	10	28	74	Compression grease cup	Brass	No. 4, Winkley's, plain, or equal.
4	74G	10	28	74	Key	Forged steel, No. 2.	
4	74H	10	28	74	Tap bolts [1]		0.625 by 2.25.
4	74K	10	28	74	Trunnion half bushing	Hy-ten-syl Bronze	
2	74L	10	28	74	Eyebolt	Steel	
24	74M	10	28	74	Countersunk head screw	Bronze	

[1] With lock washers.

[5] With nuts and lock washers.

Sliding railway mount, Model of 1919, for 10-inch gun—Continued.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					ELEVATING MECHANISM—Continued.		
					TRUNNION DUST GUARD.		
2	73C	10	28	73	Plates	Steel	17.25 by 0.375 by 17.25.
2	73D	10	28	73	....do	....do	9 by 0.125 by 9.
2	73E	10	28	73	Strips	Felt	0.25 by 1 by 25.5.
12	73F	10	28	73	Countersunk head rivet	Copper	0.25.
12	73G	10	28	73	Tap bolts [1]		0.5 by 1.187($1\frac{3}{16}$).
					ANTIFRICTION BEARING.		
1	77A	10	28	77	Trunnion bracket, right	Cast steel, No. 3.	
1	77B	10	28	77	Trunnion bracket, left	....do	
8	77C	10	28	77	Rivet	Steel	0.875 by 2.625, 60° countersunk head.
2	77D	10	28	77	Lever	Forged steel, No. 3.	
2	77E	10	28	77	Step	Bronze, No. 4	
2	77F	10	28	77	Clutch spool	Forged steel, No. 3.	
2	77G	10	28	77	Trunnion bracket pin	Tool steel	
2	77H	10	28	77	Crutch	Forged steel, No. 3.	
2	77K	10	28	77	Crutch bushing	Bronze, No. 4	
8	77L	10	28	77	Screw	Steel	0.5 by 0.125, 60° countersunk head, thread, 0.875 long.
2	78A	10	28	78	Spring retaining bolt	Forged steel, No. 3.	
2	78B	10	28	78	Adjusting bolt	....do	
2	78C	10	28	78	Nuts		1-inch nut by 0.875 thick.
2	78D	10	28	78	Crown nut	Forged steel	
2	78E	10	28	78	Retaining bolt washer, upper	....do	
2	78F	10	28	78	Step washer	....do	
2	78G	10	28	78	Retaining bolt washer, lower	....do	
16	78H	10	28	78	Belleville washer	Spring steel	
					LOADING PLATFORM.		
					TRANSVERSE TRANSOM NO. 1.		
1	84A	10	28	84	Plate	Steel	24 by 0.375 by 83.562 ($83\frac{9}{16}$).
1	84B	10	28	84	Angle	....do	3.5 by 3.5 by 0.5 by 53.5.
1	84C	10	28	84	Angle, right	....do	3.5 by 3.5 by 0.5 by 14.5.
1	84D	10	28	84	Angle, left	....do	Do.
1	84E	10	28	84	Angle	....do	3 by 3 by 0.5 by 83.062 ($83\frac{1}{16}$).

1	84F	10	28	84	do	do	3 by 3 by 0.5 by 52.562 ($52\frac{9}{16}$).
1	84G	10	28	84	Angle, right	do	3 by 3 by 0.5 by 14.375.
1	84H	10	28	84	Angle, left	do	Do.
1	84K	10	28	84	Angle, right	do	3 by 3 by 0.5 by 23, approximately.
1	84L	10	28	84	Angle, left	do	Do.
1	84M	10	28	84	Angle, right	do	3 by 3 by 0.5 by 19.875.
1	84N	10	28	84	Angle, left	do	Do.
					LONGITUDINAL TRANSOM NO. 1.		
1	84P	10	28	84	Plate	Steel	24 by 0.375 by 65.614.
1	84Q	10	28	84	Angle, right	do	4.5 by 3.5 by 0.5 by 59.812 ($59\frac{13}{16}$).
1	84R	10	28	84	Angle, left	do	Do.
1	84S	10	28	84	Angle, right	do	3 by 3 by 0.5 by 57.812 ($57\frac{13}{16}$).
1	84T	10	28	84	Angle, left	do	Do.
1	84U	10	28	84	Angle, right	do	3 by 3 by 0.5 by 17.
1	84W	10	28	84	Angle, left	do	Do.
1	84X	10	28	84	Angle, right	do	3 by 3 by 0.5 by 20.25.
1	84Z	10	28	84	Angle, left	do	Do.
					LONGITUDINAL TRANSOMS 2 AND 3.		
1	85A	10	28	85	Plate, right	Steel	24 by 0.375 by 65.614.
1	85B	10	28	85	Plate, left	do	Do.
1	85C	10	28	85	Angle, right	do	3 by 3.5 by 0.5 by 16.978.
1	85D	10	28	85	Angle, left	do	Do.
1	85E	10	28	85	Angle, right	do	3 by 3 by 0.5 by 57.812 ($57\frac{13}{16}$).
1	85F	10	28	85	Angle, left	do	Do.
1	85G	10	28	85	Angle, right	do	3 by 3 by 0.5 by 56.875.
1	85H	10	28	85	Angle, left	do	Do.
1	85K	10	28	85	Angle, right	do	3 by 3 by 0.5 by 20.5.
1	85L	10	28	85	Angle, left	do	Do.
1	85M	10	28	85	Angle, right	do	3 by 3 by 0.5 by 19.875.
1	85N	10	28	85	Angle, left	do	3 by 3 by 0.5 by 19.875.
1	85P	10	28	85	Angle, right	do	3 by 3 by 0.5 by 20.5.
1	85Q	10	28	85	Angle, left	do	Do.
					DIAPHRAGM.		
2	85R	10	28	85	Plate	Steel	23.375 by 0.375 by 14.875.
1	85S	10	28	85	Angle, right	do	3 by 3 by 0.5 by 19.875.
1	85T	10	28	85	Angle, left	do	Do.
1	85U	10	28	85	Angle, right	do	3 by 3 by 0.5 by 16.875.
1	85W	10	28	85	Angle, left	do	Do.
1	85X	10	28	85	Angle, right	do	3 by 3 by 0.5 by 11.375.
1	85Z	10	28	85	Angle, left	do	Do.
1	85AA	10	28	85	Angle, right	do	3 by 3 by 0.5 by 13.875.
1	85BA	10	28	85	Angle, left	do	Do.
					LONGITUDINAL TRANSOMS 4 AND 5.		
1	85CA	10	28	85	Plate, right	Steel	23.375 by 0.375 by 88.
1	85HA	10	28	85	Plate, left	do	Do.
1	85DA	10	28	85	Angle, right	do	3 by 3 by 0.5 by 19.687 ($19\frac{11}{16}$).

[1] With lock washers.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					LOADING PLATFORM—Continued.		
					LONGITUDINAL TRANSOMS 4 AND 5—continued.		
1	85EA	10	2S	85	Angle, left	Steel	3 by 3 by 0.5 by 19.687 (19 11/16)
1	85FA	10	2S	85	Angle, right	do	3 by 3 by 0.5 by 77.598.
1	85GA	10	2S	85	Angle, left	do	Do.
					TRANSVERSE TRANSOM NO. 2.		
1	86A	10	2S	86	Plate	Steel	24 by 0.375 by 83.562 (83 9/16).
2	86B	10	2S	86	Angles	do	3 by 3 by 0.5 by 52.562 (59 9/16).
1	86C	10	2S	86	Angle, right	do	3 by 3 by 0.5 by 14.375.
1	86D	10	2S	86	Angle, left	do	Do.
1	86E	10	2S	86	Angle	do	3 by 3 by 0.5 by 53.062 (53 1/16).
1	86F	10	2S	86	do	do	4.5 by 3 by 0.5 by 53.062 (53 1/16).
1	86G	10	2S	86	Angle, right	do	3 by 3 by 0.5 by 8.5.
1	86H	10	2S	86	Angle, left	do	Do.
1	86K	10	2S	86	Angle, right	do	3 by 3 by 0.5 by 15.937 (15 15/16).
1	86L	10	2S	86	Angle, left	do	Do.
					TRANSVERSE TRANSOM NO. 3.		
1	86M	10	2S	86	Plate	Steel	24 by 0.375 by 84.312 (84 5/16).
1	86N	10	2S	86	Angle	do	3 by 3 by 0.5 by 52.562 (52 9/16).
1	86P	10	2S	86	do	do	3 by 3.5 by 0.5 by 26.5.
1	86Q	10	2S	86	Angle, right	do	3 by 3 by 0.5 by 29.531 (29 17/32), approximately.
1	86R	10	2S	86	Angle, left	do	3 by 3 by 0.5 by 29.531 (29 17/32), approximately.
1	86S	10	2S	86	Angle	do	3 by 3 by 0.5 by 52.562 (52 9/16).
1	86T	10	2S	86	Angle, right	do	3 by 3 by 0.5 by 15.
1	86U	10	2S	86	Angles, left	do	Do.
					LONGITUDINAL TRANSOM NO. 6.		
1	87A	10	2S	87	Plate	Steel	24 by 0.375 by 65.604.
1	87B	10	2S	87	Angle, right	do	3 by 3 by 0.5 by 58.125.
1	87C	10	2S	87	Angle, left	do	Do.
1	87D	10	2S	87	Angle, right	do	4.5 by 3.5 by 0.5 by 58.125.
1	87E	10	2S	87	Angle, left	do	Do.
2	87F	10	2S	87	Angle, right	do	3 by 3 by 0.5 by 17.
2	87G	10	2S	87	Angle, left	do	Do.

					LONGITUDINAL TRANSOMS NOS. 7 AND 8.		
1	87H	10	28	87	Plate, right	Steel	24 by 0.375 by 65.604.
1	87P	10	28	87	Plate, left	do	Do.
1	87K	10	28	87	Angle, rigbt	do	3 by 3 by 0.5 by 58.125.
1	87L	10	28	87	Angle, left	do	Do.
1	87M	10	28	87	Angle, right	do	Do.
1	87N	10	28	87	Angle, left	do	Do.
4	87F	10	28	87	Angles, right	do	3 by 3 by 0.5 by 17.
2	87G	10	28	87	Angles, left	do	Do.
					LONGITUDINAL TRANSOMS NOS. 9 AND 10.		
1	88A	10	28	88	Plate, right	Steel	24 by 0.375 by 119.281 (119$\frac{9}{11}$).
1	88B	10	28	88	Plate, left	do	Do.
1	88C	10	28	88	Angle, right	do	3 by 3 by 0.5 by 115.531 (115$\frac{17}{32}$).
1	88D	10	28	88	Angle, left	do	Do.
1	88E	10	28	88	Angle, right	do	3.5 by 3.5 by 0.5 by 115.531 (115$\frac{17}{32}$).
1	88F	10	28	88	Angle, left	do	Do.
4	87F	10	28	88	Angle, right	do	3 by 3 by 0.5 by 17.
2	87G	10	28	88	Angle, left	do	Do.
1	88K	10	28	88	Angle, right	do	3 by 3 by 0.5 by 20.5.
1	88L	10	28	88	Angle, left	do	Do.
					TRANSVERSE TRANSOM NO. 4.		
1	88M	10	28	88	Plate	Steel	24 by 0.375 by 53.812 (53$\frac{13}{16}$).
1	88N	10	28	88	Angle	do	3 by 3 by 0.5 by 53.312 (53$\frac{5}{16}$).
1	88P	10	28	88	do	do	4.5 by 3 by 0.5 by 53.312 (53$\frac{5}{16}$).
1	88Q	10	28	88	Angle, right	do	3.3 by 3 hy 0.5 by 20.5.
1	88R	10	28	88	Angle, left	do	3 by 3 by 0.5 by 20.5.
					GUSSET NO. 1.		
2	89A	10	28	89	Plates	Steel	15.25 by 0.375 by 15.5.
2	89B	10	28	89	Angles, right	do	3 by 3 by 0.5 by 35.25.
2	89C	10	28	89	Angles, left	do	Do.
					GUSSETS NOS. 2 AND 3.		
1	89D	10	28	89	Plate, right	Steel	28.281 (28$\frac{9}{11}$) by 0.375 by 24.
1	89E	10	28	89	Plate, left	do	Do.
1	89F	10	28	89	Angle, right	do	4 by 3.5 by 0.5 by 12.531 (12$\frac{17}{32}$).
1	89G	10	28	89	Angle, left	do	Do.
1	89H	10	28	89	Angle, right	do	3 by 3 by 0.5 by 12.25.
1	89K	10	28	89	Angle, left	do	3 by 3 by 0.5 by 12.25.
1	89L	10	28	89	Angle, right	do	3 by 3 by 0.5 by 20.5.
1	89M	10	28	89	Angle, left	do	Do.
2	89N	10	28	89	Angle, right	do	3 by 3 by 0.5 by 29.531 (29$\frac{17}{32}$), approximately.
2	89P	10	28	89	Angle, left	do	Do.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					LOADING PLATFORMS—Continued.		
					GUSSETS NOS. 4 AND 5.		
1	89Q	10	28	89	Plate, right	Steel	28.281 (28$\frac{9}{32}$) by 0.375 by 24.
1	89R	10	28	89	Plate, left	do	Do.
1	89S	10	28	89	Angle, right	do	3.5 by 3.5 by 0.5 by 12.531 (12$\frac{17}{32}$).
1	89T	10	28	89	Angle, left	do	Do.
1	89U	10	28	89	Angle, right	do	3 by 3 by 0.5 by 13.
1	89W	10	28	89	Angle, left	do	Do.
1	89L	10	28	89	Angle, right	do	3 by 3 by 0.5 by 20.5.
1	89M	10	28	89	Angle, left	do	Do.
2	89N	10	28	89	Angle, right	do	3 by 3 by 0.5 by 29.531 (29$\frac{17}{32}$), approximately.
2	89P	10	28	89	Angle, left	do	Do.
					GUSSETS NOS. 6 AND 7.		
1	89CA	10	28	89	Plate, right	Steel	28.281 (28$\frac{9}{32}$) by 0.375 by 24.
1	89DA	10	28	89	Plate, left	do	Do.
1	89S	10	28	89	Angle, right	do	3.5 by 3.5 by 0.5 by 12.531 (12$\frac{17}{32}$).
1	89T	10	28	89	Angle, left	do	Do.
1	89GA	10	28	89	Angle, right	do	3 by 3 by 0.5 by 16.25.
1	89HA	10	28	89	Angle, left	do	Do.
1	89KA	10	28	89	Angle, right	do	3 by 3 by 0.5 by 17.
1	89LA	10	28	89	Angle, left	do	Do.
1	89MA	10	28	89	Angle, right	do	3 by 3 by 0.5 by 9.531 (9$\frac{17}{32}$).
1	89NA	10	28	89	Angle, left	do	Do.
1	89P	10	28	89	Angle, right	do	3 by 3 by 0.5 by 28.656 (28$\frac{21}{32}$).
1	89Q	10	28	89	Angle, left	do	Do.
					GUSSETS NOS. 8 AND 9.		
1	89RA	10	28	89	Plate, right	Steel	13.031 (13$\frac{1}{32}$) by 0.375 by 24.
1	89SA	10	28	89	Plate, left	do	Do.
1	89T	10	28	89	Angle, right	do	3.5 by 3.5 by 0.5 by 12.531 (12$\frac{17}{32}$).
1	89S	10	28	89	Angle, left	do	Do.
1	89M	10	28	89	Angle, right	do	3 by 3 by 0.5 by 20.5.
1	89L	10	28	89	Angle, left	do	Do.
1	89ZA	10	28	89	Angle, right	do	3 by 3 by 0.5 by 16.52$\frac{11}{32}$.
1	89AB	10	28	89	Angle, left	do	Do.
2	89BB	10	28	89	Angle, right	do	3 by 3 by 0.5 by 9.531 (9$\frac{17}{32}$).
2	89CB	1		89	Angle, left	do	Do.

					REAR COVER PLATES.		
1	90A	10	28	90	Side angle, right	Steel	4.5 by 2.343 ($2\frac{11}{32}$) by 0.5 by 225.
1	90B	10	28	90	Side angle, left	do	4.5 by 2.343 ($2\frac{11}{32}$) by 0.5 by 225.
1	90H	10	28	90	Rear cover plate, right	do	41.312 ($41\frac{5}{16}$) by 0.25 by 135.843 ($135\frac{11}{32}$), checkered.
1	90K	10	28	90	Rear cover plate, left	do	Do.
2	90E	10	28	90	Crane base plate	do	17.968 ($17\frac{31}{32}$) by 0.625 by 23.728.
					HATCH-DOOR RIMS.		
4	90C	10	28	90	Angles	Steel	2.5 by 1.5 by 0.312 ($\frac{5}{16}$) by 64.604.
4	90D	10	28	90	do	do	2.5 by 1.5 by 0.312 ($\frac{5}{16}$) by 25.313 ($25\frac{11}{32}$).
4	90F	10	28	90	Angle	do	2.5 by 1.5 by 0.312 ($\frac{5}{16}$) by 64.604.
4	90D	10	28	90	do	do	2.5 by 1.5 by 0.312 ($\frac{5}{16}$) by 25.343 ($25\frac{11}{32}$).
					FRONT COVER PLATES.		
1	91A	10	28	91	Plate, right	Steel	44.5 by 0.25 by 119.656 ($119\frac{21}{32}$), checkered.
1	91B	10	28	91	Plate, left	do	Do.
					FRONT COVER-PLATE EXTENSION.		
1	91C	10	28	91	Plate, right	Steel	25.406 ($25\frac{13}{32}$) by 0.25 by 36, checkered.
1	91D	10	28	91	Plate, left	do	Do.
1	91E	10	28	91	Angle, right	do	3 by 3 by 0.5 by 32.031 ($32\frac{1}{32}$), approximately.
1	91F	10	28	91	Angle, left	do	Do.
1	91G	10	28	91	Angle, right	do	3 by 3 by 0.5 by 32.75.
1	91H	10	28	91	Angle, left	do	3 by 3 by 0.5 by 32.75.
					HATCH.		
4	91K	10	28	91	Cover plate	Steel	25 inches, approximately, by 0.187 ($\frac{3}{16}$) by 64.25, approximately, checkered.
8	91L	10	28	91	Hatch cover handles	Forged steel	2.187 ($2\frac{3}{16}$), approximately, by 0.25 by 6.
					TRAP DOORS.		
1	92A	10	28	92	Plate	Steel	27.5 by 0.25 by 46.953 ($46\frac{15}{16}$), checkered.
1	92B	10	28	92	do	do	Do.
1	92C	10	28	92	do	do	12.625 by 0.25 by 27.5, checkered.
2	92D	10	28	92	Hinge, female	Forged steel	With 2 0.25 by 5. drill rods, rivet ends, in place.
2	92E	10	28	92	Hinge, male	do	
4	92F	10	28	92	Hinge, female	Cast steel	With 4 0.5 by 8. drill rods, rivet ends, in place.
4	92G	10	28	92	Hinge, male	do	
					FOLDING PLATFORM.		
2	93A	10	28	93	Plates	Steel	25 by 0.25 by 72.
4	93B	10	28	93	do	do	2 by 0.5 by 22.
8	93C	10	28	93	do	do	2 by 0.187 ($\frac{3}{16}$) by 5.75, approximately.
2	93D	10	28	93	Angles	do	2 by 2 by 0.375 by 120.75, approximately.
4	93E	10	28	93	Bracket	Cast steel	
4	93F	10	28	93	Bracket hinge	do	
24	93G	10	28	93	Bolts [5]		0.625 by 2.25.

[5] With nuts and lock washers.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					LOADING PLATFORMS—Continued.		
					FOLDING PLATFORM—continued.		
8	93N	10	28	93	Bracket hinge pin	Forged steel	With 8 0.156 ($\frac{5}{32}$) by 0.875 split pins.
4	93H	10	28	93	Inter hinge, female	Cast steel	With 4 0.625 by 1.687 ($1\frac{11}{16}$) steel pins.
4	93K	10	28	93	End hinge, female	do	Do.
12	93G	10	28	93	Bolts [5]		0.625 by 2.25.
4	93L	10	28	93	do		0.625 by 1.875.
4	93M	10	28	93	Inter hinge, male	Cast steel	
2	93P	10	28	93	Toggle pin	Forged steel	Complete.
2	93Q	10	28	93	Eyebolt	do	
2	93R	10	28	93	Chain	Steel	No. 8 jack chain 15 inches long.
4	93S	10	28	93	Chain rings	do	
2	93T	10	28	93	Fastener, plates	do	2 by 0.375 by 18, approximately.
					PLATFORM RAILING.		
14	95A	10	28	95	Railing stanchion socket	Cast steel	
4	95B	10	28	95	do	do	
10	95C	10	28	95	Railing stanchion cap	Bronze	With 10 0.25 by 2.5 (approximate) steel pins.
8	40B	10	28	40	do	do	With 8 0.25 by 2.125 steel pins.
2	95E	10	28	95	Railing stanchion chain	Steel	No. 6 jack chains.
2	95F	10	28	95	do	do	Do.
2	95G	10	28	95	do	do	Do.
4	95H	10	28	95	do	do	Do.
2	95K	10	28	95	Railway stanchion chain	do	Do.
2	95L	10	28	95	do	do	Do.
2	95M	10	28	95	do	do	Do.
2	95N	10	28	95	do	do	Do.
2	95P	10	28	95	do	do	Do.
40	95Q	10	28	95	Snaps	do	With 0.5 eye.
2	95R	10	28	95	Eyebolt	Forged steel	
18	40E	10	28	95	Pipe	Steel	1.25-inch standard pipe.
					LOADING STAND.		
1	98A	10	28	98	Lower bearing, rear standard	Cast steel	
4	98B	10	28	98	Tap bolts		0.5 by 1.25, thread 1 inch long.
4	98C	10	28	98	do		0.5 by 1.25, thread 0.875 inch long.
1	98D	10	28	98	Upper bearing, front standard	Cast steel	
4	98B	10	28	98	Tap bolts		0.5 by 1.25, thread 1 inch long.

4	98E	10	28	98	Cap screws	Steel	0.5 by 1.25, countersunk head, thread 0.875 inch long.
1	98F	10	28	98	Lower bearing, front standard	Cast steel	
4	98B	10	28	98	Tap bolts		0.5 by 1.25, thread 1 inch long.
4	98C	10	28	98	....do		0.5 by 1.25, thread 0.875 inch long.
2	98G	10	28	98	Bushing	Bronze, No. 4	
2	98H	10	28	98	Strut bearing, right	Cast steel	
2	98K	10	28	98	Strut bearing, left	....do	
16	98C	10	28	98	Tap bolts		0.5 by 1.25, thread 0.875 inch long.
1	98L	10	28	98	Trough support	Cast steel	
1	98M	10	28	98	....do	....do	
2	99A	10	28	99	Wheel	....do	With 2 5- by 3.125 steel pins.
1	99B	10	28	99	Axle	Forged steel	
1	99C	10	28	99	Front shaft	....do	With 2 1.375 crown nuts, 2 0.25 by 2.5 split pins.
1	99D	10	28	99	Rear shaft	....do	With 1 1.375 crown nut, 1 0.25 by 2.5 split pin.
1	99E	10	28	99	Rear bearing, right	Cast steel	
1	99F	10	28	99	Rear bearing, left	....do	
1	99G	10	28	99	Trough bearing plate, right	....do	
1	99H	10	28	99	Trough bearing plate, left	....do	
1	99K	10	28	99	Lifting bail	Steel	With 4.718 ($4\frac{23}{32}$) by 0.5 by 10.75 (approximate) plate.
1	100A	10	28	100	Trough	....do	20.875 by 0.375 by 98.25 plate.
					REAR STANDARD.		
1	100B	10	28	100	Angle, right	Steel	2.5 by 3 by 0.375 by 60.547, approximately.
1	100C	10	28	100	Angle, left	....do	Do.
1	100D	10	28	100	Plate	....do	18.5 by 0.25 by 20.
1	100E	10	28	100	....do	....do	5.75 by 0.25 by 9.187 ($9\frac{3}{16}$).
					FRONT STANDARD.		
1	100F	10	28	100	Angle, right	Steel	2.5 by 0.375 by 3 by 48.687 ($48\frac{11}{16}$).
1	100G	10	28	100	Angle, left	....do	Do.
1	100H	10	28	100	Plate	....do	20 by 0.25 by 20.
1	100K	10	28	100	Strut tie	....do	3 by 0.75 by 22.875 (approximate) bar.
2	100L	10	28	100	Bolts [5]		0.75 by 2.125.
1	100M	10	28	100	Angle, right	Steel	2.5 by 3 by 0.375 by 95.155, approximately.
1	100N	10	28	100	Angle, left	....do	Do.
1	101A	10	28	101	Trough extension	....do	18.625 (approximate) by 0.312 ($\frac{5}{16}$) by 71.625 plate.
1	101B	10	28	101	....do	....do	18.625 (approximate) by 0.312 ($\frac{5}{16}$) by 72.225 plate.
4	101C	10	28	101	Bars	....do	1.25 by 32 half-oval bars.
1	101D	10	28	101	Rear support	Cast steel	
4	101E	10	28	101	Tap bolts [1]		0.375 by 1.25.
2	101F	10	28	101	Hook	Steel	
2	101G	10	28	101	Guide plate	....do	
1	101H	10	28	101	Front support	Bronze	
1	102A	10	28	102	Front support, right	Cast steel	
1	102B	10	28	102	Front support, left	....do	
12	102C	10	28	102	Bolts [5]		0.875 by 2.562 ($2\frac{9}{16}$), driven.
1	102D	10	28	102	Rail, right	Steel	4 by 7.25 by 58.687 ($58\frac{11}{16}$) channel, approximately.
1	102E	10	28	102	Rail, left	....do	Do.
1	102F	10	28	102	Folding stand, rest	....do	3 by 0.875 by 37.25 (approximate) bar.

[1] With lock washers.

[5] With nuts and lock washers.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					LOADING PLATFORMS—Continued.		
					LOADING-STAND LOCK.		
1	105A	10	2S	105	Lock bracket	Cast steel	
2	105B	10	2S	105	Countersunk head cap screw	Steel	0.75 by 1.
6	105C	10	2S	105	Bolts [5]		0.75 by 2.125.
1	105D	10	2S	105	Release plunger	Steel	
1	105E	10	2S	105	Headless machine screw	....do	0.25 by 0.375.
1	105F	10	2S	105	Knob	....do	
1	105G	10	2S	105	Lock spring	Spring steel	No. 8 B. W. G., 0.165, steel wire helically wound.
1	105H	10	2S	105	Lock	Cast steel	
2	105K	10	2S	105	Eyebolt	Forged steel	
1	105L	10	2S	105	Release	Cast steel	
1	105M	10	2S	105	Release pivot pin	Steel	With 1 0.187 ($\frac{3}{16}$) by 1.25 split pin.
1	105N	10	2S	105	Lock pivot pin	....do	With 1 0.25 by 2 split pin.
					CRANE.		
2	A214A	15	OK	214	Mast bearing	Cast Iron	
12	A214R	15	OK	214	Bolts [5]		0.75 by 2.937 ($2\frac{15}{16}$).
4	A214S	15	OK	214	....do		0.75 by 3.437 ($3\frac{7}{16}$).
2	A214C	15	OK	214	Bearing bushing	Bronze, No. 2	
8	A214D	15	OK	214	Tap bolts [1]		0.75 by 2.125.
2	A214E	15	OK	214	Mast	Forged steel, No. 2.	
2	A214F	15	OK	214	Chain box sides	Steel	0.062 ($\frac{1}{16}$) by 21 by 25 plate.
2	A214G	15	OK	214	Chain box bottoms	....do	0.062 ($\frac{1}{16}$) by 4 by 9.687 ($9\frac{11}{16}$) plate.
4	A214H	15	OK	214	Inner brace	Wrought iron	
2	A214K	15	OK	214	....do	....do	
4	A214L	15	OK	214	Clamp	....do	9.875 long, approximately.
8	A214M	15	OK	214	Bolts [5]		0.312 ($\frac{5}{16}$) by 0.812 ($\frac{13}{16}$).
4	A214N	15	OK	214	Outer brace	....do	23.25 long, approximately.
2	A214P	15	OK	214	Mast pin	Forged steel	With 2 1.125 crown nuts.
2	A215A	15	OK	215	Right side plate	Steel	0.5 thick.
6	A215B	15	OK	215	Bolts [5]		1 by 7 (snug).
2	A215C	15	OK	215	Bushing	Bronze, No. 2	
2	A215D	15	OK	215	Flat fillister-head machine screws	Steel	0.190 by 0.312 ($\frac{5}{16}$), thread full length.
2	A215E	15	OK	215	Cover	....do	5.625 by 0.187 ($\frac{3}{16}$) by 33.5 (approximate) plate.
28	A215F	15	OK	215	Fillister-head screws	....do	0.312 ($\frac{5}{16}$) by 0.75.
2	A215G	15	OK	215	Left side plate	....do	0.5 thick.
2	A215H	15	OK	215	Bushing	Bronze, No. 2	
2	A215D	15	OK	215	Fillister-head machine screws	Steel	0.190 by 0.312 ($\frac{5}{16}$), thread full length.
2	A215K	15	OK	215	Pin	Forged steel	With 2 0.25 by 2 split pins.

2	A215L	15	OK	215	Chain	do	Standard Chain Co.'s No. 3, or equal.
2	A215P	15	OK	215	Ring	do	1.25 I.D.
2	JB5M	15	2KJ	5	do	do	0.625 I.D.
2	JB5L	15	2KJ	5	Chain rivet	do	
2	A215M	15	OK	215	Separator	Wrought iron	0.75 standard pipe.
2	A215N	15	OK	215	Bolts [5]		0.75 by 6.625.
2	A216A	15	OK	216	Handwheel shaft	Forged steel, No. 2.	With 4 0.625 lock washers, 4 0.625 nuts, 2 0.25 by 0.25 by 1.375 steel keys, staked.
2	A216B	15	OK	216	Handwheel shaft pinion	do	
6	A216C	15	OK	216	Upper-intermediate and idler shaft	do	With 6 0.187 ($\frac{3}{16}$) by 0.6 steel pins, driven.
2	A216D	15	OK	216	Pawl shaft	do	
6	A216K	15	OK	216	Collar nut	Forged steel	With 6 0.125 by 1.187 ($1\frac{3}{16}$) steel pins, riveted.
2	A216E	15	OK	216	Pawl	Forged steel, No. 2.	
2	A216F	15	OK	216	Headless set screw	Steel	0.312 ($\frac{5}{16}$) by 0.625.
2	A216G	15	OK	216	Pawl lever	Cast steel	With 2 0.187 ($\frac{3}{16}$) by 2.25 split pin.
2	A216H	15	OK	216	Idler	Steel	
2	A217A	15	OK	217	Sprocket wheel	Forged steel, No. 2.	With 4 0.5 x 0.5 by 1.187 ($1\frac{3}{16}$) steel keys, staked.
12	A217B	15	OK	217	Bushing	Bronze, No. 2	
2	A217C	15	OK	217	Upper gear	Cast steel, No. 2.	
2	A217D	15	OK	217	Headless steel screws	Steel	0.375 by 0.437 ($\frac{7}{16}$).
4	A217E	15	OK	217	Bushing	Bronze, No. 2	
2	A217F	15	OK	217	Intermediate gear	Cast steel, No. 2.	With 4 0.375 by 0.312 ($\frac{5}{16}$) by 1.125 steel keys, staked.
2	A217D	15	OK	217	Headless screws	Steel	0.375 by 0.437 ($\frac{7}{16}$).
2	A217G	15	OK	217	Idler	Cast steel	
2	A217H	15	OK	217	Intermediate pinion	Forged steel, No. 2.	
4	A218A	15	OK	218	Handwheel	Cast steel	
4	A218B	15	OK	218	Handle	Forged steel	
4	A218C	15	OK	218	Handle sleeve	Brass	1.25 seamless tubing.
2	A218D	15	OK	218	Idler sprocket	Forged steel, No. 2.	
4	A218E	15	OK	218	Bushing	Bronze, No. 2	
2	A218F	15	OK	218	Idler shaft	Forged steel, No. 2.	With 2 1-inch lock washers.
2	A218G	15	OK	218	Nut	Forged steel	1 by 0.5 thick.
4	A218H	15	OK	218	Separator	Wrought iron	0.5 standard pipe.
4	A218N	15	OK	218	Bolts [5]		0.5 by 6.25.
2	A218K	15	OK	218	Crane hook	Forged steel, No. 2.	
2	A218L	15	OK	218	Swivel	do	
2	A218M	15	OK	218	Nut	do	With 2 0.125 by 1.125 steel pins, riveted.
					BOOM.		
4	A221A	15	OK	221	Channels	Steel	3 by 4 pounds by 144.5.
8	A219B	15	OK	219	Plates	do	4.5 by 0.187 ($\frac{3}{16}$) by 9.
4	A219C	15	OK	219	Plates, rear	do	3 by 0.5 by 4.75.
2	A219D	15	OK	219	Plates, front, right	do	5.375 by 5 by 7.
2	A219E	15	OK	219	Plates, front, left	do	Do.
4	A219F	15	OK	219	Hand grabs	Wrought iron	0.75 by 18.
2	A221B	15	OK	221	Roller chain		Diamond Chain Co.'s No. 154, or equal.

[1] With lock washers.

[5] With nuts and lock washers.

Sliding railway mount, Model of 1919, for 10-inch gun—Continued.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					LOADING PLATFORMS—Continued.		
					TIE.		
4	A221C	15	OK	221	Eyebars	Steel	0.5.
8	A219K	15	OK	219	Separators	Wrought iron	0.5 standard pipe.
1	108A	10	28	108	Plate	Steel	24 by 0.25 by 42.54.
1	108B	10	28	108	Filler plate	do	5.125 by 0.25 by 8.25.
1	108C	10	28	108	do	do	10.5 by 0.25 by 18.75.
1	108D	10	28	108	Angle, right	do	2.5 by 2.5 by 0.25 by 42.96.
1	108E	10	28	108	Angle, left	do	Do.
1	108F	10	28	108	Gun rest	Cast steel, No. 2.	
2	108G	10	28	108	Grab iron	Forged steel	
1	108H	10	28	108	Gun support bracket	Cast steel, No. 2.	
2	108K	10	28	108	Bracket hinge	do	With 2 0.75 by 2.5 steel pins.
					GUN TRANSPORT TIE.		
1	109A	10	28	109	Upper band	Forged steel	
2	109B	10	28	109	Bolts		0.75 by 2.75.
1	109C	10	28	109	Lower band	Forged steel	
2	109D	10	28	109	Tie-rod lug	do	
2	109E	10	28	109	Upper tie-rod	do	
2	109F	10	28	109	Turnbuckle	do	1-inch American Bridge Co.'s or equal.
2	109G	10	28	109	Eyebolt	do	
2	109H	10	28	109	Lower tie-rod	do	
2	109K	10	28	109	Toggle pin	do	Complete.
2	109L	10	28	109	Chain	Steel	No. 8 jack chain 12 inches long.
4	109M	10	28	109	Rings	do	
2	109N	10	28	109	Eye rivet	Forged steel	
44	111A	10	28	111	I-beams	Steel	10 by 30 pounds by 95.039, approximately.
44	111B	10	28	111	do	do	10 by 30 pounds by 95.950, approximately.
176	111C	10	28	111	Angles	do	6 by 3.5 by 0.625 by 8.
240	111D	10	28	111	Splice bolts [2]	Forged steel	
240	111E	10	28	111	Washers	Steel	2.25 by 0.25.
88	111F	10	28	111	Separators	Cast iron	
176	111G	10	28	111	Rods	Steel	0.75 by 7.75, thread 1 inch long; both ends with 352-0.75 nuts.
					TRAIN LINE.		
6	112A	10	28	112	Pipe hanger	Wrought iron	1.5 by 0.625 by 6.
6	112B	10	28	112	do	do	1.5 by 0.375 by 7.375, approximately.
12	112C	10	28	112	Tap bolts		0.5 by 1.875.

1		10	28	112	Car train pipe		1.25 by 138.
1		10	28	112	....do		1.25 by 201, cut to suit.
2		10	28	112	Coupling		1.25.
1		10	28	112	Angle fitting		1.25 by 1.25 by 30°.
2		10	28	112	Hose and coupling		1.375 by 24 with 1.25 nipple.
					NAME PLATE.		
1	113A	10	28	113	Name plate	Bronze	
2	113B	10	28	113	Round-head screws	....do	0.25 by 0.5.
					12-WHEEL TRUCK, STANDARD GAUGE.		
					FLOOR PLATES.		
1	LG13A	15	22S5	13	Floor plate, end	Steel	41.625 by 0.25 by 84.75, checkered.
1	LG13T	15	22S5	13	....do	....do	Do.
1	LG13B	15	22S5	13	Floor plate at cross girders	....do	37.875 by 0.25 by 81.125, checkered.
1	LG13U	15	22S5	13	....do	....do	Do.
2	LG13C	15	22S5	13	Floor plate	....do	48 by 0.25 by 81.125.
1	LG13D	15	22S5	13	....do	....do	47.5 by 0.25 by 81.125, checkered.
2	LG13K	15	22S5	13	....do	....do	47.5 by 0.25 by 81.125.
1	LG13W	15	22S5	13	....do	....do	47.5 by 0.25 by 81.125, checkered.
1	LG13E	15	22S5	13	Floor plate, center	....do	92.5 by 0.375 by 81.125.
1	LG13L	15	22S5	13	....do	....do	Do.
2	LG13F	15	22S5	13	Folding platform	....do	Checkered.
					ROLLER PATH SUPPORT.		
4	LG13G	15	22S5	13	Angles, right	Steel	3.5 by 3.5 by 0.375 by 10.
4	LG13M	15	22S5	13	Angles, left	....do	Do.
4	LG13N	15	22S5	13	Angles, right	....do	Do.
4	LG13P	15	22S5	13	Angles, left	....do	Do.
4	LG13Q	15	22S5	13	Angles, right	....do	Do.
4	LG13R	15	22S5	13	Angles, left	....do	Do.
8	LG13S	15	22S5	13	Angles	....do	Do.
					UNDERFRAME.		
1	LG13H	15	22S5	13	Floor support at cross girder, outside	Steel	3 by 3 by 0.375 by 21.5 angle.
1	LG13U	15	22S5	13	....do	....do	Do.
3	LG18A	15	22S5	18	Floor support and end, right	....do	3 by 3 by 0.375 angle.
3	LG18B	15	22S5	18	Floor support and end, left	....do	Do.
1	LG18HA	15	22S5	18	Floor support and end, right	....do	Do.
1	LG18RA	15	22S5	18	Floor support and end, left	....do	Do.
3	LG18C	15	22S5	18	Floor support and wheel piece connection, right	....do	3 by 3 by 0.375 by 5.75 angle.
3	LG18D	15	22S5	18	Floor support and wheel piece connection, left	....do	Do.
1	LG18Gb	15	22S5	18	Floor support and wheel piece connection, right	....do	Do.
1	LG18HB	15	22S5	18	Floor support and wheel piece connection, left	....do	Do.
4	LG18E	15	22S5	18	Floor support and end sill brace connection, right	....do	3 by 3 by 0.375 by 6.25 angle.
4	LG18F	15	22S5	18	Floor support and end sill brace connection, left	....do	Do.
4	LG18G	15	22S5	18	End sill brace and end sill connection	....do	4 by 4 by 0.375 by 9.75 angle.
16	LG18L	15	22S5	18	Cross tie and center sill connection, right	....do	3.5 by 2.5 by 0.375 angle.
16	LG18M	15	22S5	18	Cross tie and center sill connection, left	....do	Do.

With nuts and washers.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					12-WHEEL TRUCK, STANDARD GAUGE—Con.		
					UNDERFRAME—continued.		
8	LG1SN	15	22S5	18	Floor support and center sill connection, right	Steel	3.5 by 3.5 by 0.375 angle.
8	LG1SP	15	22S5	18	Floor support and center sill connection, left	do	Do.
92	LG1SQ	15	22S5	18	Floor beam and cross tie connection	do	3.5 by 3.5 by 0.375 by 9 angle.
4	LG1SR	15	22S5	18	Wheel piece and end sill connection	do	6 by 6 by 0.375 by 11 angle.
4	LG1SS	15	22S5	18	Floor support, center	do	12 by 40 pound I-beam.
2	LG1ST	15	22S5	18	Floor support web at end brace, center	do	4.5 by 0.375 by 28.5 plate.
4	LG1SU	15	22S5	18	Floor support web at end brace, side	do	4.5 by 0.375 by 19.062 (19 1/16) plate.
72	LG1SW	15	22S5	18	Tie-bar anchor	do	3.5 by 3 by 0.375 by 9 angle.
4	LG1SX	15	22S5	18	Floor support at end brace, right	do	3 by 3 by 0.375 by 12.75 angle.
4	LG1SZ	15	22S5	18	Floor support at end brace, left	do	Do.
1	LG1SCB	15	22S5	18	End sill brace	do	18.75 by 0.375 by 30.875 plate.
2	LG1SEA	15	22S5	18	do	do	Do.
1	LG1SDB	15	22S5	18	do	do	Do.
2	LG1SFA	15	22S5	18	Floor support at end sill brace, right	do	3.5 by 3.5 by 0.375 by 23.125 angle.
2	LG1SGA	15	22S5	18	Floor support at end sill brace, left	do	Do.
1	LG1SEB	15	22S5	18	Floor support at end brace, center	do	3 by 3 by 0.375 by 22.5 angle.
3	LG1SNA	15	22S5	18	do	do	Do.
4	LG1SKA	15	22S5	18	Wheel piece and end sill bottom corner plate connection, right.	do	3.5 by 3.5 by 0.375 by 10.125 angle.
3	LG1SLA	15	22S5	18	Wheel piece and end sill bottom corner plate connection, left.	do	Do.
1	LG1SFB	15	22S5	18	do	do	Do.
2	LG1SMA	15	22S5	18	Pipe support angle	Open-hearth steel	3 by 3 by 0.375 by 5.25.
2	LG1SBD	15	22S5	18	Pipe and hose guard support	Steel	3.5 by 3.5 by 0.375 by 9.75 angle.
2	LG1SNA	15	22S5	18	Brake rod support	do	3 by 3 by 0.375 by 7.25 angle.
2	LG1SBB	15	22S5	18	do	do	Do.
2	LG1SPA	15	22S5	18	Pipe clamp	Wrought iron	
2	LG1SAA	15	22S5	18	do	do	
2	LG1SQA	15	22S5	18	Triple valve bracket	Steel	3.25 by 5.625 by 0.5 by 6 angle.
2	LG1SSA	15	22S5	18	Pipe support	do	3.5 by 2.5 by 0.375 by 5.875 angle.
1	LG1STA	15	22S5	18	Retaining valve bracket	Open-hearth steel.	
6	LG1SUA	15	22S5	18	Pipe support and clip	Steel	Plate.
6	LG1SBC	15	22S5	18	do	do	Do.
4	LG1SZA	15	22S5	18	Jackscrew fuller for rear truck	do	5.25 by 0.5 by 8.625 plate.
4	LG1SWA	15	22S5	18	End sill brace and end sill connection	do	4 by 4 by 0.375 by 9.75 angle.
4	LG1SXA	15	22S5	18	Wheel piece and end sill connection	do	6 by 6 by 0.375 by 9.5 angle.
4	LG1SEB	15	22S5	18	Gooseneck clip	do	

2	LG19A	15	22S5	19	Center sill top angle, right	do	3.5 by 3.5 by 0.5 by 269.75.
2	LG19B	15	22S5	19	Center silk top angle, left	do	Do.
4	LG19R	15	22S5	19	Bolster and side sill connection filler	do	8.25 by 0.5 by 21.5.
4	LG19AA	15	22S5	19	Bracket for top carriage standards, right	do	0.312 ($\frac{5}{16}$) thick.
4	LG19BA	15	22S5	19	Bracket for top carriage standards, left	do	Do.
1	LG20A	15	22S5	20	Cross girder web, outside	do	27.25 by 0.375 by 69.125.
1	LG20BA	15	22S5	20	do	do	Do.
4	LG20B	15	22S5	20	Cross girder reinforcing angle	do	3.5 by 3 by 0.375 by 26.5.
4	LG20C	15	22S5	20	do	do	Do.
4	LG20D	15	22S5	20	Cross girder reinforcing plate	do	5.5 by 0.375 by 26.5.
2	LG20E	15	22S5	20	Cross girder and wheel piece connection, outside	do	3.5 by 3.5 by 0.375 by 26.5.
2	LG20F	15	22S5	20	do	do	Do.
2	LG20G	15	22S5	20	Cross girder and center sill connection	do	3.5 by 3 by 0.375 by 26.125.
2	LG20H	15	22S5	20	do	do	Do.
2	LG20K	15	22S5	20	do	do	3.5 by 3.5 by 0.375 by 26.125.
1	LG20L	15	22S5	20	do	do	Do.
1	LG20CB	15	22S5	20	do	do	Do.
1	LG20BA	15	22S5	20	Cross girder web, outside	do	27.25 by 0.375 by 69.125.
1	LG20CA	15	22S5	20	Cross girder and cross girder bottom cover plate connection, outside.	do	4 by 4 by 0.375 by 69.625.
1	LG20M	15	22S5	20	Cross girder web, inside	do	27.25 by 0.375 by 69.125.
1	LG20DB	15	22S5	20	do	do	Do.
2	LG20N	15	22S5	20	Cross girder and wheel piece connection, inside	do	3.5 by 3.5 by 0.375 by 16.312 ($16\frac{5}{16}$).
2	LG20P	15	22S5	20	do	do	Do.
2	LG20Q	15	22S5	20	Cross girder reinforcing	do	Z plate, 0.312 ($\frac{5}{16}$) thick.
8	LG20R	15	22S5	20	End sill brace and cross girder connections	do	3.5 by 3.5 by 0.375 by 18.75.
2	LG20S	15	22S5	20	Floor support at girder, inside	do	3.5 by 6 by 0.375 by 69.625.
2	LG20T	15	22S5	20	Floor beam at cross girder	do	12 by 40 pound by 40.125 I.
1	LG20W	15	22S5	20	Cross girder and cross girder bottom cover plate connection, outside.	do	4 by 4 by 0.375 by 69.625.
2	LG20X	15	22S5	20	Cross girder and cross girder bottom cover plate connection, inside.	do	4 by 4 by 0.375 by 51.625.
2	LG20AA	15	22S5	20	Cross girder bottom plate	do	15 by 0.625 by 69.625.
2	LG20VA	15	22S5	20	Cross girder and floor beam connection	do	3.5 by 3.5 by 0.375 by 9.812 ($9\frac{13}{16}$).
2	LG20WA	15	22S5	20	do	do	Do.
1	LG20XA	15	22S5	20	End sill brace stiffener	do	3 by 3 by 0.375 by 19.
1	LG20AB	15	22S5	20	do	do	Do.
1	LG20YA	15	22S5	20	do	do	Do.
1	LG20BB	15	22S5	20	do	do	Do.
18	LG20U	15	22S5	20	Tiebar	Wrought iron	3 by 5 by 66.625.
1	LG20Z	15	22S5	20	do	do	Do.
2	LG21A	15	22S5	21	Cross tie	Steel	12 by 40 pound by 43.125 I.
2	LG21B	15	22S5	21	do	do	Do.
4	LG21C	15	22S5	21	do	do	Do.
8	LG21Q	15	22S5	21	Wheel piece and center sill tie	do	12 by 40 pound by 16.125 I.
8	LG21BA	15	22S5	21	do	do	Do.
2	LG21W	15	22S5	21	End sill top and bottom angle	do	3.5 by 3.5 by 0.5 by 37.
2	LG21X	15	22S5	21	do	do	Do.
8	LG21T	15	22S5	21	Wheel piece and center sill tie	do	12 by 40 pound by 11.187 ($11\frac{3}{16}$) I.
8	LG21U	15	22S5	21	do	do	Do.
1	LG21Z	15	22S5	21	End sill bottom cover plate	do	13.5 by 0.375 by 84.75.
1	LG21S	15	22S5	21	do	do	Do.
8	LG21R	15	22S5	21	End sill bottom plate connection	do	3.5 by 3.5 by 0.375 by 5.25.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					12-WHEEL TRUCK, STANDARD GAUGE—Con.		
					UNDERFRAME—Continued.		
2	LG22G	15	22S5	22	End sill plate	Steel	19.75 by 0.375 by 81.125.
2	LG22H	15	22S5	22	Center and end sill connection, inside	do	3.5 by 3.5 by 0.375 by 18.875.
2	LG22U	15	22S5	22	do	do	Do.
4	LG22Z	15	22S5	22	Wheel piece center and end sill connection	do	6 by 6 by 0.375 by 18.875.
4	LG22K	15	22S5	22	do	do	Do.
4	LG22N	15	22S5	22	Bolster and center sill connection, outside	do	6 by 6 by 0.375 by 9.625.
4	LG22W	15	22S5	22	do	do	Do.
4	LG22L	15	22S5	22	Bolster and center sill connection, inside	do	6 by 3.5 by 0.375 by 11.125.
4	LG22M	15	22S5	22	do	do	Do.
2	LG22P	15	22S5	22	Wheel piece and end sill connection	do	6 by 4 by 0.375 by 18.875.
2	LG22Q	15	22S5	22	do	do	Do.
4	LG22R	15	22S5	22	Bolster channel	do	12 by 30.2 pound by 42.875.
4	LG22S	15	22S5	22	Bolster plate	do	12 by 0.375 by 42.875.
4	LG22T	15	22S5	22	do	do	Do.
					BRAKE.		
8	LG23A1	15	22S5	23	Brake beam, complete	Malleable iron and steel.	
16	LG23B	15	22S5	23	Brake shoe	Gray iron	
8	LG24A	15	22S5	24	Brake hanger bracket	Cast steel	
1	LG25A1	15	22S5	25	Brake shaft connection crank	do	
1	LG25E	15	22S5	25	do	do	
1	LG25H	15	22S5	25	Cup point set screw	Steel	0.625 by 1.375.
1	LG25F	15	22S5	25	Chain connection crank	Cast steel	
1	LG25B1	15	22S5	25	do	do	
1	LG25K	15	22S5	25	Cup point set screw	Steel	Do.
12	LG25C	15	22S5	25	Fulcrum lever washer filler	Cast steel	
8	LG25D	15	22S5	25	Brake hanger bracket	do	
2	LG26A1	15	22S5	26	Hand brake wheel	Malleable iron	
2	LG26B	15	22S5	26	Air brake hose guard	do	
2	LG26C	15	22S5	26	Bevel washer	do	Hole 0.562 ($\frac{9}{16}$) diameter.
40	LG26D	15	22S5	26	do	do	Hole 0.812 ($\frac{13}{16}$) diameter.
16	LG26E	15	22S5	26	do	do	Hole 1.062 ($1\frac{3}{16}$) diameter.
16	LG26F	15	22S5	26	do	do	Hole 0.937 ($\frac{15}{16}$) diameter.
12	LG27Q	15	22S5	27	Brake beam safety hanger	Steel	
4	LG27C1	15	22S5	27	Hangers	do	0.5 plate.
8	LG27M1	15	22S5	27	Links	do	Do.

8	LG27S	15	22S5	27	Link jaws	do	Do.
2	LG27D	15	22S5	27	Hangers	do	Do.
4	LG27L1	15	22S5	27	Links	do	Do.
2	LG27E	15	22S5	27	Cylinder support	do	0.625 plate.
4	LG27F1	15	22S5	27	Plates	do	7.5 by 0.5 by 10.
8	LG27P1	15	22S5	27	Web plates	do	0.625 plate.
8	LG27R	15	22S5	27	Plate	do	2.5 by 0.25 by 5.5.
2	LG27H	15	22S5	27	do	do	0.5 plate.
2	LG27K	15	22S5	27	Straps	do	Do.
2	LG27N1	15	22S5	27	Fulcrum	do	0.625 plate.
2	LG28C	15	22S5	28	Brake shaft nut	do	
4	LG28D	15	22S5	28	Brake shaft nut washer	do	
4	LG28F	15	22S5	28	Brake shaft link	do	
2	LG28G	15	22S5	28	Brake shaft pivot	do	
2	LG29A	15	22S5	29	Cylinder connection	do	
4	LG29B1	15	22S5	29	Offset connection	do	
2	LG29C1	15	22S5	29	Cylinder lever	do	
2	LG29D1	15	22S5	29	Equalizing lever	do	
2	LG29E1	15	22S5	29	Brake rod	do	
2	LG29F1	15	22S5	29	do	do	
4	LG29H2	15	22S5	29	Truck dead lever	do	
4	LG29K2	15	22S5	29	Truck live lever	do	
4	LG29L	15	22S5	29	Reservoir saddle	do	0.375 plate.
8	LG29M	15	22S5	29	Reservoir strap	do	Do.
2	LG29N	15	22S5	29	Cylinder lever guide	Wrought iron	
16	LG29O1	15	22S5	29	Brake hanger	do	
2	LG29P	15	22S5	29	Release spring guide	do	
2	LG29R	15	22S5	29	Washer	do	
2	LG29S	15	22S5	29	Housings	do	
2	LG29T1	15	22S5	29	Forks	do	
2	LG29U	15	22S5	29	Spring, outside	Spring steel	
2	LG29V	15	22S5	29	Spring, inside	do	
2	LG29W	15	22S5	29	Spring, outside	do	
2	LG29Y	15	22S5	29	Spring, inside	do	
4	LG30B1	15	22S5	30	Pin	Axle steel	With 4 0.375 by 2.75 cotters.
4	LG30X	15	22S5	30	do	do	Do.
16	LG30C1	15	22S5	30	do	do	With 16 0.375 by 2 cotters.
2	LG30D1	15	22S5	30	do	do	With 2 0.375 by 2 cotters.
4	LG30E1	15	22S5	30	do	do	With 4 0.375 by 2 cotters.
2	LG30F1	15	22S5	30	do	do	With 2 0.375 by 2 cotters.
8	LG30G1	15	22S5	30	do	do	With 8 0.375 by 2 cotters.
4	LG30AA	15	22S5	30	Washer	Steel	
2	LG30BA	15	22S5	30	Pin	Axle steel	
2	LG30K	15	22S5	30	do	do	
2	LG30H1	15	22S5	30	do	do	With 2 0.375 by 2 cotters.
2	LG30L1	15	22S5	30	do	do	Do.
2	LG30M1	15	22S5	30	do	do	Do.
8	LG30N1	15	22S5	30	do	do	With 8 0.375 by 2 cotters.
4	LG30P1	15	22S5	30	do	do	With 4 0.375 by 2 cotters.
8	LG30CA	15	22S5	30	do	do	With 8 0.375 by 2 cotters.
4	LG30Q1	15	22S5	30	Brake shaft key	Steel	
16	LG30R	15	22S5	30	Brake shoe key	do	

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					12-WHEEL TRUCK, STANDARD GAUGE—Con.		
					BRAKE—Continued.		
2	LG30S1	15	22S5	30	Release rod	Steel	
8	LG30U	15	22S5	30	Pipe clamp	Wrought iron	32 0.5 standard nuts.
2	LG30W	15	22S5	30	Train line bolt	do	4 0.5 standard nuts.
4	LG30Z	15	22S5	30	Pin	Axle steel	With 0.25 by 2 cotters.
					JOURNAL BOX.		
24	LG44A1	15	22S5	44	Journal box	Malleable iron	
24	LG44B	15	22S5	44	Journal bearing	Brass	
24	LG44C1	15	22S5	44	Journal bearing wedge	Cast steel	
24	LG44D	15	22S5	44	Dust guard	Basswood	
24	LG44E1	15	22S5	44	Journal box lid	Steel	
					SPRINGS.		
24	LG43A1	15	22S5	43	Bearing springs	Spring steel	
24	LG45A2	15	22S5	45	Pedestal, right	Cast steel	
24	LG45B2	15	22S5	45	Pedestal, left	do	
12	LG45C2	15	22S5	45	Spring hanger bracket end	do	
16	LG45D2	15	22S5	45	Equalizer bracket	do	
2	LG45E2	15	22S5	45	Spring hanger bracket center, right	do	
2	LG45F2	15	22S5	45	Spring hanger bracket center, left	do	
8	LG46A2	15	22S5	46	Large equalizer	do	
8	LG46B2	15	22S5	46	Small equalizer	do	
48	LG46C1	15	22S5	46	Spring hanger cap	do	
48	LG46D	15	22S5	46	Spring hanger washer	do	
48	LG47A1	15	22S5	47	Spring hanger	do	
48	LG47B1	15	22S5	47	Spring hanger connection	Wrought iron	
24	LG47C2	15	22S5	47	Pedestal tiebar	do	
96	LG47D1	15	22S5	47	Spring hanger bolt	do	
16	LG47E	15	22S5	47	Equalizer pin	do	
24	LG47F	15	22S5	47	Spring seat filler plate	do	
					CORNER STEP.	Open-hearth steel.	
6	LG48K2	15	22S5	48	Side frame pieces	Steel	
3	LG48L2	15	22S5	48	Side braces, right	do	
3	LG48M2	15	22S5	48	Side braces, left	do	
9	LG48N	15	22S5	48	Treads	do	0.75 diameter by 15.625.

6	LG4SP1	15	22S5	4S	Step support angles	do	2.5 by 2 by 0.25.
6	LG4SQ	15	22S5	4S	do	do	Do.
					ROLLER PATH.		
2	LG50A1	15	22S5	50	Roller path	Forged steel, No. 2.	
					CENTER PLATE.		
4	LG49B2	15	22S5	49	Center plate support	Malleable iron	
2	LG73A2	15	22S5	73	Center plate	Cast steel	
					M. C. B. COUPLER AND DRAFT GEAR.		
2	LG76A	15	22S5	76	Draft gear housing	Cast steel	
10	LG76B	15	22S5	76	Bolts [5]	Forged steel	1.25 by 3.562 ($3\frac{9}{16}$).
4	LG76C	15	22S5	76	do	do	1.25 by 3.375.
16	LG76D	15	22S5	76	do	do	1 by 3.5.
8	LG76E	15	22S5	76	do	do	1 by 4.062 ($4\frac{1}{16}$).
2	LG76F	15	22S5	76	Lever bracket, outer	Cast steel	
8	LG76G	15	22S5	76	Bolts [5]	Forged steel	0.875 by 2.875.
2	LG76H	15	22S5	76	Air pipe brace	Steel	
4	LG76K	15	22S5	76	Tap bolts [1]	Forged steel	0.375 by 0.875.
8	LG76L	15	22S5	76	Bevel washer	Steel	
2	LG76M1	15	22S5	76	Lever bracket, inner	Cast steel	
6	LG76N	15	22S5	76	Tap bolts [1]	Forged steel	0.625 by 1.875.
4	LG76P	15	22S5	76	End handhold	Wrought iron	
4	LG76Q	15	22S5	76	Bolts [5]	Forged steel	0.875 by 2.75.
4	LG76R	15	22S5	76	do	do	0.875 by 2.375.
2	LG76S	15	22S5	76	Lever	Wrought iron	
2	LG77A	15	22S5	77	Angles, left	Steel	4 by 4 by 0.375 by 9.75.
2	LG77B	15	22S5	77	do	do	6 by 6 by 0.375 by 11.
2	LG77D	15	22S5	77	Angles, right	do	4 by 4 by 0.375 by 9.75.
2	LG77C	15	22S5	77	Angles, left	do	6 by 6 by 0.375 by 9.5.
2	LG77E	15	22S5	77	Plates	do	3 by 0.375 by 7.
2	LG77F	15	22S5	77	do	do	13.5 by 0.375 by 84.75.
1	LG21Z	15	22S5	21	Plate	do	
1	LG21S	15	22S1	21	do	do	Without cut "A."
					FRONT TRUCK.		
					BRAKE.		
2	LG15H	15	22S5	15	Handle	Wrought steel	
					UNDERFRAME.		
2	LG18CA1	15	22S5	18	Front support (side)	Steel	
2	LG18DA1	15	22S5	18	do	do	
1	LG19C	15	22S5	19	Center sill web plate	do	19.25 by 0.625 by 275.75.
1	LG19E	15	22S5	19	do	do	Do.
2	LG19G	15	22S5	19	Center sill bottom angle, inside	do	3.5 by 3.5 by 0.5 by 176.
1	LG19H	15	22S5	19	Center sill bottom angle, outside	do	3.5 by 3 by 0.5 by 266.75.
1	LG19K	15	22S5	19	do	do	Do.

[1] With lock washers.

[5] With nuts and lock washers.

Sliding railway mount, Model of 1919, for 10-inch gun—Continued.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					FRONT TRUCK—Continued.		
					UNDERFRAME—continued.		
2	LG19P	15	22S5	19	Long center sill reinforcing plate	Steel	7 by 0.5 by 138.
2	LG19Q	15	22S5	19	Short center sill reinforcing plate	do	7 by 0.5 by 52.50.
8	LG19S	15	22S5	19	Reinforcing plate and floor support connection	do	3.5 by 3.5 by 0.5 by 5.5.
1	LG20GA	15	22S5	20	Floor beam, intermediate	do	12 by 40 pounds by 46.5 I.
1	LG20HA	15	22S5	20	do	do	Do.
1	LG20KA	15	22S5	20	do	do	Do.
1	LG20LA	15	22S5	20	Floor beam, center	do	12 by 40 pounds by 40.687 (40 11/16) I.
1	LG20MA	15	22S5	20	do	do	Do.
1	LG20NA	15	22S5	20	do	do	Do.
1	LG20PA	15	22S5	20	do	do	Do.
1	LG21M	15	22S5	21	I beam	do	12 by 40 pounds by 46.5.
2	LG21E	15	22S5	21	Reinforcing plate	do	9.062 (9 1/16 by 0.75 by 10.625.
4	LG21F	15	22S5	21	Reinforcing plate connection angle	do	3.5 by 3.5 by 0.5 by 9.062 (9 1/16).
2	LG21K	15	22S5	21	Reinforcing plate	do	30 by 0.75 by 44.312 (44 5/16).
1	LG22A	15	22S5	22	Wheel piece top angle	do	4 by 4 by 0.5 by 310.625.
1	LG22B	15	22S5	22	do	do	Do.
1	LG22E	15	22S5	22	Wheel piece plate	do	34.5 by 1 by 313.875.
1	LG22F	15	22S5	22	do	do	Do.
1	LG22FA	15	22S5	22	Center sill and wheel piece tie	do	12 by 30.2 pound by 269.75.
1	LG22GA	15	22S5	22	do	do	Do.
					BRAKE.		
3	LG24C1	15	22S5	24	Crank shaft bearing	Cast steel	
1	LG24B1	15	22S5	24	Brake shaft bearing	do	
1	LG24D1	15	22S5	24	Crank shaft collar	do	
1	LG27A1	15	22S5	27	Brake shaft brace	Steel	
1	LG27B	15	22S5	27	do	do	
1	LG28A	15	22S5	28	Brake shaft	Forged steel	
1	LG28B	15	22S5	28	Brake shaft key	Steel	
1	LG28E	15	22S5	28	Brake shaft ring	do	
1	LG29G	15	22S5	29	Cylinder and hand-brake connection	do	
1	LG30A	15	22S5	30	Hand-brake shaft	do	
1	LG30T	15	22S5	30	Crank shaft collar set screw	do	0.5 by 2.25.
					RAILINGS AND HINGES.		
6	LG48A1	15	22S5	48	Posts	Wrought iron	
1	LG48B	15	22S5	48	Rail	do	
1	LG48C	15	22S5	48	do	do	

8	LG48D1	15	22S5	48	Hand rail post foot	Cast steel	
2	LG48E	15	22S5	48	Corner post	Steel	
4	LG48G1	15	22S5	48	Hinges, male	do	
4	LG48H2	15	22S5	48	Hinges, female	do	
4	LG48R	15	22S5	48	Hinge pins	do	With 0.203 ($\frac{13}{64}$) by 1.25 split pin, 0.75 washers.
					TRANSLATING MECHANISM.		
2	LG49C	15	22S5	49	Support for crank handle	Steel	
2	LG49D	15	22S5	49	do	do	
2	LG55A	15	22S5	55	Gear case	Bronze, No. 3	
2	LG57A	15	22S5	57	Gear case cover	do	
8	LG57B	15	22S5	57	Oil cup	Bronze	
2	LG59A1	15	22S5	59	Gear case bracket	Cast steel	
2	LG60A	15	22S5	60	Bushing	Bronze	
2	LG61A	15	22S5	61	Bearing for intermediate shaft	Bronze, No. 2	
2	LG61B	15	22S5	61	do	do	
2	LG61C1	15	22S5	61	Tie-rod	Forged steel, No. 1.	
8	LG61D1	15	22S5	61	Nuts	do	
2	LG62A1	15	22S5	62	Plates	Steel	1 inch thick.
2	LG62B1	15	22S5	62	do	do	0.812 ($\frac{13}{16}$) thick.
2	LG62C	15	22S5	62	do	do	Do.
2	LG62D	15	22S5	62	do	do	0.625 thick.
2	LG62E	15	22S5	62	do	do	Do.
4	LG62F	15	22S5	62	do	do	Do.
2	LG63A	15	22S5	63	Crank handle	Tubing	14 gauge cold drawn.
2	LG63B1	15	22S5	63	Crank handle pin	Forged steel, No. 1.	With 2 0.25 by 3 rivets.
2	LG63D	15	22S5	63	Crank handle nut	do	
2	LG63C1	15	22S5	63	Crank	do	
2	LG64A	15	22S5	64	Gear	Cast steel, No. 3.	
2	LG65A	15	22S5	65	do	do	
2	LG65B	15	22S5	65	Pinion	Forged steel, No. 3.	
2	LG65C1	15	22S5	65	Plug	do	
2	LG65D	15	22S5	65	Milled cap	do	
2	LG65E	15	22S5	65	Bolt	do	
2	LG65F	15	22S5	65	Spring	Spring steel	Tempered.
2	LG65G1	15	22S5	65	Pinion shaft	Forged steel, No. 3	
2	LG65H	15	22S5	65	Nuts	Forged steel, No. 1.	
2	LG65K	15	22S5	65	Washers	do	
2	LG66A1	15	22S5	66	Sprocket	Forged steel, "C."	
2	LG66B1	15	22S5	66	Driving chain	Steel	44 links, diamond chain No. 167.
2	LG66G	15	22S5	66	Gear case filler	do	
2	LG66D1	15	22S5	66	Driving chain	do	30 links, diamond chain No. 164 R.
2	LG66E	15	22S5	66	Intermediate shaft and pinion	Forged steel, "C."	With 2 1.102 by 1.102 by 1.955 nuts, forged steel, No.1; 2 1.181 by 0.315 by 3.937 washers, forged steel, No. 1.
2	LG66F	15	22S5	66	Gear case filler	Steel	
2	LG67A	15	22S5	67	Sprocket wheel	Cast steel, No. 3.	With 2 0.472 by 0.787 by 3.543 keys, forged steel, No. 3.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					FRONT TRUCK—Continued.		
					TRANSLATING MECHANISM—continued.		
2	LG6SA	15	22S5	6S	Driving sprocket	Forged steel, "C".	2 parts.
8	LG6SB	15	22S5	6S	Bolts	Forged steel, No. 1.	1.25 by 9.
8	LG6SC	15	22S5	6S	Nuts	do	1.25 by 1.25.
4	LG6SD	15	22S5	6S	Filler plate	Steel	0.314 by 3.543 by 7.087.
4	LG6SE	15	22S5	6S	Key	Forged steel, No. 3.	0.945 by 7.087.
8	LG6SF	15	22S5	6S	Fillister-head screws	Steel	0.551 by 1.89.
2	LG69A	15	22S5	69	Sprocket shaft	Forged steel, No. 3.	
2	LG69B	15	22S5	69	Keys	do	0.354 by 0.590 by 4.803.
2	LG69C	15	22S5	69	Nuts	Forged steel, No. 1.	1.259 by 0.866.
2	LG69D	15	22S5	69	Washers	do	1.338 by 0.393 by 3.149.
2	LG69E	15	22S5	69	Bushing	Bronze, No. 2.	
2	LG69F	15	22S5	69	do	do	
2	LG69G1	15	22S5	69	Pinion shaft	Forged steel, No. 3.	
2	LG69H	15	22S5	69	Keys	do	0.474 by 0.787 by 5.709.
2	LG69K	15	22S5	69	Nuts	Forged steel, No. 1.	1.102 by 1.102.
2	LG69L	15	22S5	69	Washers	do	1.181 by 0.393 by 2.292.
2	LG69M	15	22S5	69	Oil tubing	Copper	
2	LG70A	15	22S5	70	Bushing	Bronze, No. 2.	
2	LG70B	15	22S5	70	do	do	
2	LG70C	15	22S5	70	do	do	
2	LG70D	15	22S5	70	do	do	
2	LG71A	15	22S5	71	Clutch shifter	Forged steel, No. 3.	
2	LG71B	15	22S5	71	Inner screw for clutch lever	Forged steel, No. 1.	
2	LG71C	15	22S5	71	Nut for clutch lever	Forged steel, No. 3.	
2	LG71D	15	22S5	71	Outer screw for clutch lever	do	
2	LG71E	15	22S5	71	Cover plate	Forged steel, No. 1.	
2	LG71F	15	22S5	71	Set screw	do	

2	LG72A	15	22S5	72	Plunger	do	With 2 0.156 ($\frac{5}{32}$) by 1.25 split pins.
2	LG72B	15	22S5	72	Plunger cap	Bronze, No. 3	With 2 0.156 ($\frac{5}{32}$) by 2.5 split pins.
2	LG72C	15	22S5	72	Spring	Spring steel	
2	LG72D	15	22S5	72	Center pin	Forged steel, No. 3.	With 2 0.156 ($\frac{5}{32}$) by 1.25 split pins, 2 washers.
2	LG72E	15	22S5	72	do	do	With 2 0.156 ($\frac{5}{32}$) by 1.5 split pins, 2 washers.
2	LG72F	15	22S5	72	Thrust screw	do	
2	LG72G	15	22S5	72	Supporting pin for clutch	Forged steel, No. 1.	With 2 0.156 ($\frac{5}{32}$) by 1.5 split pins, 4 nuts.
2	LG72H	15	22S5	72	Back plate for supporting pin	do	
					REAR TRUCK.		
					JACKSCREW.		
4	LG14A	15	22S5	14	Collar bearing	Cast steel	
4	LG14B	15	22S5	14	Bushing for jackscrew, right-hand	Bronze	
4	LG14C1	15	22S5	14	Support bushing for jackscrew	do	
4	LG15A1	15	22S5	15	Wedge	Steel	
4	LG15B1	15	22S5	15	Jackscrew	Forged steel	
4	LG15C1	15	22S5	15	Cover plate pin	Steel	
4	LG15D1	15	22S5	15	Wedge	Wrought steel	
4	LG15E1	15	22S5	15	Washer	Wrought iron	
4	LG15F1	15	22S5	15	Operating lever shaft	Forged steel	
4	LG15G1	15	22S5	15	Oil cup bracket	Wrought iron	
4	LG15H	15	22S5	15	Handle	Wrought steel	
8	LG15K1	15	22S5	15	Wedge	Steel	
4	LG15L1	15	22S5	15	Washer	Wrought iron	
4	LG15M	15	22S5	15	do	do	
4	LG15N1	15	22S5	15	Cover plate	Steel	
4	LG15P	15	22S5	15	Cap nut	Wrought iron	
10	LG15R	15	22S5	15	Washer	Steel	
4	LG15S	15	22S5	15	Adjusting plate	do	
4	LG15T	15	22S5	15	Pinion adjusting washer	do	
4	LG15U	15	22S5	15	Lock washer	do	
4	LG15W	15	22S5	15	Pinion bolt	do	0.375 by 1.25.
4	LG16A1	15	22S5	16	Bevel gear	Cast steel	
4	LG16B1	15	22S5	16	Bevel pinion	do	
4	LG16C1	15	22S5	16	Jackscrew-operating support	do	
4	LG16D1	15	22S5	16	Jackscrew-operating lever	do	
4	LG17A1	15	22S5	17	Jackscrew housing	do	
4	LG17B1	15	22S5	17	Jackscrew leg	do	
					UNDERFRAME.		
2	LG18AA1	15	22S5	18	Floor support, side	Steel	12 by 40 pounds by 23.125 I
2	LG18BA1	15	22S5	18	do	do	Do.
4	LG18ZA	15	22S5	18	Jackscrew filler	do	5.25 by 0.5 by 8.625.
1	LG19D	15	22S5	19	Center sill web	do	19.25 by 0.625 by 275.75.
1	LG19F	15	22S5	19	do	do	Do.
1	LG19X	15	22S5	19	Center sill bottom angle, outside	do	3.5 by 3 by 0.5 by 266.75.
1	LG19Z	15	22S5	19	do	do	Do.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					REAR TRUCK—Continued.		
					UNDERFRAME—continued.		
4	LG19L	15	22S5	19	Reinforcing plate	Steel	6 by 3.5 by 0.5 by 2.5.
4	LG19U	15	22S5	19	do	do	Do.
2	LG19M	15	22S5	19	Center sill bottom angle, inside	do	3.5 by 3.5 by 0.5 by 35.75.
2	LG19W	15	22S5	19	do	do	Do.
2	LG19N	15	22S5	19	do	do	3.5 by 3.5 by 0.5 by 53.
1	LG20DA	15	22S5	20	Floor beam, intermediate	do	12 by 40 pounds by 46.5 I.
1	LG20EA	15	22S5	20	do	do	Do.
1	LG20FA	15	22S5	20	do	do	Do.
1	LG20QA	15	22S5	20	Floor beam, center	do	12 by 40 pounds by 40.687 (40 11/16) I.
1	LG20RA	15	22S5	20	do	do	Do.
1	LG20SA	15	22S5	20	do	do	Do.
1	LG20TA	15	22S5	20	do	do	Do.
1	LG20ZA	15	22S5	20	Plate	Wrought iron	3 by 0.5 by 66.625.
2	LG21AA	15	22S5	21	Box girder web	Steel	7 by 0.5 by 111.
2	LG21D	15	22S5	21	Box girder bottom angle	do	3.5 by 3.5 by 0.5 by 111.
2	LG21H	15	22S5	21	Box girder top angle	do	4 by 3.5 by 0.5 by 111.
2	LG21N	15	22S5	21	Box girder tie-plate	do	17 by 0.5 by 116.
1	LG21L	15	22S5	21	Floor beam, intermediate	do	12 by 40 pounds by 46.5 I.
4	LG21G	15	22S5	21	do	do	4 by 0.5 by 34.687 (34 11/16).
4	LG21Z	15	22S5	21	Filler	do	2.5 by 0.5 by 5.75.
2	LG21P	15	22S5	21	Reinforcing plate	do	30 by 0.75 by 43.375.
					BRAKE.		
1	LG22C	15	22S5	22	Wheel piece top angle	Steel	4 by 4 by 0.5 by 310.625.
1	LG22D	15	22S5	22	do	do	Do.
1	LG22AA	15	22S5	22	Wheel piece plate	do	34.5 by 1 by 313.875.
1	LG22BA	15	22S5	22	do	do	Do.
1	LG22DA	15	22S5	22	Center sill and wheel piece tie	do	12 by 30.2 pound by 269.75 channel.
1	LG22EA	15	22S5	22	do	do	Do.
1	LG2SH	15	22S5	28	Brake shaft	Forged steel	
1	LG29Z	15	22S5	29	Cylinder and hand-brake connection	Steel	
1	LGS0A	15	22S5	80	Crank-shaft bearing, top	Cast steel	
4	LGS0B	15	22S5	80	Bolts [5]	Forged steel	0.75 by 2.375.
2	LGS0C	15	22S5	80	do	do	0.75 by 2.
1	LGS0D	15	22S5	80	Crank-shaft cover plate	Steel	0.25 thick.
4	LGS0S	15	22S5	80	Machine screws	do	0.25 by 0.625.
1	LGS0E	15	22S5	80	Crank-shaft bearing, bottom	Cast steel	

2	LG80F	15	22S5	80	Bolts [5]	Forged steel	0.75 by 2.
4	LG80G	15	22S5	80	do	do	0.75 by 2.375.
1	LG80H	15	22S5	80	Brake-shaft bearing, outside	Cast steel	
2	LG80L	15	22S5	80	Bolts [5]	Forged steel	0.75 by 2.875.
1	LG80M	15	22S5	80	Brake-shaft bearing, inside	Cast steel	
2	LG80N	15	22S5	80	Bolts [5]	Forged steel	0.75 by 2.5.
1	LG80P	15	22S5	80	Crank shaft	Steel	Cold rolled.
1	LG80R	15	22S5	80	Cover plate	do	6.5 by 0.25 by 7.
4	LG80S	15	22S5	80	Machine screw	do	0.25 by 0.625.
					ROLLER PATH.		
2	LG49A2	15	22S5	49	Roller-path support on wheel piece	Cast steel	
					REAR TRUCK.		
					LOADING RIG EXTENSION.		
1	LG84A	15	22S5	84	Plate, right	Steel	27 by 0.375 by 144.
1	LG84B	15	22S5	84	Plate, left	do	Do.
2	LG84C	15	22S5	84	Plate	do	4.5 by 0.5 by 5.
1	LG84D	15	22S5	84	Channel, right	do	6 by 10.5 pounds.
1	LG84E	15	22S5	84	Channel, left	do	Do.
2	LG84F	15	22S5	84	Angles	do	5 by 3 by 0.375 by 4.5.
1	LG84G	15	22S5	84	Angle, right	do	5 by 3 by 0.375 by 126.75.
1	LG84H	15	22S5	84	Angle, left	do	Do.
1	LG84K	15	22S5	84	Plate	do	21 by 0.375 by 144.
1	LG84L	15	22S5	84	Channel	do	6 by 10.5 pounds by 144.
1	LG84M	15	22S5	84	Angle	do	3 by 3 by 0.375 by 144.5, approximately.
3	LG84N	15	22S5	84	Angles	do	2 by 2.5 by 0.25 by 0.5.
1	LG84P	15	22S5	84	Angle	do	3 by 3 by 0.375 by 4.5.
1	LG84Q	15	22S5	84	Plate	do	21 by 0.375 by 144.
1	LG84R	15	22S5	84	Channel	do	6 by 10.5 pounds by 144.
1	LG84S	15	22S5	84	Angle	do	3 by 3 by 0.375 by 144.5, approximately.
1	LG84T	15	22S5	84	do	do	2 by 2.5 by 0.25 by 16.5.
1	LG84U	15	22S5	84	do	do	3 by 3 by 0.375 by 4.5.
1	LG84W	15	22S5	84	do	do	2 by 2.5 by 0.25 by 17.25.
1	LG84X	15	22S5	84	do	do	Do.
1	LG85A	15	22S5	85	Hinge transom	Cast steel	
1	LG85B	15	22S5	85	Tiebar	Forged steel	
1	LG85C	15	22S5	85	do	do	
2	LG85D	15	22S5	85	Bolts [5]	do	0.625 by 2.
2	LG85E	15	22S5	85	Eye pin	do	
2	LG85F	15	22S5	85	do	do	
2	LG85G	15	22S5	85	Chain	Steel	No. 8 jack chain 5 inches long.
2	LG85H	15	22S5	85	do	do	No. 8 jack chain 9 inches long.
8	LG85K	15	22S5	85	Rings	do	
2	LG85L	15	22S5	85	Eye rivet	do	
2	LG85M	15	22S5	85	do	do	
3	LG85N	15	22S5	85	Stationary girder transom	Cast steel	
2	LG85P	15	22S5	85	Hinge pin	Forged steel	
2	LG85Q	15	22S5	85	Split pin	Steel	0.375 by 2.25.

[5] With nuts and lock washers.

Sliding railway mount, Model of 1919, for 10-inch gun—Continued.

Number for 1 gun.	Piece mark.	Drawing. Class.	Div.	No.	Name of piece.	Material.	Remarks.
					REAR TRUCK—Continued.		
					LOADING RIG EXTENSION—continued.		
2	LGS5R	15	22S5	S5	Washer	Forged steel	
1	LGS5S	15	22S5	S5	Hinge, right	Cast steel	
1	LGS5T	15	22S5	S5	Hinge, left	do	
1	LGS6A	15	22S5	S6	Angle, right	Steel	5 by 3 by 0.375 by 29.5.
1	LGS6B	15	22S5	S6	Angle, left	do	Do.
5	LGS6C	15	22S5	S6	Lag screws	do	0.375 by 2.5.
1	LGS6D	15	22S5	S6	Angle, right	do	5 by 3 by 0.375 by 29.5.
1	LGS6E	15	22S5	S6	Angle, left	do	Do.
5	LGS6C	15	22S5	S6	Lag screws	do	0.375 by 2.5.
1	LGS6F	15	22S5	S6	Shell rack, right	Oak	
1	LGS6G	15	22S5	S6	Shell rack, left	do	
6	LGS6H	15	22S5	S6	Rod	Wrought iron	0.625 by 48.375.
					LOCKING DEVICE.		
1	LGS9A	15	22S5	S9	Hook	Forged steel	With 1 0.25 by 2 steel pin.
1	LGS9B	15	22S5	S9	Lever, right	do	Do.
1	LGS9C	15	22S5	S9	Lever, left	do	Do.
4	LGS9D	15	22S5	S9	Angles	Steel	
1	LGS9E	15	22S5	S9	Shaft	Forged steel	
2	LGS9F	15	22S5	S9	Bearing	Cast steel	
6	LGS9G	15	22S5	S9	Bolts [5]	Forged steel	0.625 by 1.75.
1	LGS9H	15	22S5	S9	Tension spring	Spring steel	
1	LGS9K	15	22S5	S9	Eyebolt	Forged steel	With 2 0.375 nuts.
					SHOT TRUCK.		
1	LE2A	15	9KA	2	Axle bracket, front	Cast steel	
1	LE2B	15	9KA	2	Axle bracket, rear	do	
4	LE2C	15	9KA	2	Wheel	do	
4	LE2D	15	9KA	2	Bushing	Bronze	
4	LE2E	15	9KA	2	Axle	Forged steel	With 4 1-inch lock washers, 4 1-inch nuts, 4 0.5 hand oilers.
1	LE2F	15	9KA	2	Stop plate	Steel	3.5 by 0.5 by 5.353, approximately.
2	LE2G	15	9KA	2	Bolts [1]	Forged steel	0.625 by 2.125.
1	LE3A	15	9KA	3	Plate	Steel	27 by 0.25 by 53.

1	LE3B	15	9KA	3	Angle	do	3 by 2 by 0.25 by 25.524, approximately.
2	LE3C	15	9KA	3	Tray handle	Forged steel	
2	542A	76	7	542	Hinge, male	Steel	
2	542B	76	7	542	Hinge, female	do	
1	542C	76	7	542	Hasp, male	do	
1	542D	76	7	542	Hasp, female	do	
1	542E	76	7	542	Hasp, staple	do	
1	542F	76	7	542	Lid	do	
1	542G	76	7	542	Body	do	

[1] With lock washers.

[5] With nuts and lock washers.

PART V.

LIST OF TOTAL EQUIPMENT.

Item.	Drawing.		Drawing.	Specification.
	Class.	Division.		
10-inch gun, model of 1888, MI	59	19	1	445
10-inch gun, model of 1888, MII	59	6	1	445
Spare parts for 10-inch gun, model of 1888, MI	59	5	1	.....
Spare parts for 10-inch gun, model of 1888, MII	59	5	1	.....
Tools and accessories for 10-inch gun, model of 1888, MI	21	10G11	1	.....
Tools and accessories for 10-inch gun, model of 1888, MII	21	10G11	1	.....
Sliding railway mount, model of 1919	10	28	1	.....
Tools and accessories for mount, model of 1919	27	51	8	.....
Ammunition car, model of 1918 for 10-inch gun	34	7	1	3038
Spare parts for ammunition car	27	46	9	.....
Artillery supply truck and accessories	31	16	1	.....
Spare parts for supply truck	31	16	1	.....
Artillery repair truck and accessories	31	18	1	.....
Spare parts for repair truck	31	18	1	.....
Antiaircraft machine guns	1	32,35	1	3078,3087
Fire-control equipment	27	42	2	.....
Bore sights for 10-inch guns, models of 1888 MI, 1888 MII	15	2A	11	.....
Panoramic sight, type E, for railway mounts	15	2A37	1	3030
Panoramic telescope 4 and 10 power for railway mounts	15	2A28	1	3030
Elevation quadrant, model of 1917	12	12F	1	3030
List of miscellaneous tools and accessories and stores for sliding railway mount, model of 1919	27	48	22	.....

PART VI.

SLIDING RAILWAY MOUNT, MODEL OF 1919, FOR 10-INCH GUNS—LIST OF OIL HOLES, OIL PLUGS, OIL CUPS, AND HANDY OILERS.

	Oil holes.	Oil plugs.	Oil cups.	Handy oilers.
Roller bearings:				
Roller bearing housings	.....	8	.....	.....
Jackscrews:				
Jackscrew housings	.....	12	.....	.....
Operating-shaft bearing	.....	.....	.....	12
Elevating mechanism:				
Rear gear case	2	.....	.....	1
Front gear case	.....	.....	.....	1
Front gear case cover	.....	.....	.....	1
Trunnion bearings:				
Trunnion bearing cap	.....	.....	2	.....
Antifriction mechanism:				
Crutch	.....	.....	2	.....
Loading crane:				
Mast	1	.....	.....	.....
Right side plate	1	.....	.....	.....
Left side plate	1	.....	.....	.....
Cover	1	.....	.....	.....
Panoramic sight	4	.....	.....	.....
Elevation quadrant	.....	.....	.....	2
TRUCKS.				
Jackscrews:				
Jackscrew-operating support	.....	.....	8	.....
Jackscrew housing	.....	.....	4	.....
Translating mechanism:				
Gear-case covers	.....	.....	6	.....
Gear cases	.....	.....	6	.....
Intermediate shaft brackets	4	.....	.....	.....
Pinion shafts	.....	.....	.....	2
Gear-case brackets	.....	.....	2	.....

PART VII.

DATA TABLE, SLIDING RAILWAY MOUNT, MODEL OF 1919, FOR 10-INCH GUN.

Angle of elevation	degrees..	54
Angle of depression	do....	7
Total weight on trucks (without gun), approximately	pounds..	133,340
Total weight on trucks (including gun), approximately	do....	200,540
Length (between pulling faces of couplers)	inches..	1,081
Distance between truck centers	do....	681
Number of trucks		2
Number of wheels per truck		12
Diameter of wheels	inches..	36
Journals	do....	5.5 by 10
Weight of truck, approximately	pounds..	51,450
Total weight on track	do....	403,440
Average wheel load on track per axle	do....	33,620

APPENDIX.

SETTING UP, CARE, AND MAINTENANCE.

The following paragraphs are written with a view of instructing the personnel in preparing the mount for either service or transportation. The mount is in one case assumed to be in traveling condition and the cycle of operations preparatory to firing a shot enumerated; in the other case the mount is assumed to be in firing position and the cycle of operation preparatory to traveling enumerated.

MOUNT PREPARED FOR TRAVELING—TO PREPARE FOR SERVICE.

Swing platforms into place. The platforms at rear of carriage on loading platform are secured in folded position by a toggle pin. When this is withdrawn the platform may be raised to a position slightly above horizontal to permit of swinging out platform brackets to a position perpendicular to face of girder.

The platform may now be lowered to horizontal position with upper face of platform brackets engaging in notches on underside of platform surface. The long folding platforms at center of girders are simply swung outward to horizontal position. The forward section of these platforms is secured by a catch which must be swung to one side to free platform. The short platform directly beneath trunnions and above long platform on right side of mount may be swung into place just as the platform first mentioned. The platforms on front end of front truck may be lowered to horizontal position. The chain and stanchion railings found in one of the powder storage spaces on loading platform may now be put in place on folding platforms.

The panoramic telescopes, Plates IX and X, may be attached to cradle of sight by lowering dovetail into ways on cradle and clamping with clamping screw.

The elevation quadrant, Plate IX, may be attached to centering bracket on right trunnion by carefully inserting taper plug into center hole and taking care that projection on upper edge of quadrant bracket registers with recess on centering bracket. If the cam lever be now swung 90° toward front of mount and held so the elevation quadrant may be lightly forced home when cam lever may be allowed to fall.

The driving chain LG66B1, Plates XXXIV, XXXV, XXXVI, and XXXVII, connecting traversing gear train to truck axle, should be put on sprockets and united at connecting link. Two of these chains must be used to connect two separate sets of sprockets. Withdraw plunger cap on crank called "outer screw," Plate XXXVII, and rotate 180° in counterclockwise direction. This engages clutch in traversing gear train. Put translating crank on end of translating crank shaft.

Replace brake handwheel and handwheel shaft on rear truck. To accomplish this insert brake shaft into hole in truck plate. Guide end of brake shaft into brake-shaft nut and rotate handwheel until inner end of brake shaft comes to a seat in the inside brake-shaft bearing. The outside brake-shaft bearing may now be secured to truck plate with the two bolts provided. Preliminary to firing all brakes should be released. To that end, the release rod on side of each truck should be drawn out, permitting air to escape from air reservoir, thus rendering air system inert. This is necessary to eliminate the possibility of firing gun with brakes set, to the detriment of truck wheels.

The handle on right elevating handwheel, Plate VII, should next be drawn out to normal position. This may be done by drawing plunger toward center of wheel, then drawing out handle to limit, when plunger may be released. The bolt of handle

should be rotated until the pin at inner end of bolt comes to seat in notch on inner face of handwheel lug. In this position the plunger will engage with recess in bolt and lock same. When elevating the gun it should be noted if the translating crank of breech mechanism, Plate II, clears the platform or other parts throughout its travel. If the clearance is small, or if the crank comes in contact with any other part of mount, it should be withdrawn from breech mechanism.

With the sighting equipment now in place the gun may be trained on target by use of translating mechanism.

The truck sleepers, Plate XXXVIII, two on rear truck, may now be let down upon I-beam stringers of firing track. Each sleeper is lowered through two cranks on the same side of truck. Care must be taken to rotate both cranks the same number of revolutions and at the same time. This may best be done by counting and turning each crank one revolution at the count.

With the two truck sleepers lowered in place the six sleepers under girder may now be lowered after first withdrawing toggle pins securing them in raised position. These sleepers are each operated by two cranks, one on each side of carriage and directly above respective sleepers, which must likewise be operated in unison until sleepers are seated, after which by use of the ratchet levers, each again operated in unison, the sleepers may be more firmly seated.

With the sleepers all seated on firing track the gun may be disengaged from gun support, Plates I and II, by disconnecting gun transport ties at point where they are attached to lower band. This is effected by first unscrewing turnbuckles several revolutions, then withdrawing two toggle pins, one for each gun transport tie. Now, after elevating gun slightly, the gun support may be lowered to girder cover plate, following which the gun may be lowered to the loading angle $-7°$, where it will come to rest upon gun support bracket.

The loading rig extension, Plate XXII, may now be set in position. First withdraw eye pins holding folding sections in folded position. The folding extension girders may now be swung 180° into extended position and locked by two tie bars, the free ends of which are secured by eye pins.

The shot truck, Plate XXIII, may be used for transporting shells or powder. To release truck, push down on pedal, when truck may be drawn along track.

The two loading cranes, Plates XIX and XXI, may next be set up. The free end of boom may be raised until free end of tie is secured between side plates by means of pin. The pawl lever may next be put in position indicated on Plate XIX. (The pawl lever, as will be explained later, was removed because of railway clearances.) The loading cranes are now in condition for use.

The loading stand, Plate XVII, may next be set up. Swinging folding trapdoors on loading platform to one side gives access to loading stand in folded position in pit. The trough extension Plate III, lying on top of trough of folded loading stand, should first be lifted out of pit and laid upon platform. Next the crane hook, Plate XIX, should be attached to lifting bail of folded loading stand, when the latter may be hoisted out of pit by use of crane. Care must be exercised to note when lower end of front standard has reached highest point in channel rails on side of pit. When this point has been reached the lower end must be pushed toward forward end of mount and held there, the while slowly lowering with crane. When the lower end of front standard comes to rest it becomes automatically locked by the locking mechanism. Next the trough swinging about forward end should be raised to a position about 10° horizontal to permit of raising rear standard. The lugs on upper end of rear standard should rest in recesses under edge of loading trough and the latter may be lowered upon former when the stand is rigid and in condition to support shell. Now, with gun at loading angle of $-7°$ and breech opened, the narrow end of aforementioned trough extension may be carefully inserted into breech sufficiently to permit of lugs

on rear end to seat in recess in trough bearing plates, the latter situated at forward end of trough. The shell deposited on loading stand may now be rammed home. After the shell has been rammed home, the rear end lugs of trough extension may be lifted to clear recesses and the whole trough extension slid back upon trough of loading stand until projecting hooks on under face of trough extension fall into recesses toward rear end of trough of loading stand. The breech may now be closed.

MOUNT PREPARED FOR SERVICE—TO PREPARE FOR TRAVELING.

Remove brake handwheel shaft on rear truck. To accomplish this, withdraw the two bolts securing outside brake shaft bearing. Unscrew brake shaft from brake shaft nut and remove former to place of safety on mount. Raise sleepers, Plates I and II, of both carriage and rear trucks to extreme height, operating crank for each sleeper in unison as when lowered.

Remove driving chains LG66B1, Plates XXXIV, XXXV, XXXVI, and XXXVII, connecting traversing gear train with truck axle. Each of these chains may be removed after opening at connecting link. Withdraw plunger cap on crank called "outer screw," Plate XXXVII, and rotate 180° in clockwise direction. This disengages clutch on translating gear train. Remove translating crank.

The loading trough extension, Plate III, should be lifted off of loading stand and laid to one side on loading platform. Lower folding loading stand, Plate XVII, into pit. Lift free end of trough several inches to clear upper end of rear standard, the while holding latter. When upper end of rear standard is free of notches in trough it may be swung forward and brought to rest upon strut tie. The trough may be lowered upon rear standard. The crane hook may now be attached to lifting bail. Now holding down release plunger, the stand may be slowly raised with crane until lower end of front standard reaches highest point in channel rails on side of pit. Having reached the highest point, the lower end of front standard should be pushed to rear and held so while slowly lowering with crane. The stand may thus be lowered into pit and crane hook disengaged when trough extension may be laid in pit on top of folding loading stand. Closing trapdoors leaves the platform clear for swabbing out bore of gun. The cranes, Plates XIX and XXI, should now be swung around with booms pointing forward, when the latter may be lowered by withdrawing pin connecting ties to side plate. After boom has been lowered to platform, the slack in chain may be taken up. Next withdraw split pin securing pawl lever to pawl shaft. Draw pawl lever off of pawl shaft and replace on pawl shaft in a position 180° from original position. Replace split pin. This operation is necessary to keep within limits of railway clearances.

The folding extension girder, Plate XXII, of loading rig extension may be returned to folded position after shot truck has been locked in traveling position, at extreme forward position. In this position it is automatically locked by shot truck lock, Plate XXIII. Withdrawing eye pins connecting tiebars and left folding extension girder, the two folding extension girders may be swung 180° into folded position, in which position they may be locked with eye pins at extreme forward end of stationary extension girder.

The panoramic telescope, Plates IX and X, may be removed by simply unscrewing clamping screw and lifting telescope free of cradle. The elevation quadrant may be freed by drawing cam lever toward rear or rotating in counter clockwise direction until taper plug is disengaged, when whole quadrant may be removed.

The gun support Plates I, II, and III may next be raised into upright position, after which the gun may be lowered upon it. The gun transport ties may be connected to tie-rod lugs on lower band by means of toggle pins, after which by use of turnbuckles the rods may be drawn up tightly. The handle on right elevating handwheel should be returned to its traveling position. This may be accomplished by withdrawing

plunger and sliding handle toward girder until plunger seats in second recess in handle. In this position the handle comes well within the railway clearance.

Remove chain and stanchion railings from folding platforms and store in one of powder storage spaces. The folding platforms may next be swung into folded or traveling position and secured with toggle pin or catch where provided.

CARE AND MAINTENANCE.

It is essential that all bearings of mount be oiled before use. The journals must be kept well supplied with oil and waste. The rear gear case, Plate VIII, must be kept free of dust and grit and the oil retainer kept nearly full of oil. At intervals it is well to drain this retainer, wash out all sediment, and refill with good grade of heavy oil. Grease cups supplying grease to trunnion bracket pin, Plate VI, must be kept full of grease, and cap should be screwed down several revolutions at short intervals. It is important that all parts of jackscrew mechanism of both carriage and truck be well oiled before use.

ADJUSTMENTS.

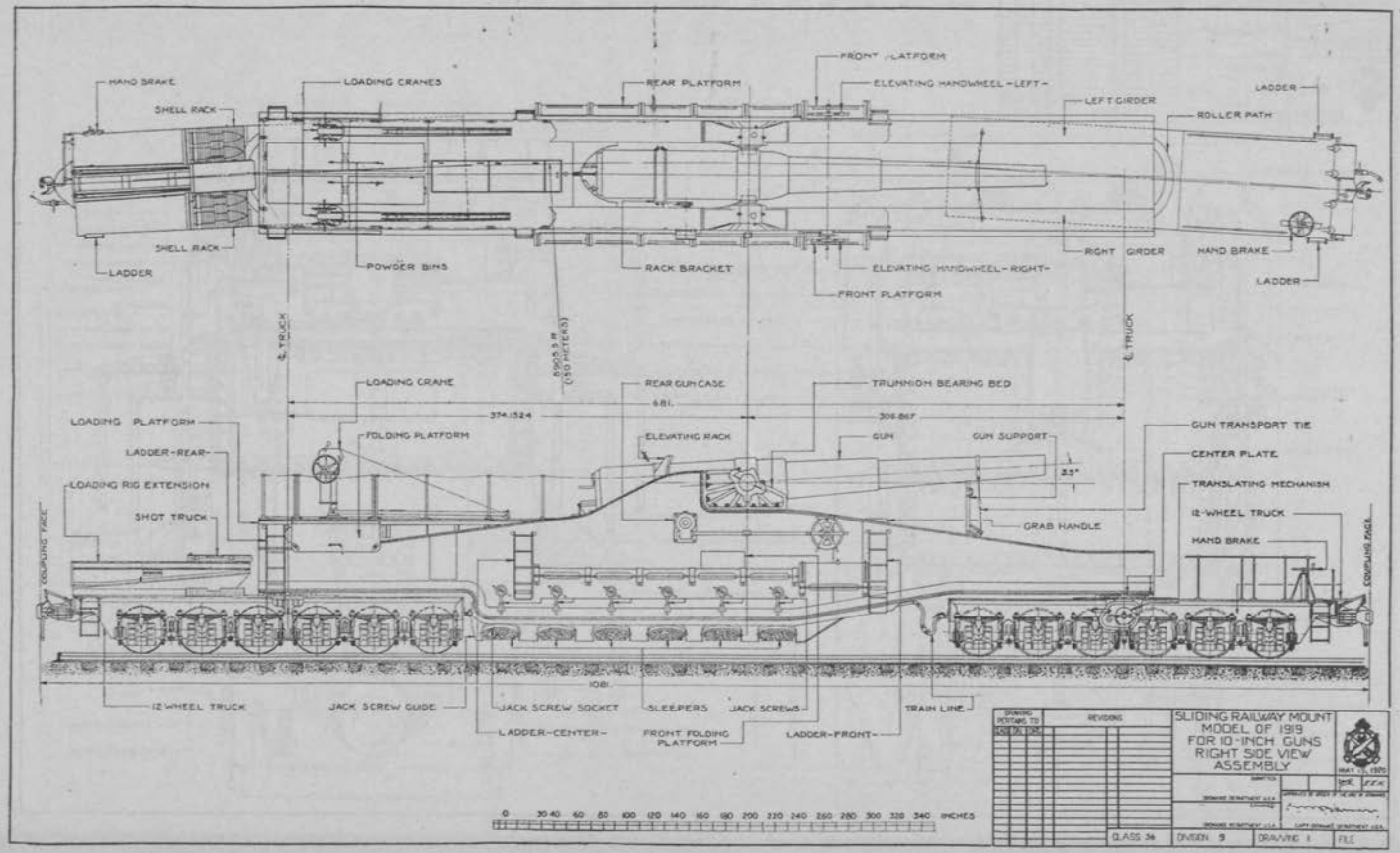
The two following important adjustments should be looked to from time to time.

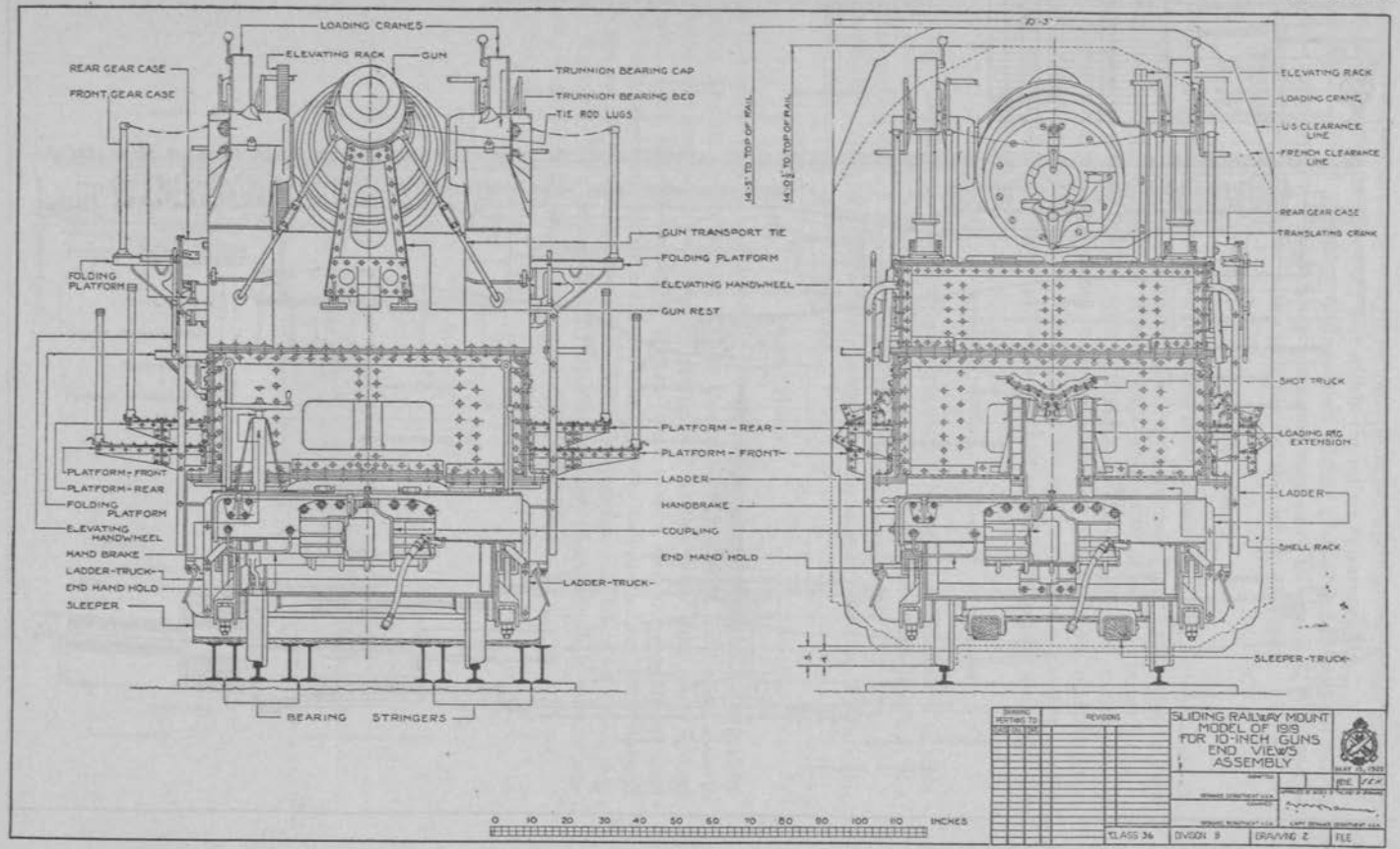
The antifriction mechanism should be so adjusted as to permit the insertion of a feeler gauge of 0.02 inch in thickness on underside of trunnion.

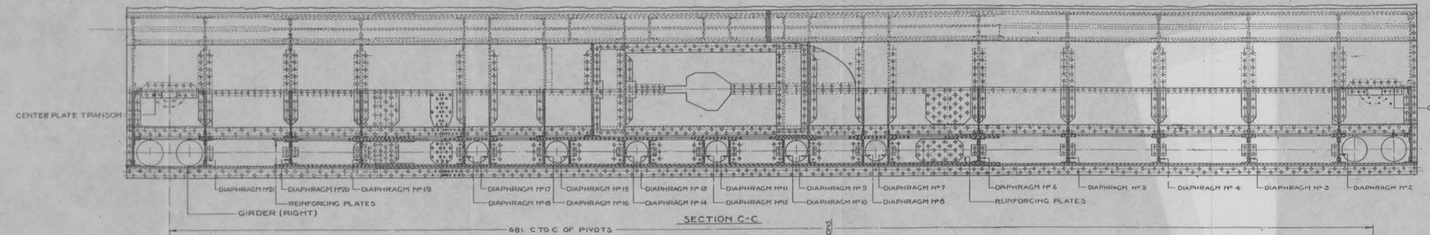
The assembled height of Belleville spring washers, in rear gear case, Plate VIII, should be maintained at 1.0625 inches.

PRECAUTIONS.

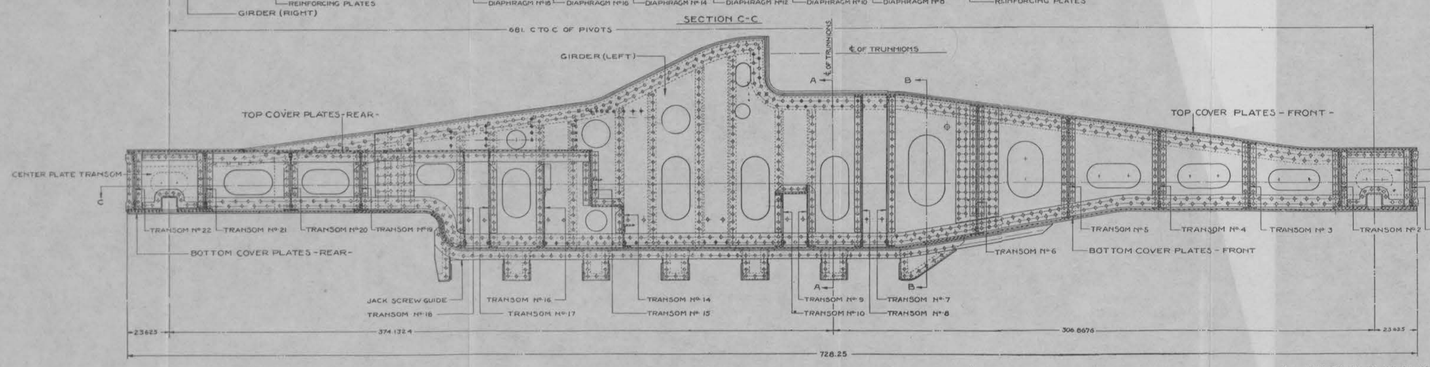
The suspension rods on trucks should be carefully inspected previous to transit and and when possible during transit. They should be adjusted in such manner as to distribute the load equally on every spring and at the same time keep springs horizontal. In case of breakage, the suspension rods should be replaced with rods of forged steel. It is further important that the ball-and-socket joint through which the load is transmitted from equalizer to suspension rod should be thoroughly oiled. This may be accomplished by pouring oil into clearance space around suspension rod where it passes through equalizer.

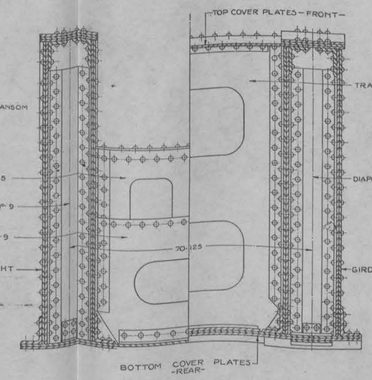

HAND BRAKE
SHELL RACK
LOADING CRANES
REAR PLATFORM
FRONT PLATFORM
ELEVATING HANDWHEEL - LEFT -
LEFT GIRDER
LADDER
ROLLER PATH
SHELL RACK
LADDER
POWDER BINS
RACK BRACKET
ELEVATING HANDWHEEL - RIGHT -
FRONT PLATFORM
RIGHT GIRDER
HAND BRAKE
LADDER
℄ TRUCK
RACK BRACKET (SIGHTERS)
℄ TRUCK
LOADING CRANE
REAR GUN CASE
TRUNNION BEARING BED
LOADING PLATFORM
LADDER - REAR -
LOADING RIG EXTENSION
SHOT TRUCK
FOLDING PLATFORM
ELEVATING RACK
GUN
GUN SUPPORT
35°
GUN TRANSPORT TIE
CENTER PLATE
TRANSLATING MECHANISM
12-WHEEL TRUCK
HAND BRAKE
GRAB HANDLE
COUPLING FACE
COUPLING FACE
12 WHEEL TRUCK
JACK SCREW GUIDE
JACK SCREW SOCKET
SLEEPERS
JACK SCREWS
TRAIN LINE
LADDER - CENTER -
FRONT FOLDING PLATFORM
LADDER - FRONT -
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 INCHES
DRAWING PERTAINS TO
REVISIONS
SLIDING RAILWAY MOUNT MODEL OF 1919 FOR 10-INCH GUNS RIGHT SIDE VIEW ASSEMBLY
MAY 15, 1920
CLASS 36
DIVISION 9
DRAWING 1
FILE


LOADING CRANES
ELEVATING RACK
GUN
REAR GEAR CASE
FRONT GEAR CASE
TRUNNION BEARING CAP
TRUNNION BEARING BED
TIE ROD LUGS
GUN TRANSPORT TIE
FOLDING PLATFORM
ELEVATING HANDWHEEL
GUN REST
FOLDING PLATFORM
PLATFORM - REAR -
PLATFORM - FRONT -
LADDER
HANDBRAKE
COUPLING
END HAND HOLD
LADDER-TRUCK
PLATFORM - FRONT
PLATFORM - REAR
FOLDING PLATFORM
ELEVATING HANDWHEEL
HAND BRAKE
LADDER-TRUCK
END HAND HOLD
SLEEPER
BEARING STRINGERS
10'-3"
14'-3" TO TOP OF RAIL
14'-0½" TO TOP OF RAIL
ELEVATING RACK
LOADING CRANE
U.S CLEARANCE LINE
FRENCH CLEARANCE LINE
REAR GEAR CASE
TRANSLATING CRANK
SHOT TRUCK
LOADING RAIL EXTENSION
LADDER
SHELL RACK
SLEEPER-TRUCK
0 10 20 30 40 50 60 70 80 90 100 110 INCHES
DRAWING REFERRING TO
REVISIONS
SLIDING RAILWAY MOUNT MODEL OF 1918 FOR 10-INCH GUNS END VIEWS ASSEMBLY
MAY 15, 1920
CLASS 36
DIVISION 9
DRAWING 2
FILE



SECTION C-C





SECTION A-A

SECTION B-B

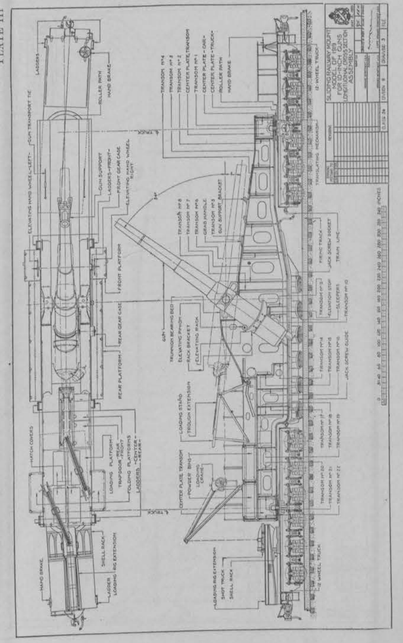
DRAWING AND TRACING NO.	REVISIONS	
ELEVATION		

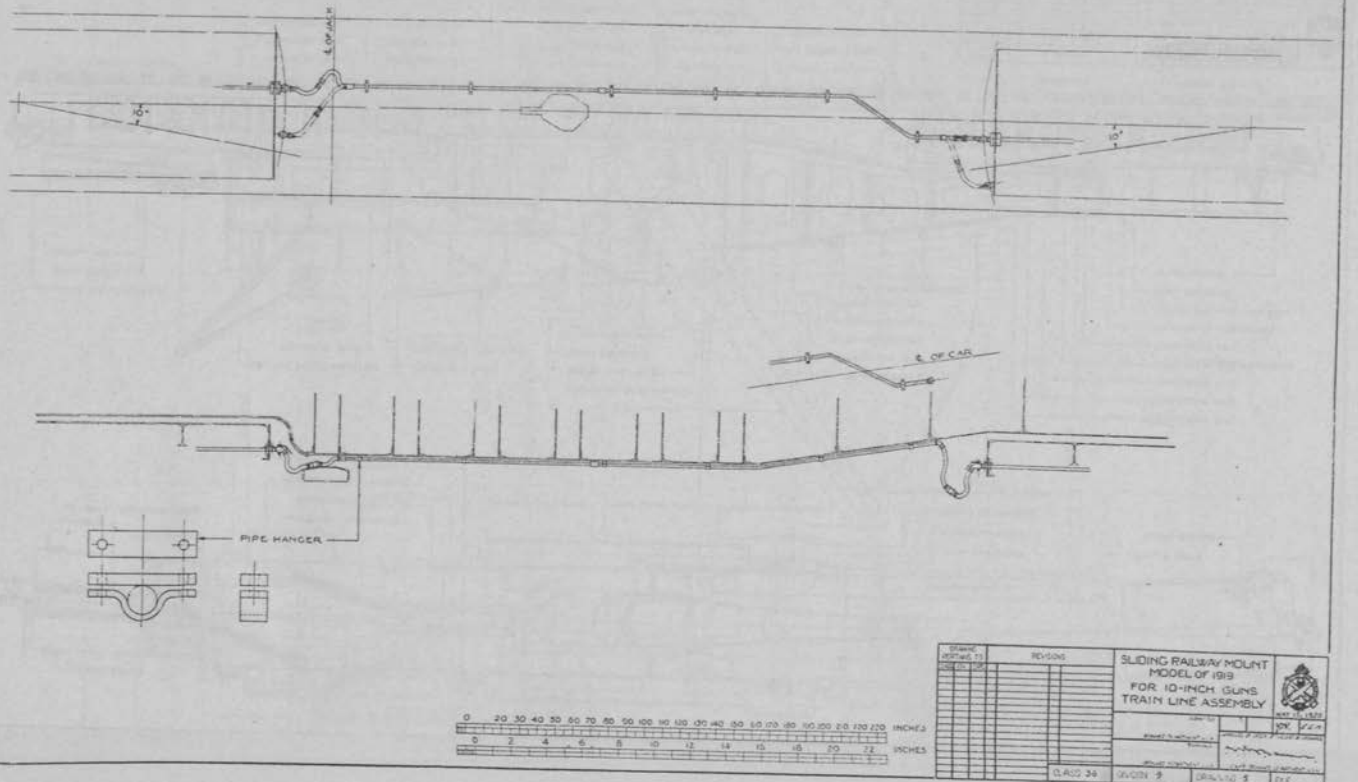
CLASS 36

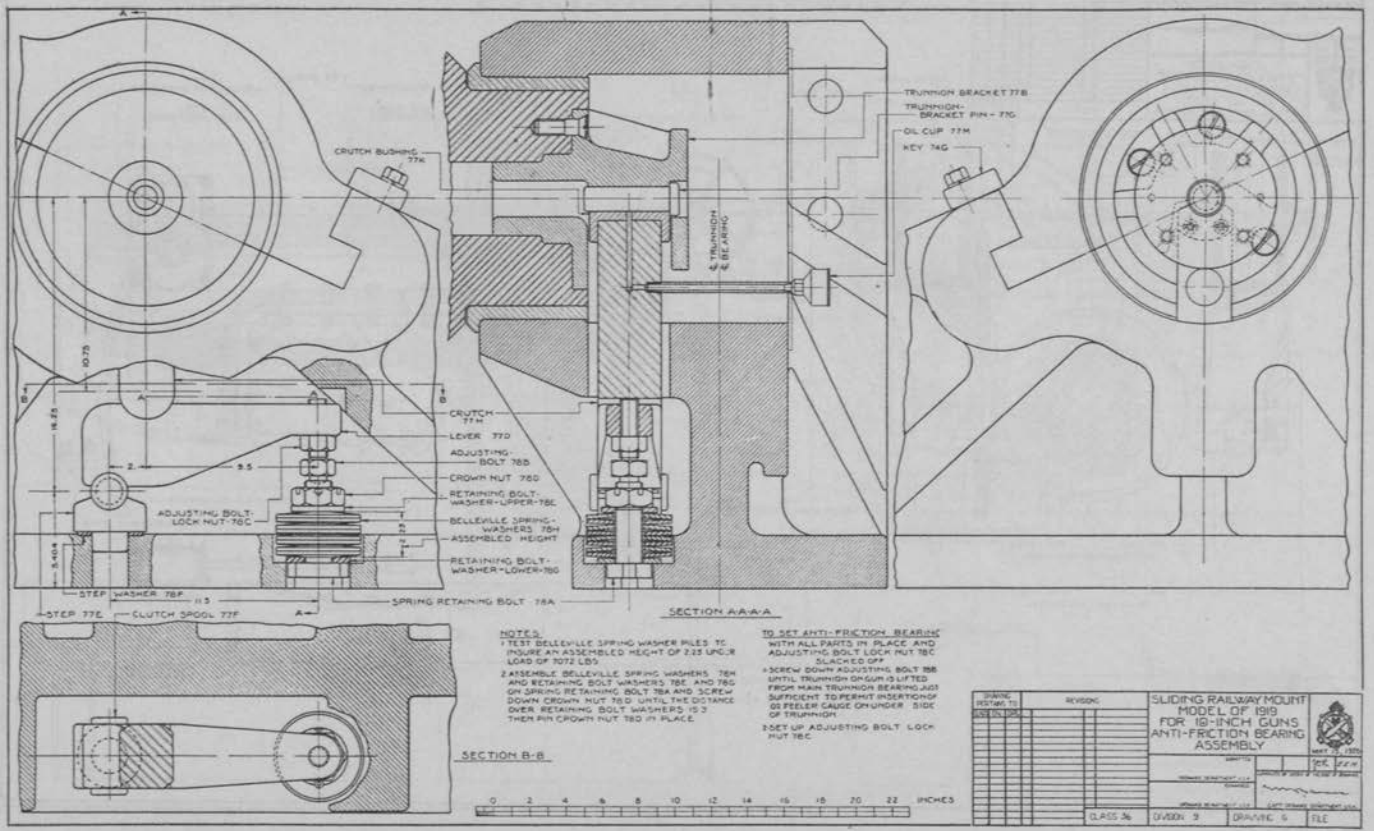
SLIDING RAILWAY MOUNT MODEL OF 1919 FOR 10-INCH GUNS LEFT GIRDER INSIDE ASSEMBLY

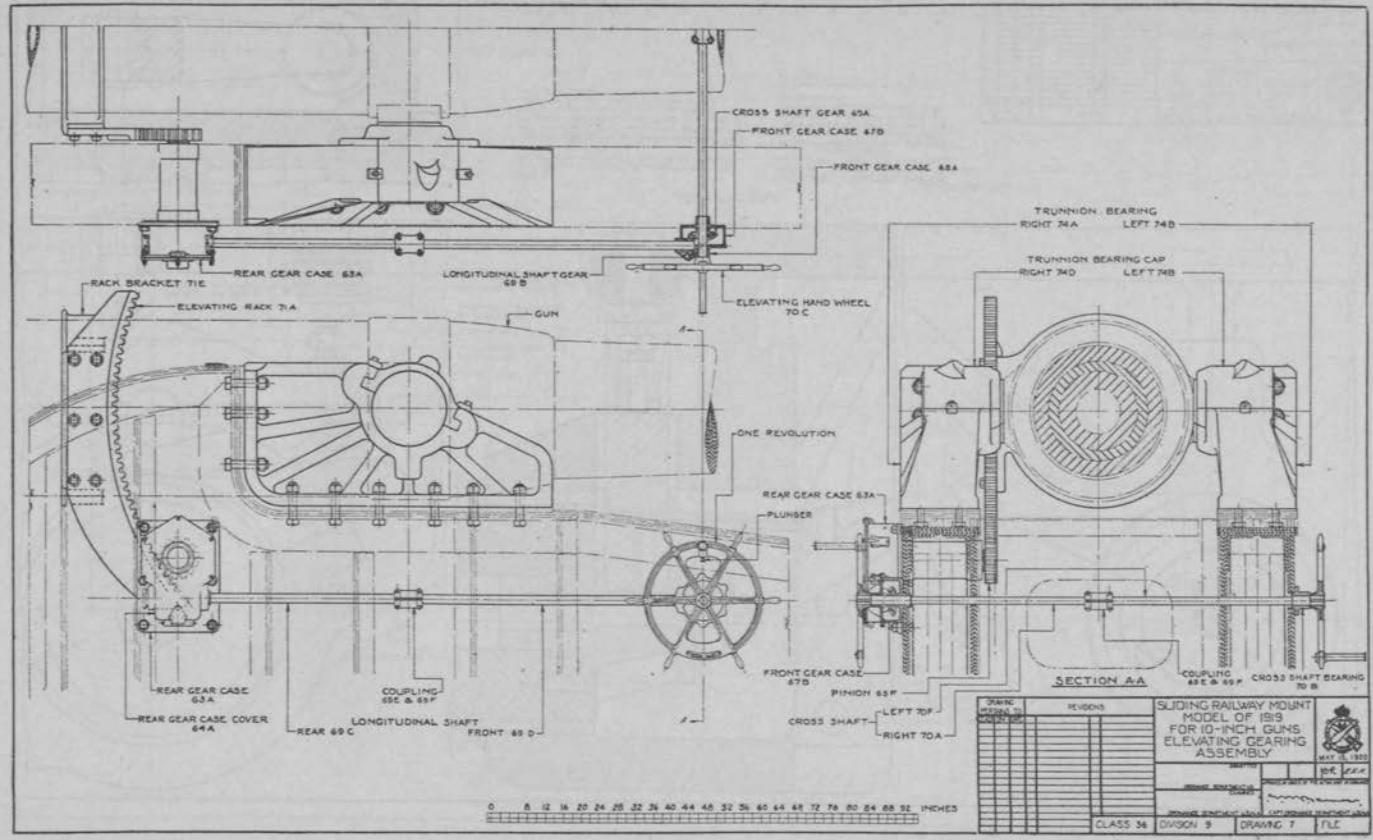
DIVISION 9 | DRAWING 4 | FILE

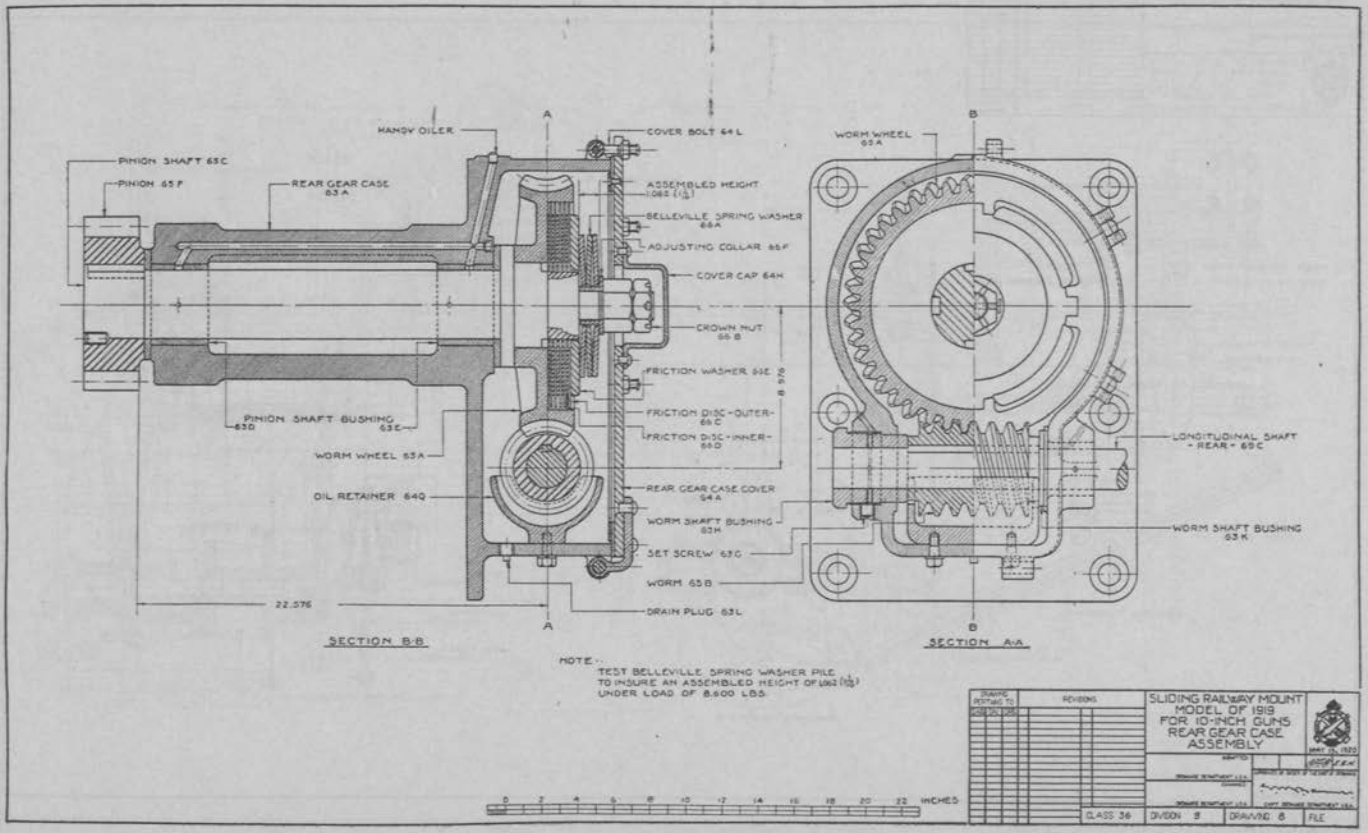
PLATE III

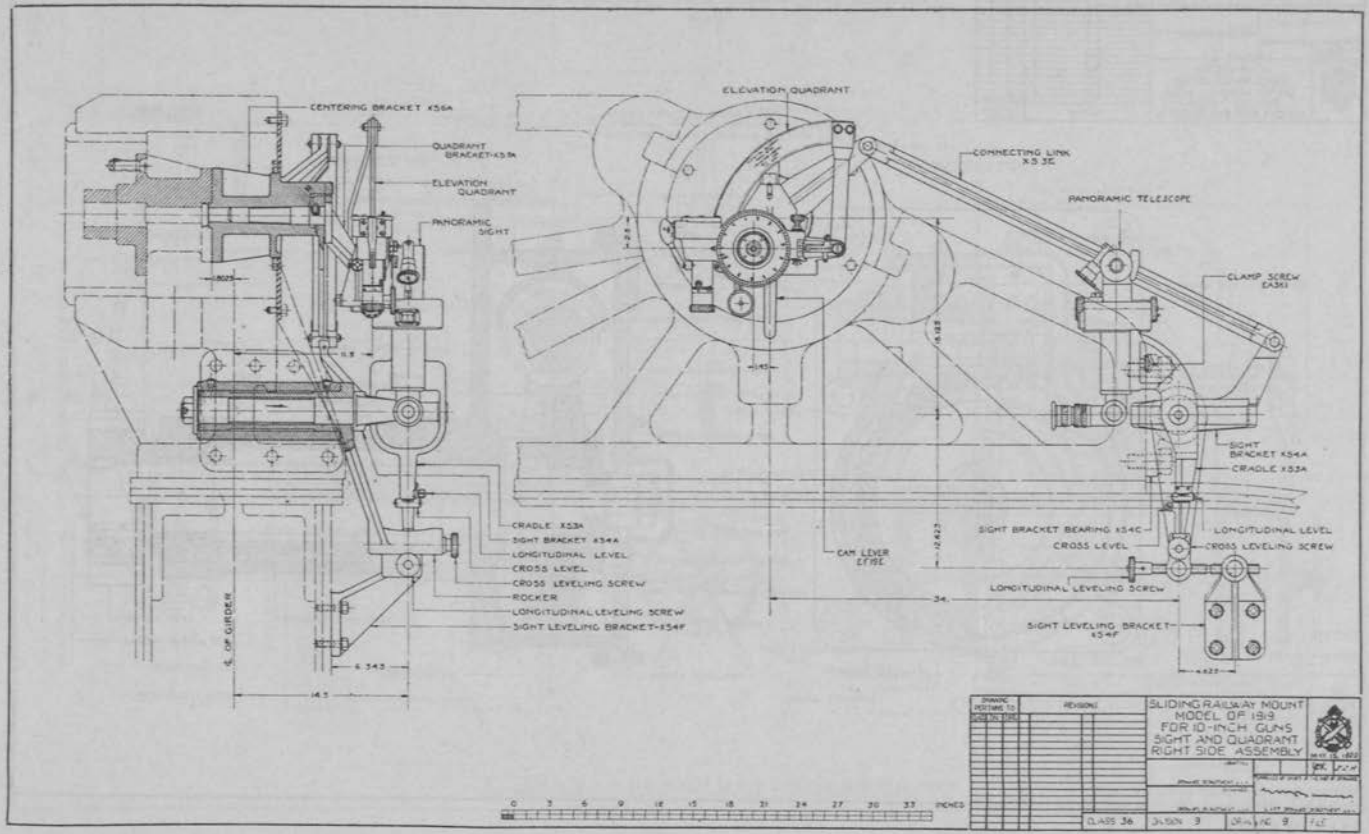


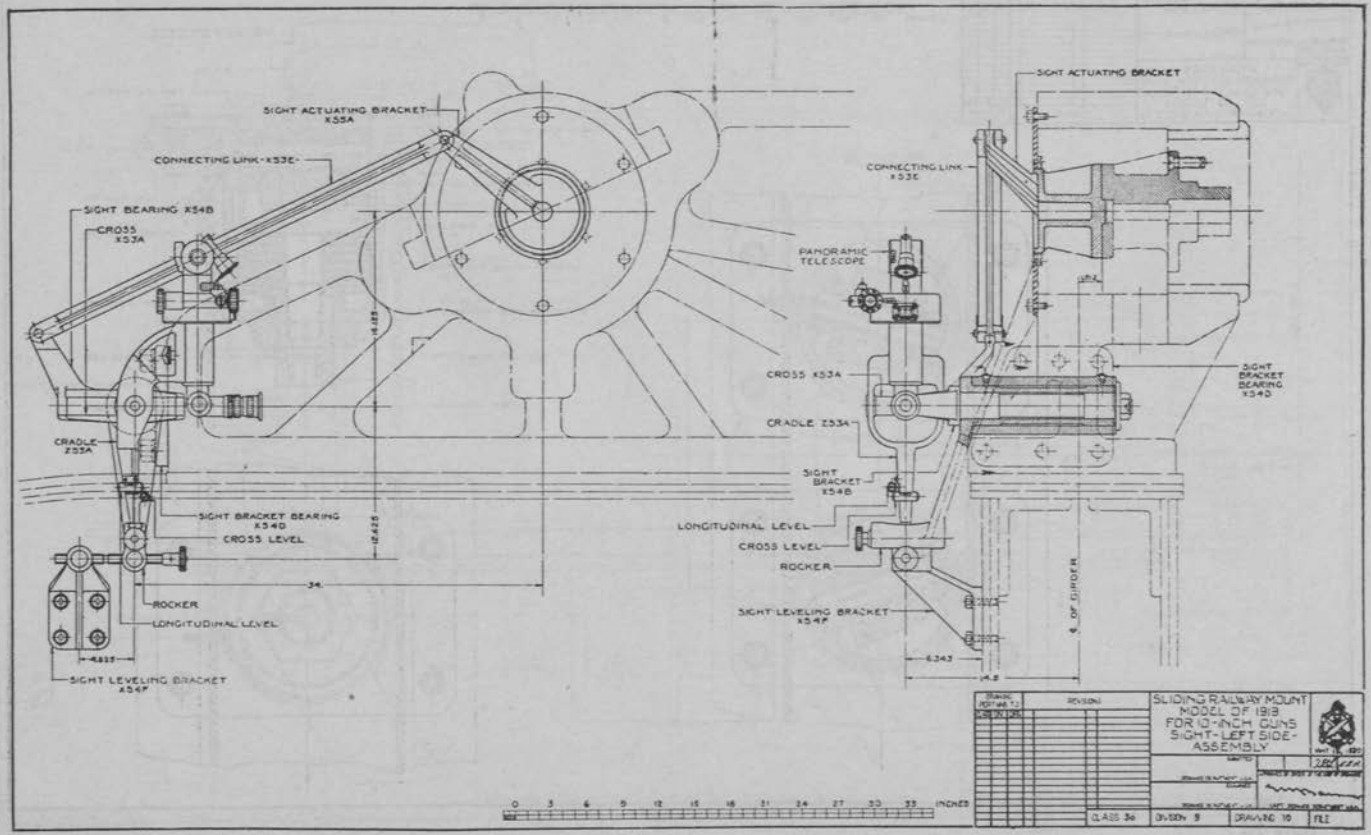

10'
10'
℄ OF TRACK
℄ OF CAR
PIPE HANGER
REVISIONS
SLIDING RAILWAY MOUNT
MODEL OF 1919
FOR 10-INCH GUNS
TRAIN LINE ASSEMBLY
CLASS 34
DIVISION 9
DRAWING 5
FILE
INCHES
INCHES


TRUNNION BRACKET 77B
TRUNNION-BRACKET PIN - 77G
OIL CUP 77M
KEY 74G
CRUTCH BUSHING 77K
TRUNNION BEARING
CRUTCH 77H
LEVER 77D
ADJUSTING BOLT 78D
CROWN NUT 78D
RETAINING BOLT-WASHER-UPPER-78E
BELLEVILLE SPRING-WASHERS 78H
ASSEMBLED HEIGHT
RETAINING BOLT-WASHER-LOWER-78G
ADJUSTING BOLT-LOCK NUT-78C
STEP WASHER 78F
STEP 77E
CLUTCH SPOOL 77F
SPRING RETAINING BOLT 78A
SECTION A-A-A
SECTION B-B
NOTES:
1 TEST BELLEVILLE SPRING WASHER PILES TO INSURE AN ASSEMBLED HEIGHT OF 2.25 UNDER LOAD OF 7072 LBS.
2 ASSEMBLE BELLEVILLE SPRING WASHERS 78H AND RETAINING BOLT WASHERS 78E AND 78G ON SPRING RETAINING BOLT 78A AND SCREW DOWN CROWN NUT 78D UNTIL THE DISTANCE OVER RETAINING BOLT WASHERS IS 2 THEN PIN CROWN NUT 78D IN PLACE.
TO SET ANTI-FRICTION BEARING WITH ALL PARTS IN PLACE AND ADJUSTING BOLT LOCK NUT 78C SLACKED OFF
1 SCREW DOWN ADJUSTING BOLT 78B UNTIL TRUNNION ON GUN IS LIFTED FROM MAIN TRUNNION BEARING JUST SUFFICIENT TO PERMIT INSERTION OF .03 FEELER GAUGE ON UNDER SIDE OF TRUNNION.
2 SET UP ADJUSTING BOLT LOCK NUT 78C
0 2 4 6 8 10 12 14 16 18 20 22 INCHES
DRAWING RETAINED TO CENTRAL FILES
REVISIONS
SLIDING RAILWAY MOUNT MODEL OF 1919 FOR 181-INCH GUNS ANTI-FRICTION BEARING ASSEMBLY
MAY 15, 1920
CLASS 36
DIVISION 9
DRAWING 6
FILE

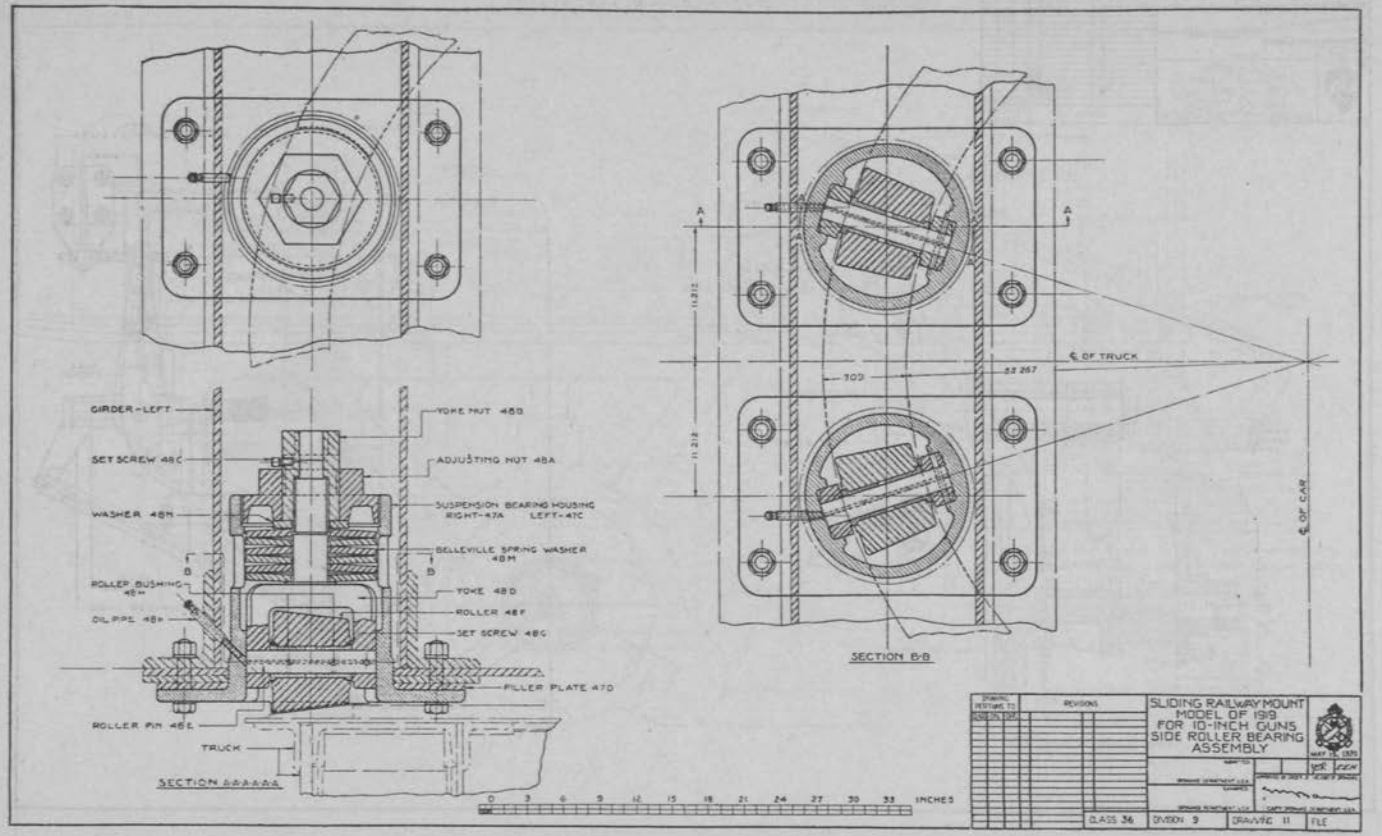

CROSS SHAFT GEAR 65A
FRONT GEAR CASE 67B
FRONT GEAR CASE 68A
TRUNNION BEARING
RIGHT 74A
LEFT 74B
TRUNNION BEARING CAP
RIGHT 74D
LEFT 74B
REAR GEAR CASE 63A
LONGITUDINAL SHAFT GEAR 69B
ELEVATING HAND WHEEL 70C
RACK BRACKET 71E
ELEVATING RACK 71A
GUN
ONE REVOLUTION
REAR GEAR CASE 63A
PLUNGER
FRONT GEAR CASE 67B
PINION 68F
CROSS SHAFT
LEFT 70F
RIGHT 70A
SECTION A-A
COUPLING 65E & 65F
CROSS SHAFT BEARING 70B
REAR GEAR CASE 63A
REAR GEAR CASE COVER 64A
COUPLING 65E & 65F
LONGITUDINAL SHAFT
REAR 69C
FRONT 69D
0 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 INCHES
DRAWING REVISED TO
REVISIONS
SLIDING RAILWAY MOUNT
MODEL OF 1919
FOR 10-INCH GUNS
ELEVATING GEARING
ASSEMBLY
MAY 15, 1920
CLASS 36
DIVISION 9
DRAWING 7
FILE


MANOV OILER
PINION SHAFT 65C
PINION 65F
REAR GEAR CASE 63A
COVER BOLT 64L
ASSEMBLED HEIGHT 1.062 (1 1/16)
BELLEVILLE SPRING WASHER 66A
ADJUSTING COLLAR 66F
COVER CAP 64H
CROWN NUT 66B
FRICTION WASHER 66E
FRICTION DISC-OUTER- 66C
FRICTION DISC-INNER- 66D
8.976
PINION SHAFT BUSHING 63D
63E
WORM WHEEL 63A
OIL RETAINER 64Q
REAR GEAR CASE COVER 64A
WORM SHAFT BUSHING 63H
SET SCREW 63G
WORM 63B
DRAIN PLUG 63L
22.576
A
A
SECTION B-B
WORM WHEEL 63A
B
B
LONGITUDINAL SHAFT - REAR - 65C
WORM SHAFT BUSHING 63K
SECTION A-A
NOTE:-
TEST BELLEVILLE SPRING WASHER PILE TO INSURE AN ASSEMBLED HEIGHT OF 1.062 (1 1/16) UNDER LOAD OF 8,600 LBS.
0 2 4 6 8 10 12 14 16 18 20 22 INCHES
DRAWING POSTING TO
REVISIONS
SLIDING RAIL WAY MOUNT MODEL OF 1919 FOR 10-INCH GUNS REAR GEAR CASE ASSEMBLY
DRAFTED
CLASS 36
DIVISION B
DRAWING 8
FILE


CENTERING BRACKET X56A
QUADRANT BRACKET-X53A
ELEVATION QUADRANT
PANORAMIC SIGHT
ELEVATION QUADRANT
CONNECTING LINK X53E
PANORAMIC TELESCOPE
CLAMP SCREW (A3X)
SIGHT BRACKET X54A
CRADLE X53A
SIGHT BRACKET BEARING X54C
LONGITUDINAL LEVEL
CROSS LEVEL
CROSS LEVELING SCREW
LONGITUDINAL LEVELING SCREW
SIGHT LEVELING BRACKET X54F
CAM LEVER EFIXE
CRADLE X53A
SIGHT BRACKET X54A
LONGITUDINAL LEVEL
CROSS LEVEL
CROSS LEVELING SCREW
ROCKER
LONGITUDINAL LEVELING SCREW
SIGHT LEVELING BRACKET-X54F
℄ OF GIRDER
INCHES
SLIDING RAILWAY MOUNT MODEL OF 1919 FOR 10-INCH GUNS SIGHT AND QUADRANT RIGHT SIDE ASSEMBLY
CLASS 36
DRAWING 9


SIGHT ACTUATING BRACKET X55A
CONNECTING LINK-X53E-
SIGHT BEARING X54B
CROSS X53A
CRADLE Z53A
SIGHT BRACKET BEARING X54D
CROSS LEVEL
ROCKER
LONGITUDINAL LEVEL
SIGHT LEVELING BRACKET X54F
SIGHT ACTUATING BRACKET
CONNECTING LINK X53E
PANORAMIC TELESCOPE
CROSS X53A
CRADLE Z53A
SIGHT BRACKET X54B
LONGITUDINAL LEVEL
CROSS LEVEL
ROCKER
SIGHT LEVELING BRACKET X54F
SIGHT BRACKET BEARING X54D
C. OF GIPSY R.
INCHES
SLIDING RAILWAY MOUNT MODEL OF 1918 FOR 10-INCH GUNS SIGHT-LEFT SIDE-ASSEMBLY
CLASS 36
DRAWING 10

39063—21—7



SLIDING RAILWAY MOUNT MODEL OF 1919 FOR 10-INCH GUNS SIDE ROLLER BEARING ASSEMBLY

CLASS 36 | DIVISION 9 | DRAWING 11 | FILE

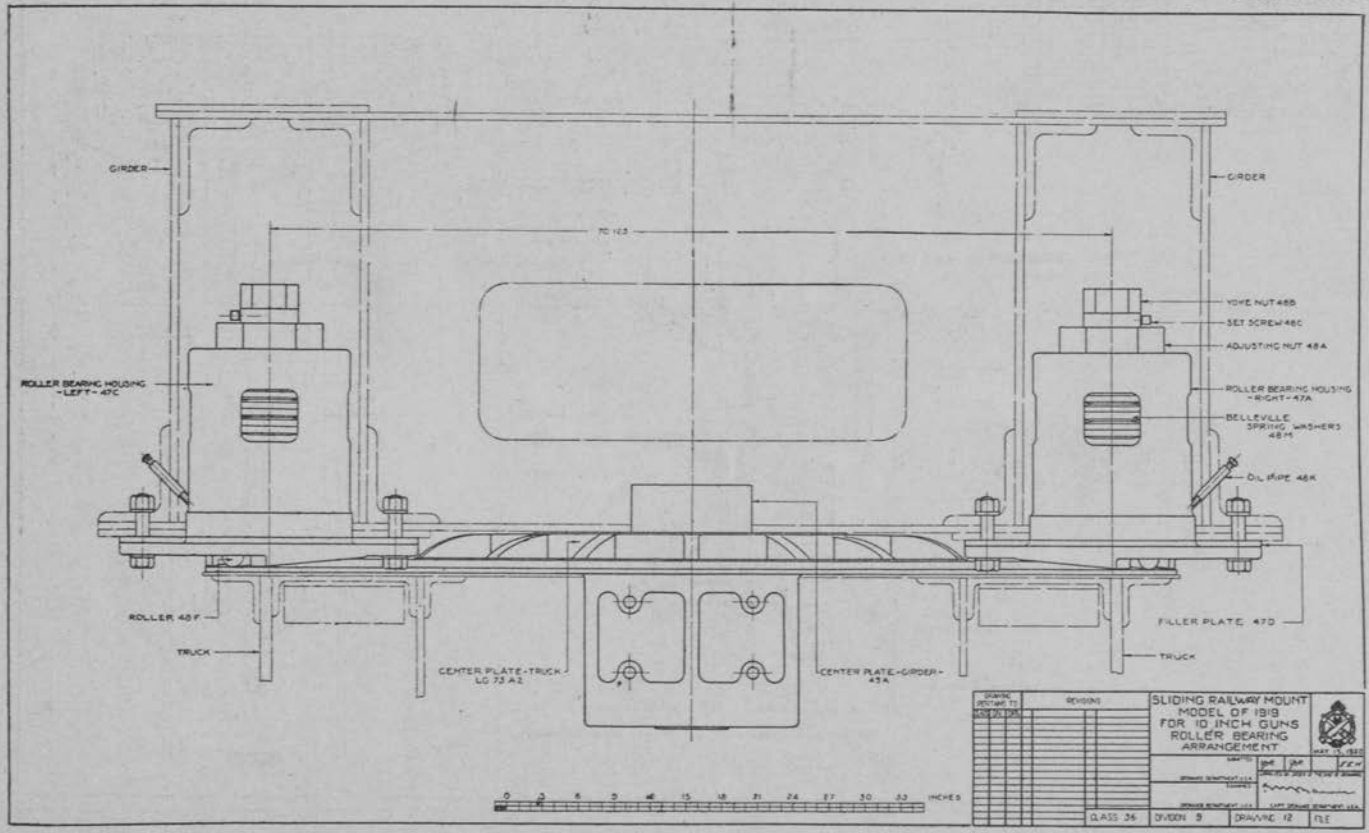

GIRDER
GIRDER
TO 163
YOKE NUT 48B
SET SCREW 48C
ADJUSTING NUT 48A
ROLLER BEARING HOUSING - LEFT - 47C
ROLLER BEARING HOUSING - RIGHT - 47A
BELLEVILLE SPRING WASHERS 48M
OIL PIPE 48K
ROLLER 48F
TRUCK
CENTER PLATE - TRUCK LG 73 A2
CENTER PLATE - GIRDER - 45A
FILLER PLATE 47D
TRUCK
0 3 6 9 12 15 18 21 24 27 30 33 INCHES
SLIDING RAILWAY MOUNT MODEL OF 1919 FOR 10 INCH GUNS ROLLER BEARING ARRANGEMENT
CLASS 26
DIVISION 9
DRAWING 12
FILE

PLATE XIII

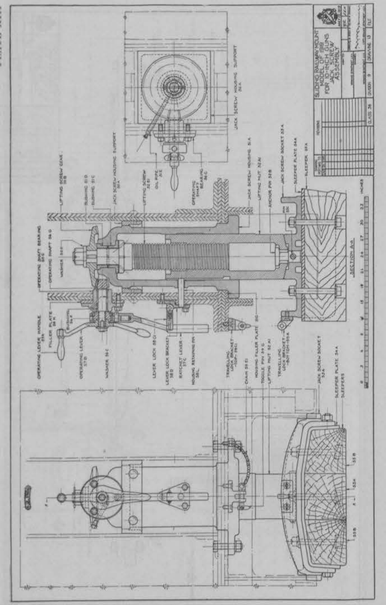
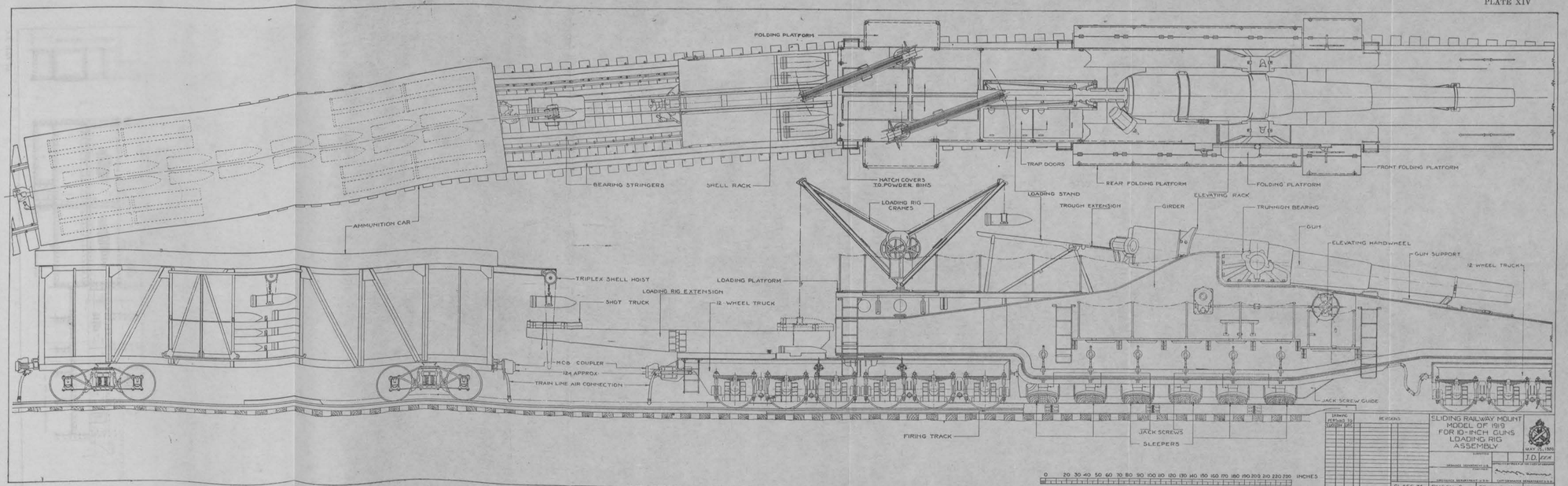
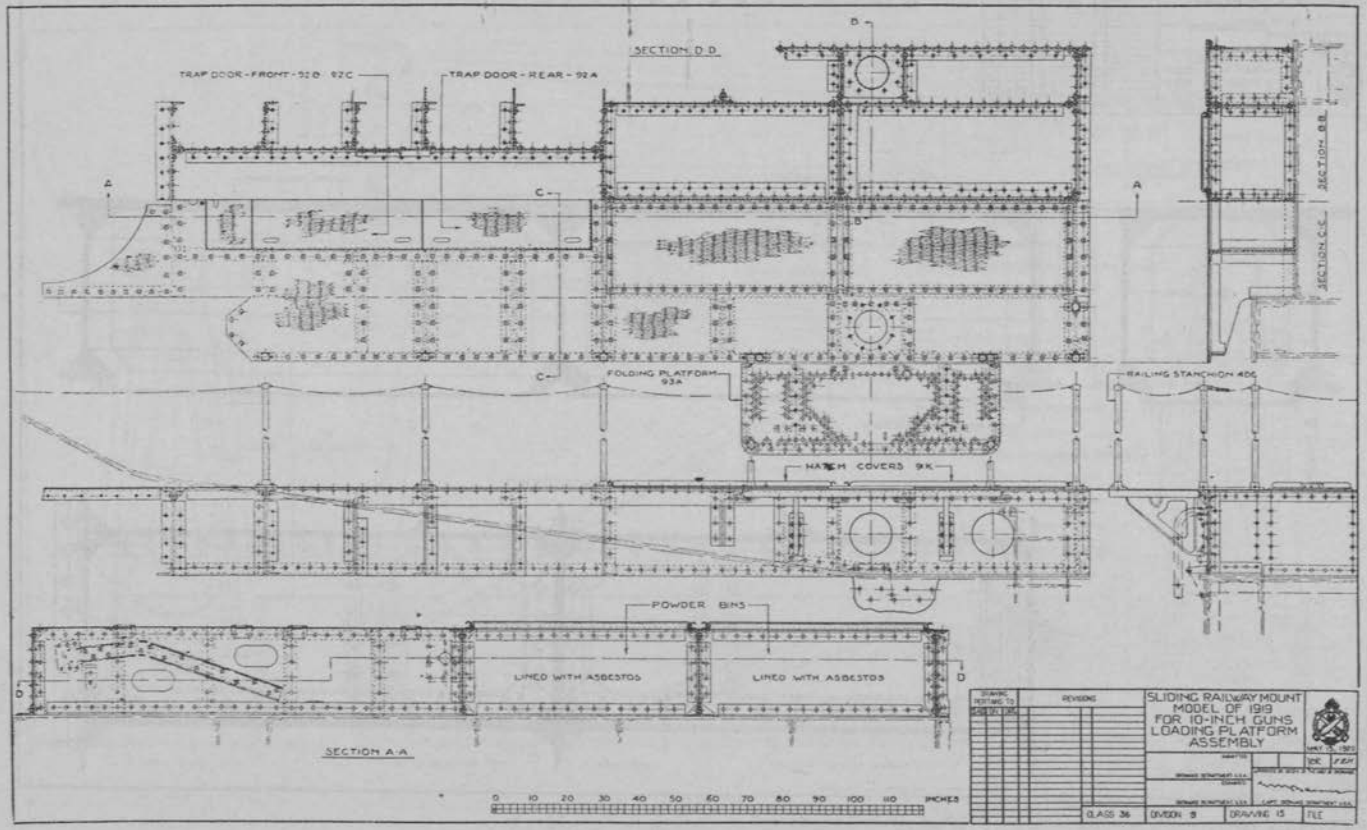
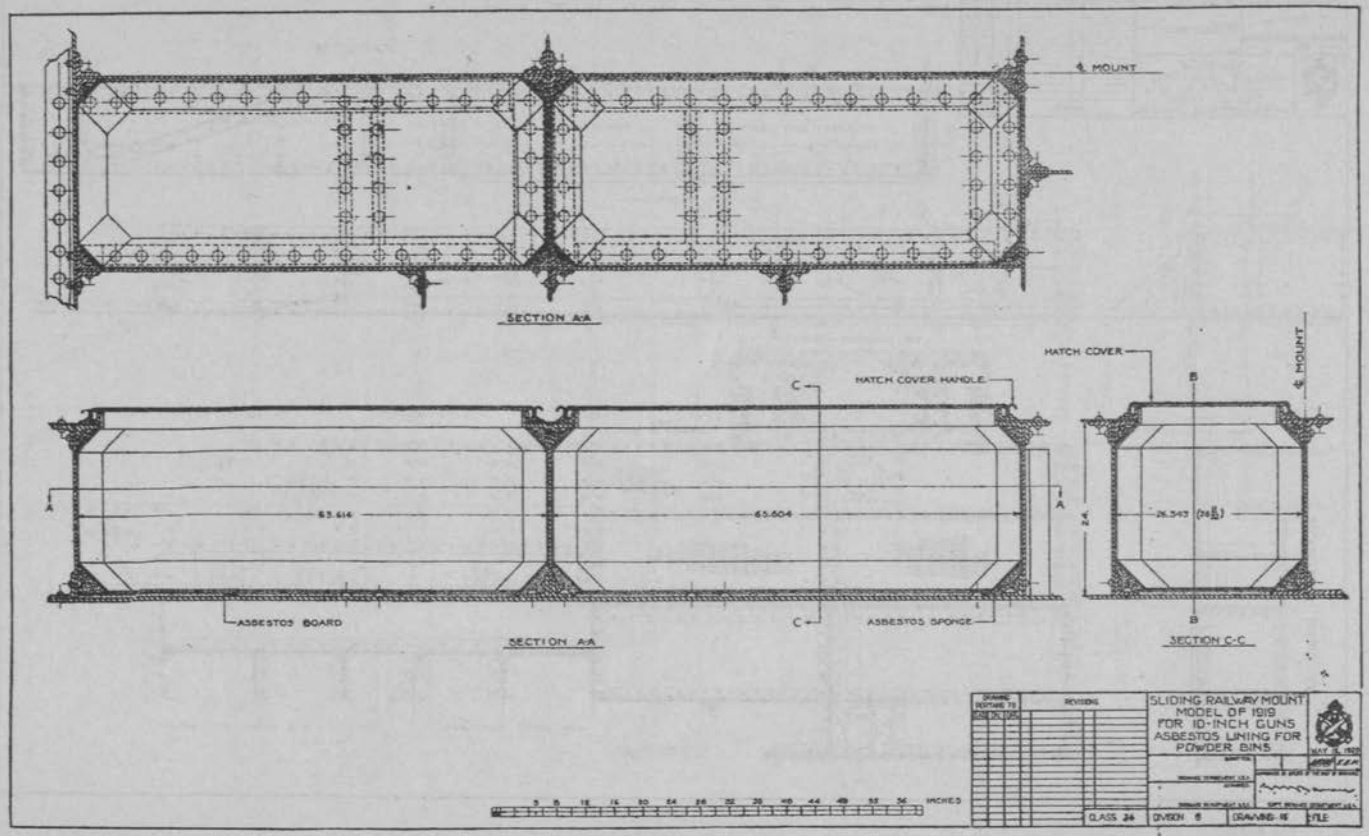


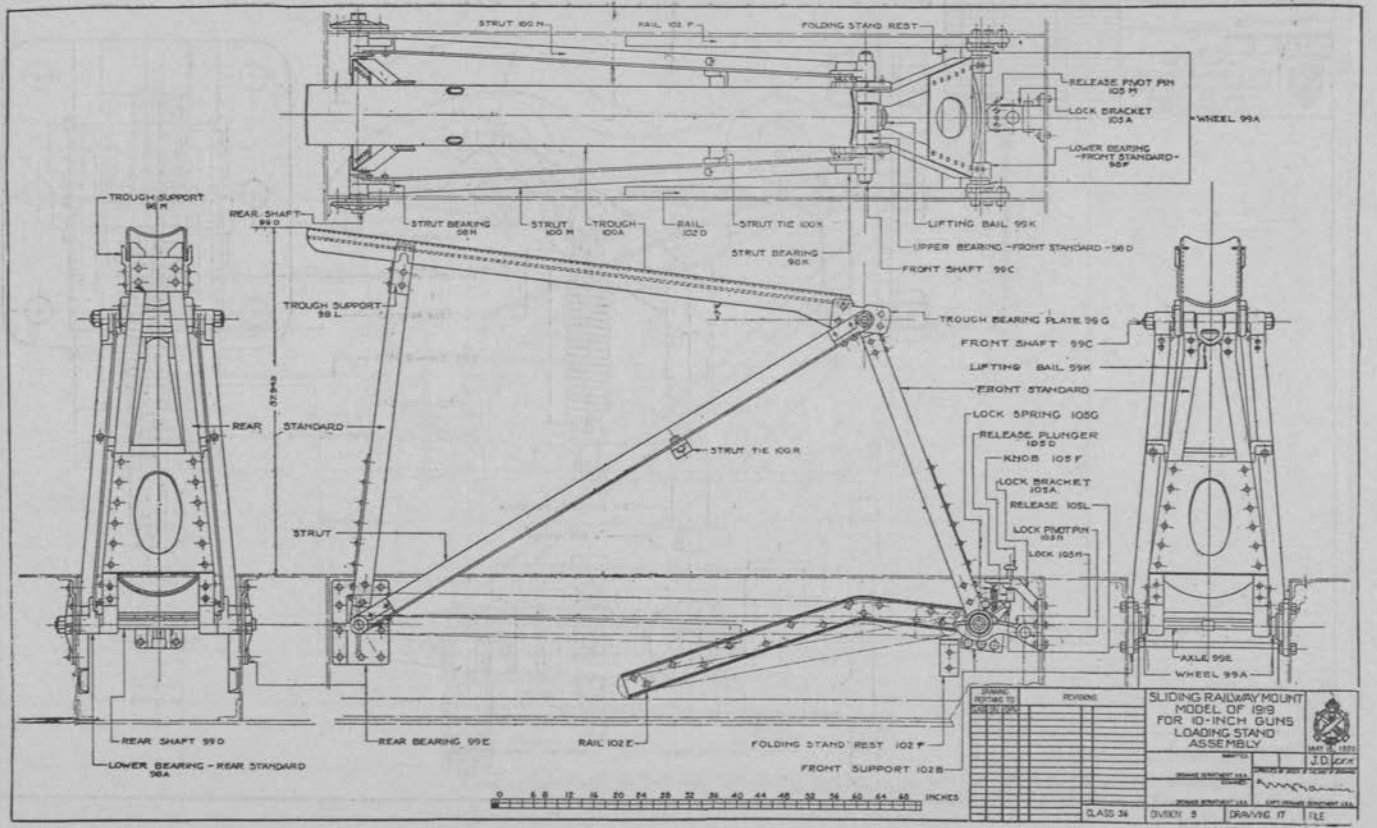
PLATE XIV

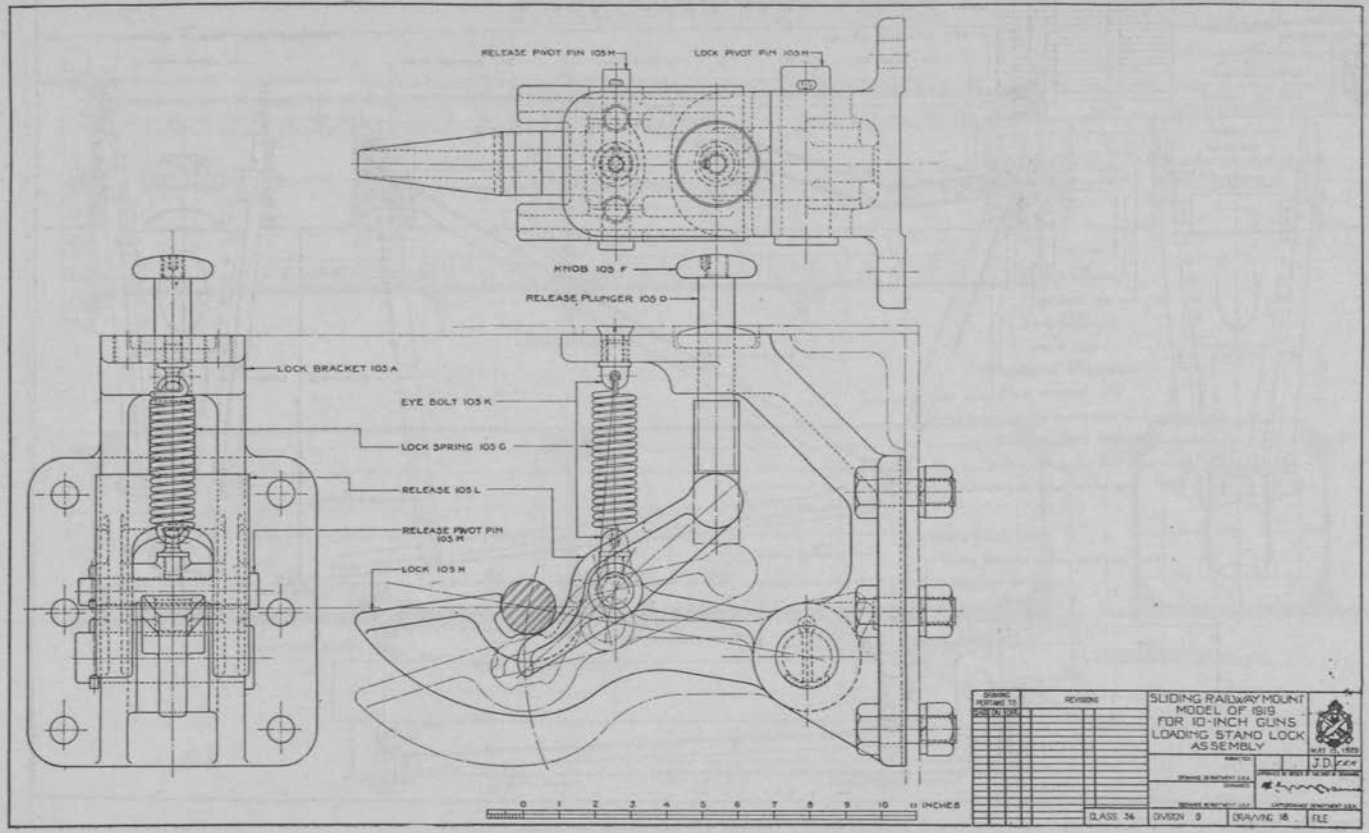


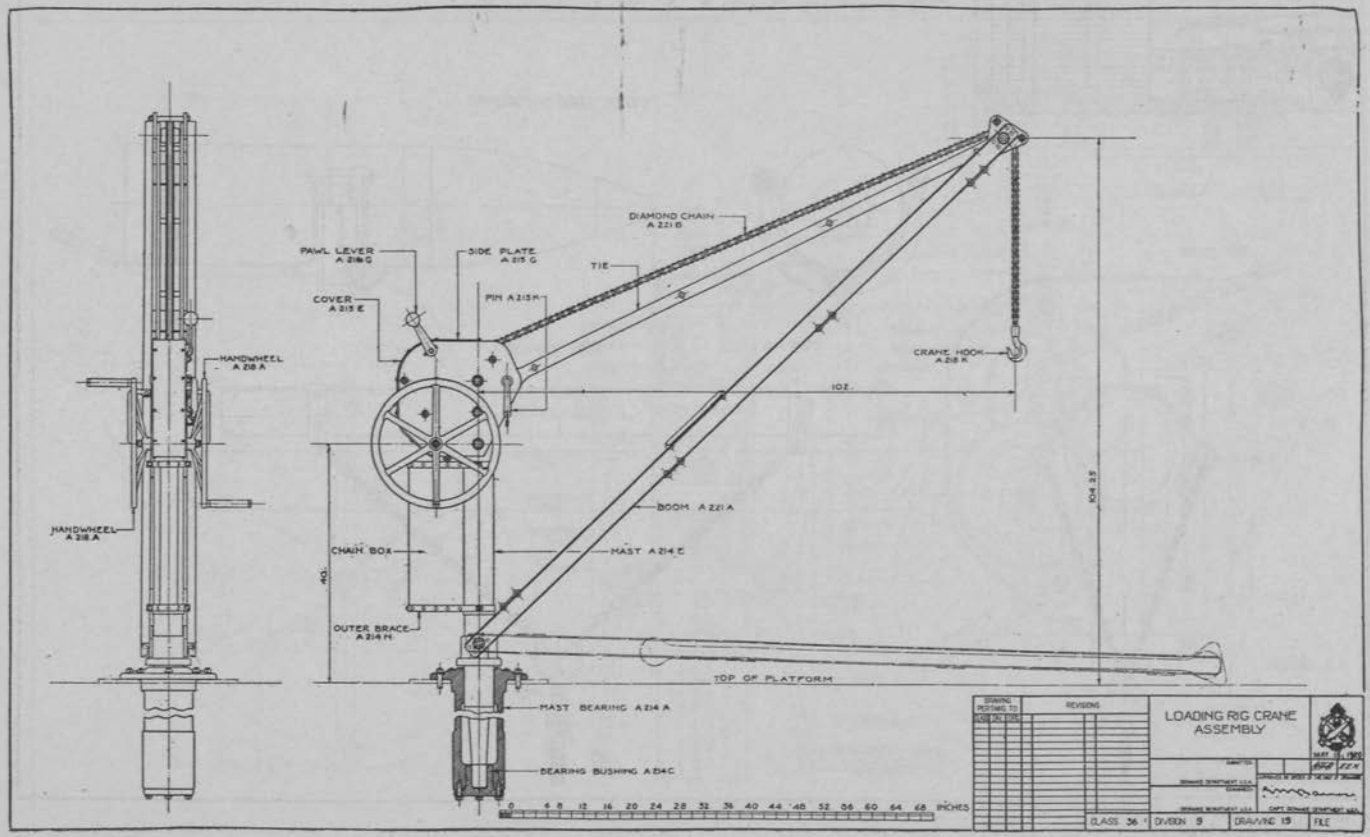
39603—21. (To face page 100.)

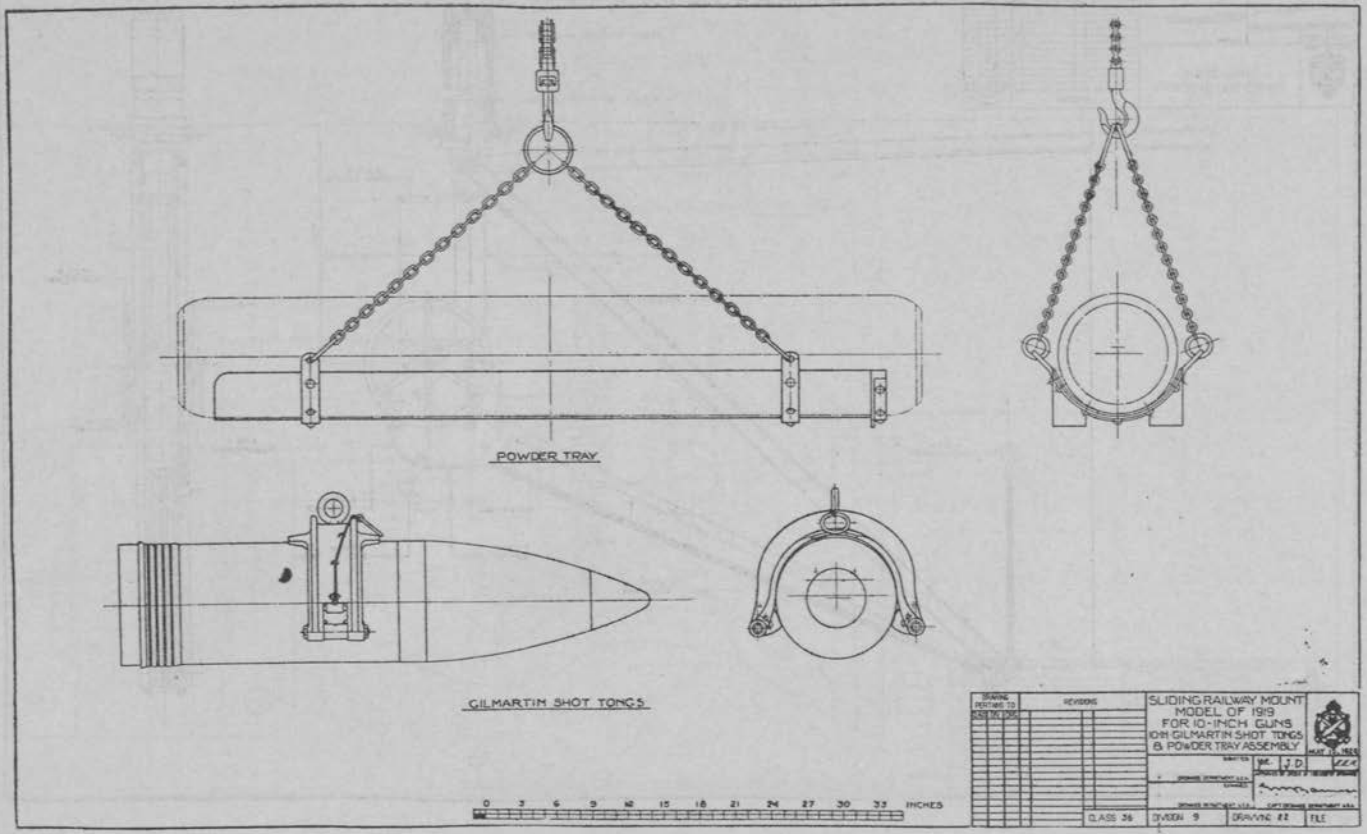

SECTION D D
TRAP DOOR - FRONT - 92B 92C
TRAP DOOR - REAR - 92A
FOLDING PLATFORM 93A
HATCH COVERS 9K
RAILING STANCHION 40G
SECTION B B
SECTION C C
POWDER BINS
LINED WITH ASBESTOS
LINED WITH ASBESTOS
SECTION A A
0 10 20 30 40 50 60 70 80 90 100 110 INCHES
SLIDING RAILWAY MOUNT MODEL OF 1919 FOR 10-INCH GUNS LOADING PLATFORM ASSEMBLY
CLASS 36
DIVISION 9
DRAWING 15
FILE

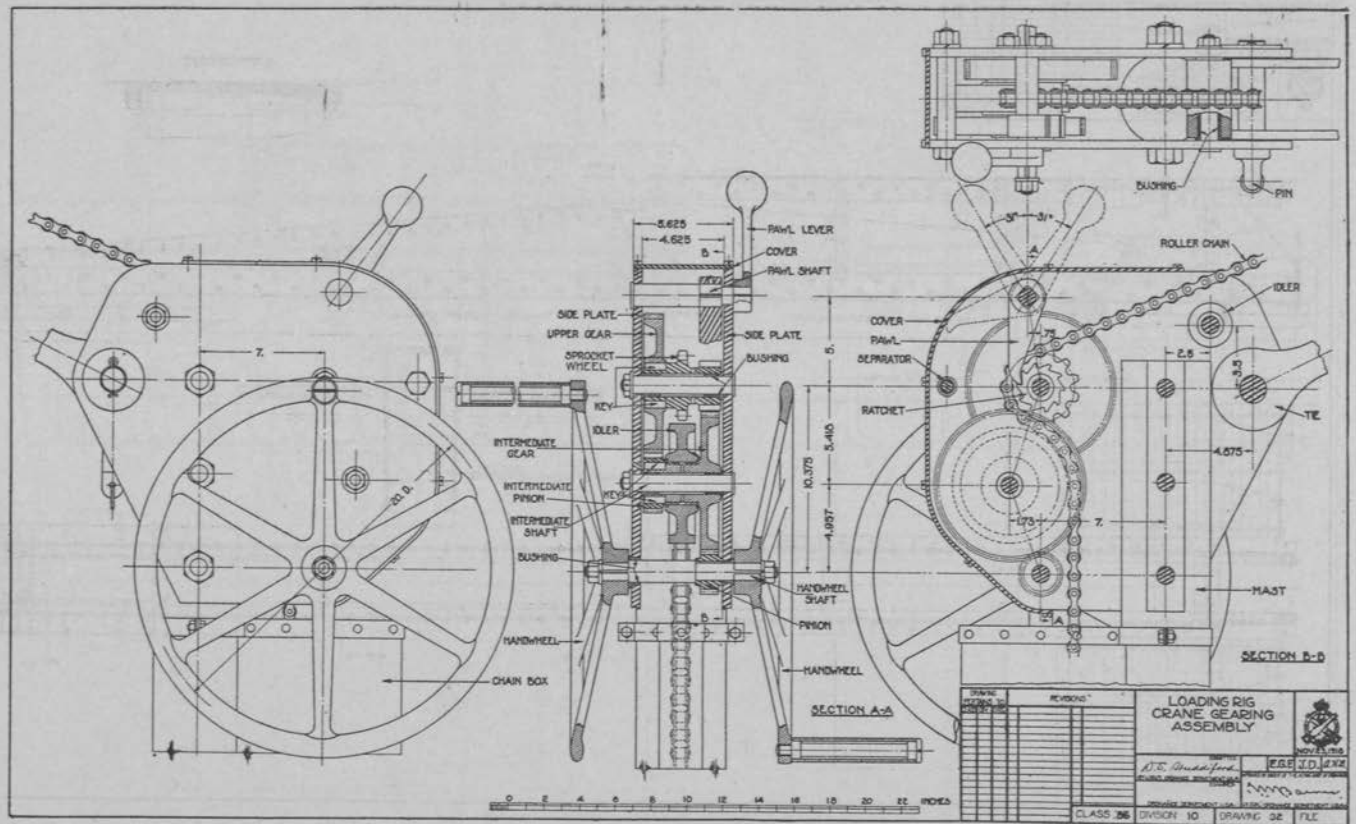

℄ MOUNT
SECTION A-A
HATCH COVER HANDLE
C
63.614
63.604
A
ASBESTOS BOARD
ASBESTOS SPONGE
SECTION A-A
HATCH COVER
℄ MOUNT
B
26.343 (26 3/8)
24
SECTION C-C
SLIDING RAILWAY MOUNT
MODEL OF 1919
FOR 10-INCH GUNS
ASBESTOS LINING FOR
POWDER BINS
REVISIONS
CLASS 24
DIVISION 9
INCHES

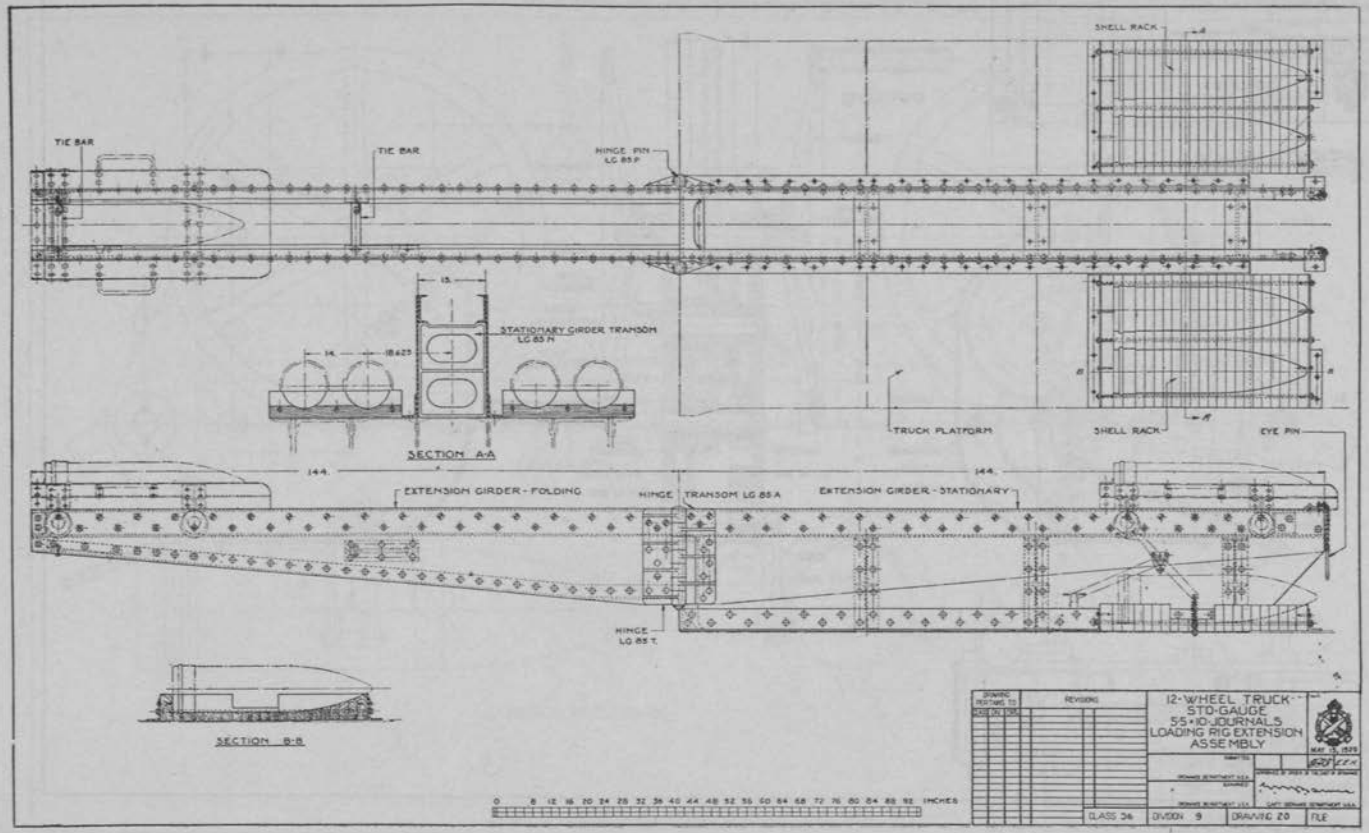

STRUT 100 N
RAIL 102 F
FOLDING STAND REST
RELEASE PIVOT PIN 105 M
LOCK BRACKET 105 A
WHEEL 99A
LOWER BEARING - FRONT STANDARD - 98F
TROUGH SUPPORT 98 M
REAR SHAFT 99 D
STRUT BEARING 98H
STRUT 100 M
TROUGH 100A
RAIL 102 D
STRUT TIE 100K
LIFTING BAIL 99K
UPPER BEARING - FRONT STANDARD - 98 D
STRUT BEARING 98K
FRONT SHAFT 99C
TROUGH SUPPORT 98 L
TROUGH BEARING PLATE 99 G
FRONT SHAFT 99C
LIFTING BAIL 99K
FRONT STANDARD
LOCK SPRING 105G
RELEASE PLUNGER 105 D
KNOB 105 F
LOCK BRACKET 105A
RELEASE 105L
LOCK PIVOT PIN 105 N
LOCK 105 H
REAR STANDARD
STRUT TIE 100 R
STRUT
AXLE 99E
WHEEL 99A
REAR SHAFT 99 D
LOWER BEARING - REAR STANDARD 98A
REAR BEARING 99E
RAIL 102 E
FOLDING STAND REST 102 F
FRONT SUPPORT 102 B
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 INCHES
REVISIONS
SLIDING RAILWAY MOUNT MODEL OF 1918 FOR 10-INCH GUNS LOADING STAND ASSEMBLY
MAY 5 1920
J.D.
CLASS 34
DIVISION 5
DRAWING 17
FILE

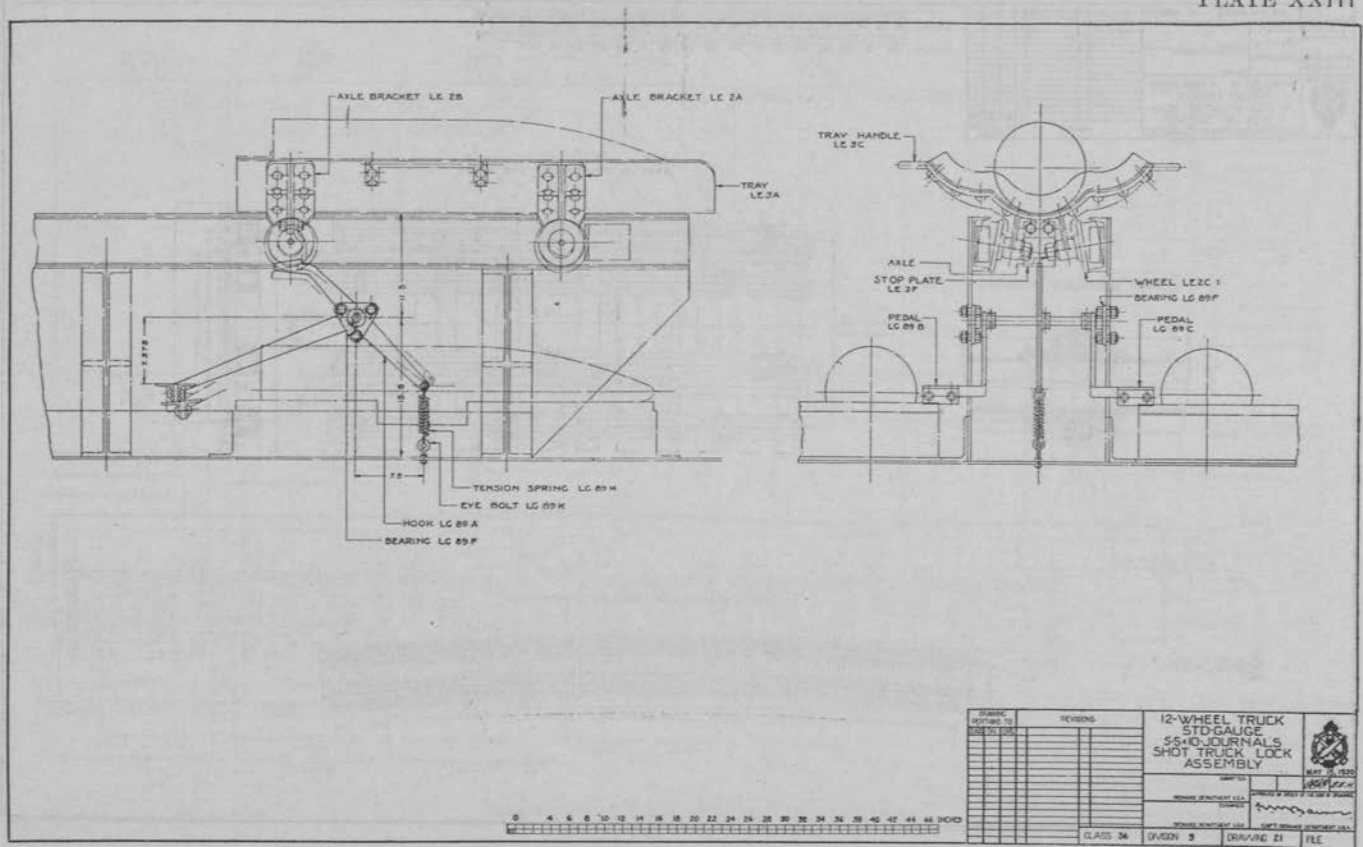

RELEASE PIVOT PIN 105 M
LOCK PIVOT PIN 105 N
KNOB 105 F
RELEASE PLUNGER 105 D
LOCK BRACKET 105 A
EYE BOLT 105 K
LOCK SPRING 105 G
RELEASE 105 L
RELEASE PIVOT PIN 105 M
LOCK 105 H
0 1 2 3 4 5 6 7 8 9 10 11 INCHES
REVISIONS
SLIDING RAILWAY MOUNT MODEL OF 1919 FOR 10-INCH GUNS LOADING STAND LOCK ASSEMBLY
CLASS 36
DIVISION 9
DRAWING 16
FILE

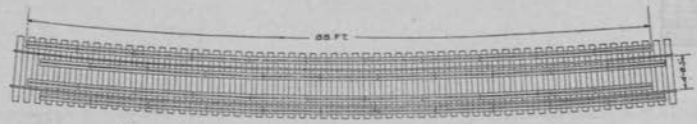

DIAMOND CHAIN A 221 B
PAWL LEVER A 216 G
SIDE PLATE A 215 G
TIE
COVER A 215 E
PIN A 215 M
HANDWHEEL A 218 A
CRANE HOOK A 218 K
102
BOOM A 221 A
HANDWHEEL A 218 A
CHAIN BOX
MAST A 214 E
40
OUTER BRACE A 214 M
TOP OF PLATFORM
MAST BEARING A 214 A
BEARING BUSHING A 214 C
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 INCHES
DRAWING PERTAINS TO USE ON (CPS)
REVISIONS
LOADING RIG CRANE ASSEMBLY
CLASS 36
DIVISION 9
DRAWING 19
FILE


POWDER TRAY
GILMARTIN SHOT TONGS
0 3 6 9 12 15 18 21 24 27 30 33 INCHES
SLIDING RAILWAY MOUNT
MODEL OF 1919
FOR 10-INCH GUNS
10H GILMARTIN SHOT TONGS
& POWDER TRAY ASSEMBLY
CLASS 36
DIVISION 9
DRAWING 22
FILE

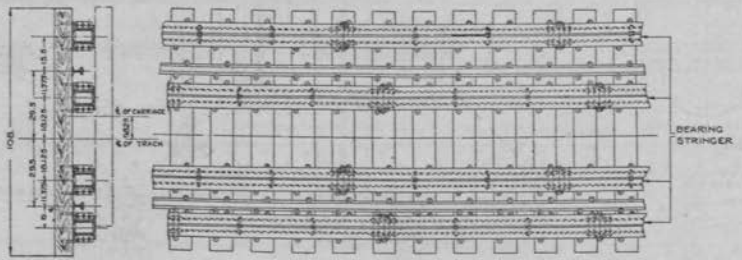

PAWL LEVER
COVER
PAWL SHAFT
SIDE PLATE
UPPER GEAR
SPROCKET WHEEL
KEY
IDLER
INTERMEDIATE GEAR
INTERMEDIATE PINION
INTERMEDIATE SHAFT
BUSHING
HANDWHEEL
CHAIN BOX
SECTION A-A
HANDWHEEL SHAFT
PINION
ROLLER CHAIN
RATCHET
MAST
SECTION B-B
LOADING RIG
CRANE GEARING
ASSEMBLY
NOVEL 1916
DRAWING
DIVISION 10
DRAWING 98
FILE


SHELL RACK
TIE BAR
TIE BAR
HINGE PIN LG 85 P
STATIONARY GIRDER TRANSOM LG 85 N
SECTION A-A
TRUCK PLATFORM
SHELL RACK
EYE PIN
144.
EXTENSION GIRDER - FOLDING
HINGE
TRANSOM LG 85 A
144.
EXTENSION GIRDER - STATIONARY
HINGE LG 85 T
SECTION B-B
12-WHEEL TRUCK - STD-GAUGE 55-10-JOURNALS LOADING RIG EXTENSION ASSEMBLY
CLASS 36
DIVISION 9
DRAWING 20
FILE

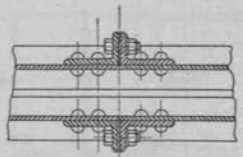

AXLE BRACKET LE 2B
AXLE BRACKET LE 2A
TRAY LE 3A
TENSION SPRING LG 89 H
EYE BOLT LG 89 K
HOOK LG 89 A
BEARING LG 89 F
TRAY HANDLE LE 3C
AXLE
STOP PLATE LE 3F
WHEEL LE 2C 1
BEARING LG 89 F
PEDAL LG 89 B
PEDAL LG 89 C
12-WHEEL TRUCK
STD GAUGE
5 1/2 x 10 JOURNALS
SHOT TRUCK LOCK
ASSEMBLY
REVISIONS
CLASS 34
DIVISION 3
DRAWING 21
FILE
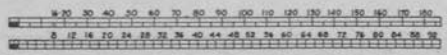


ARRANGEMENT OF 5908.5 (180 M.) RADIUS TRACK



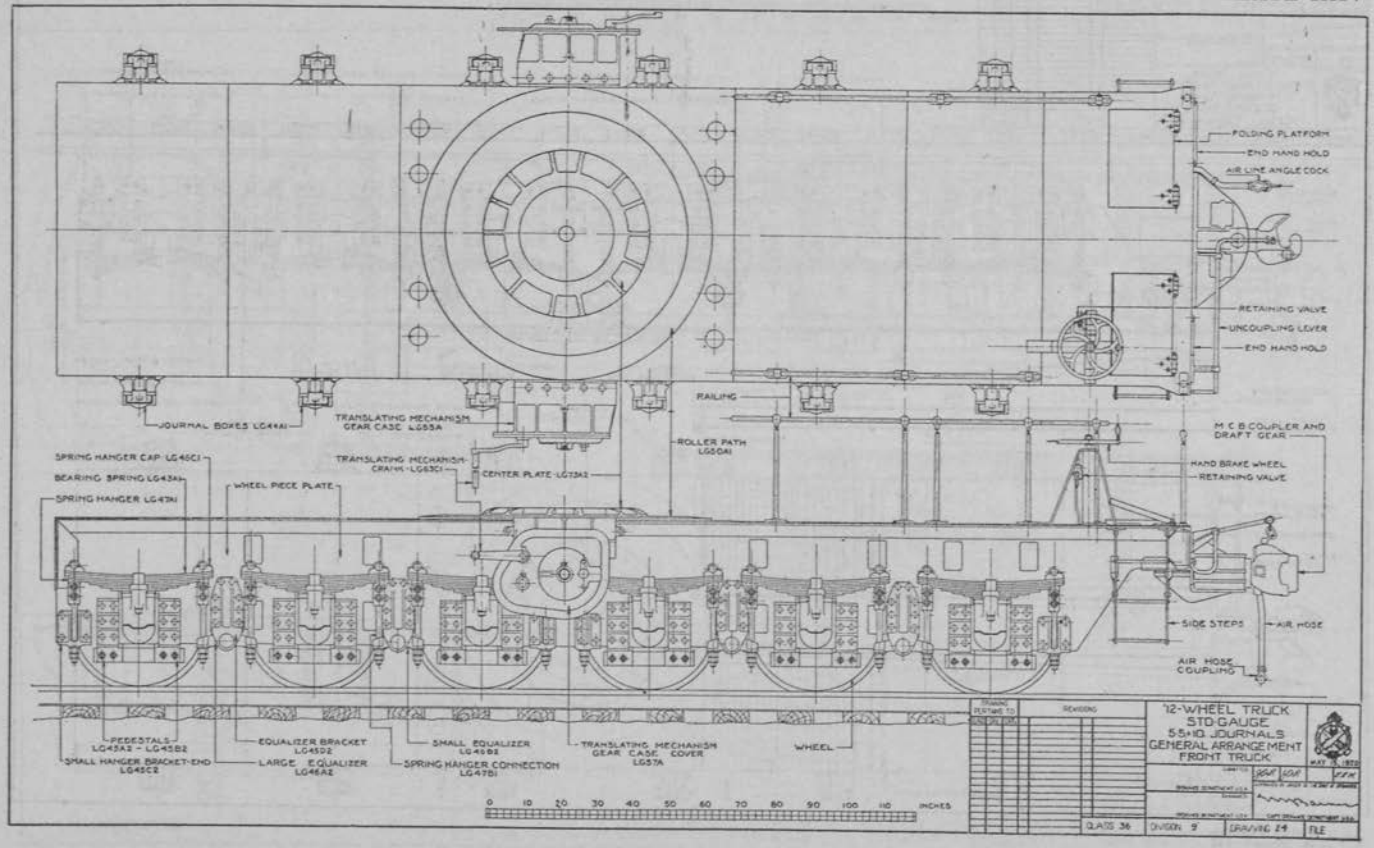
PLAN SHOWING POSITION OF RAILS IN RELATION TO BEARING STRINGERS

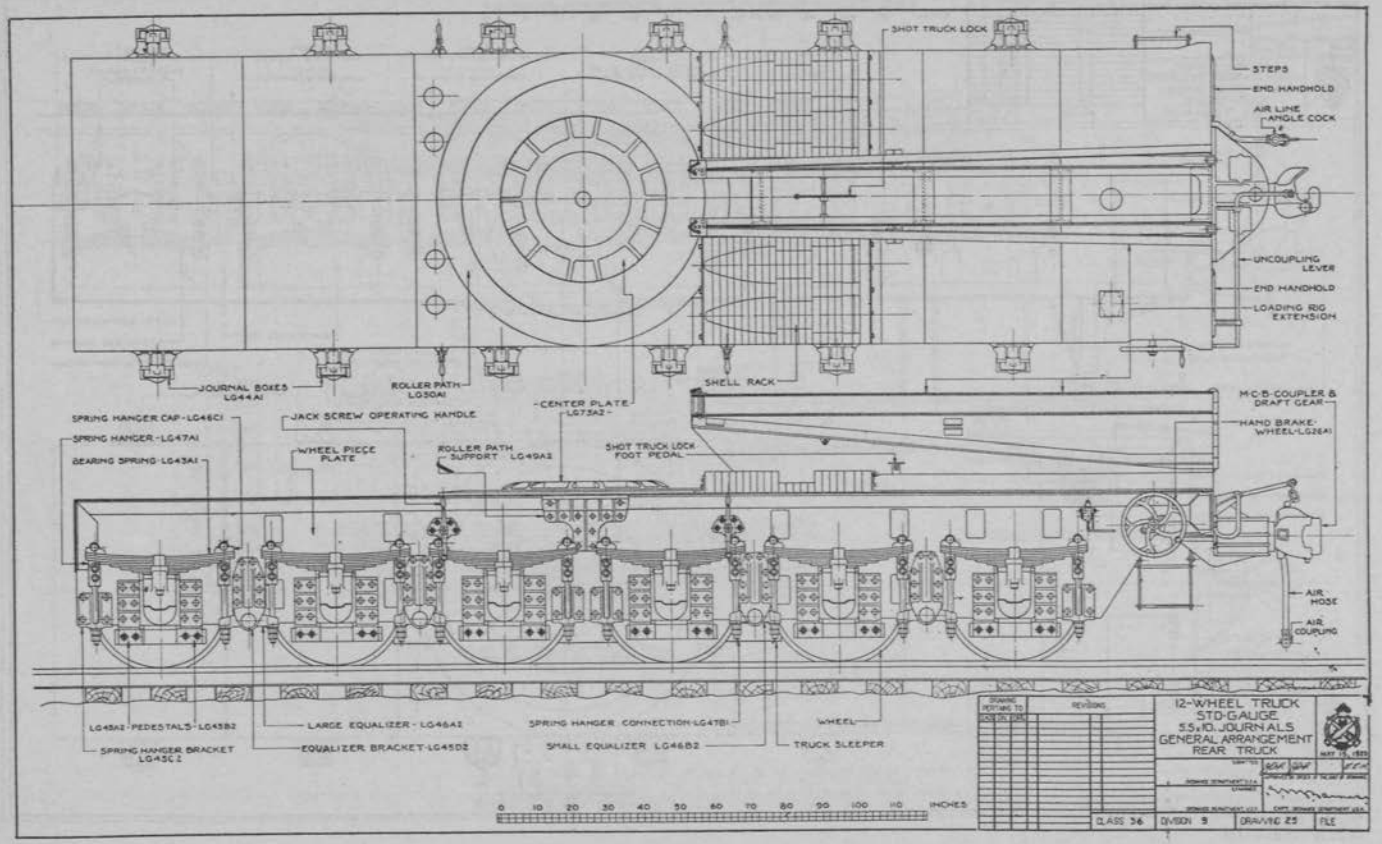


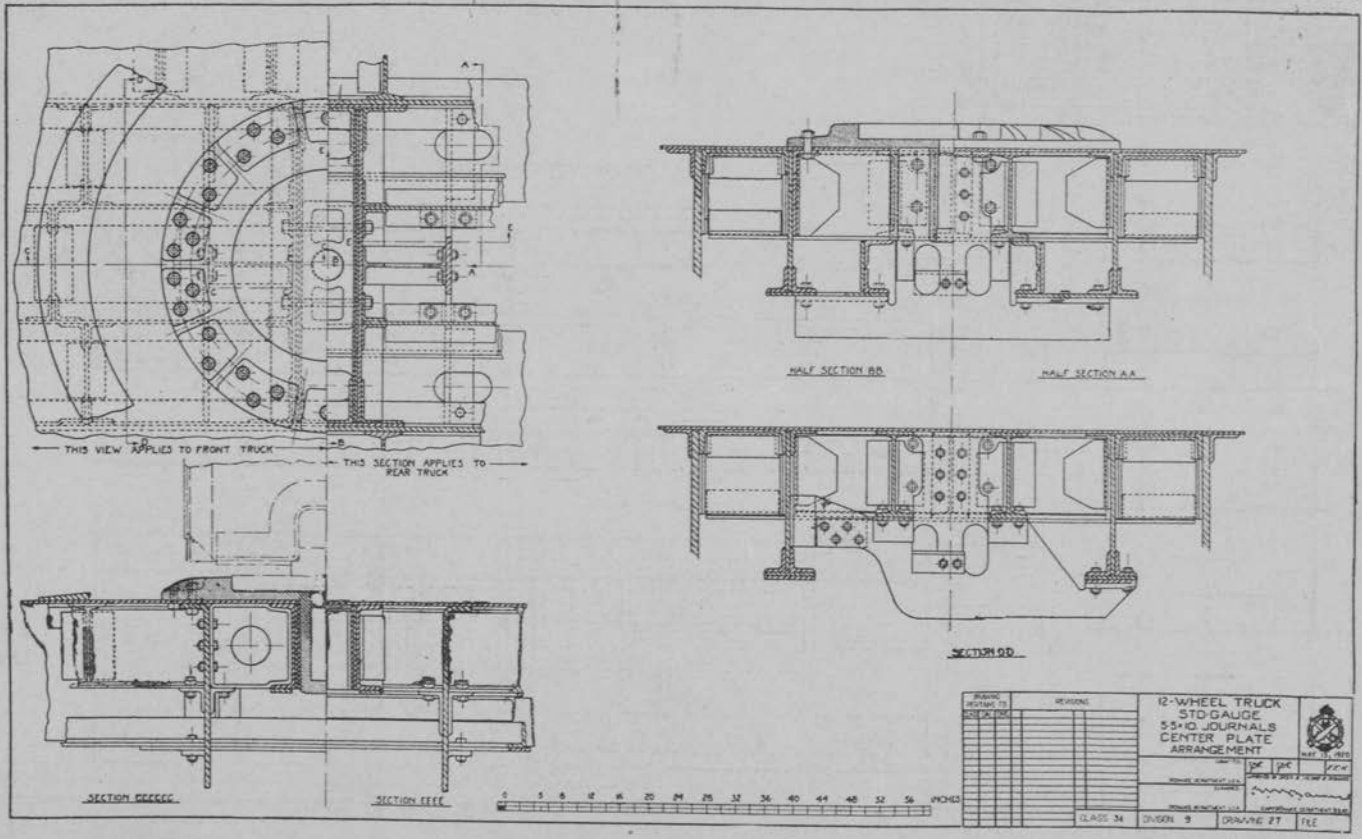
BEARING STRINGER JOINT

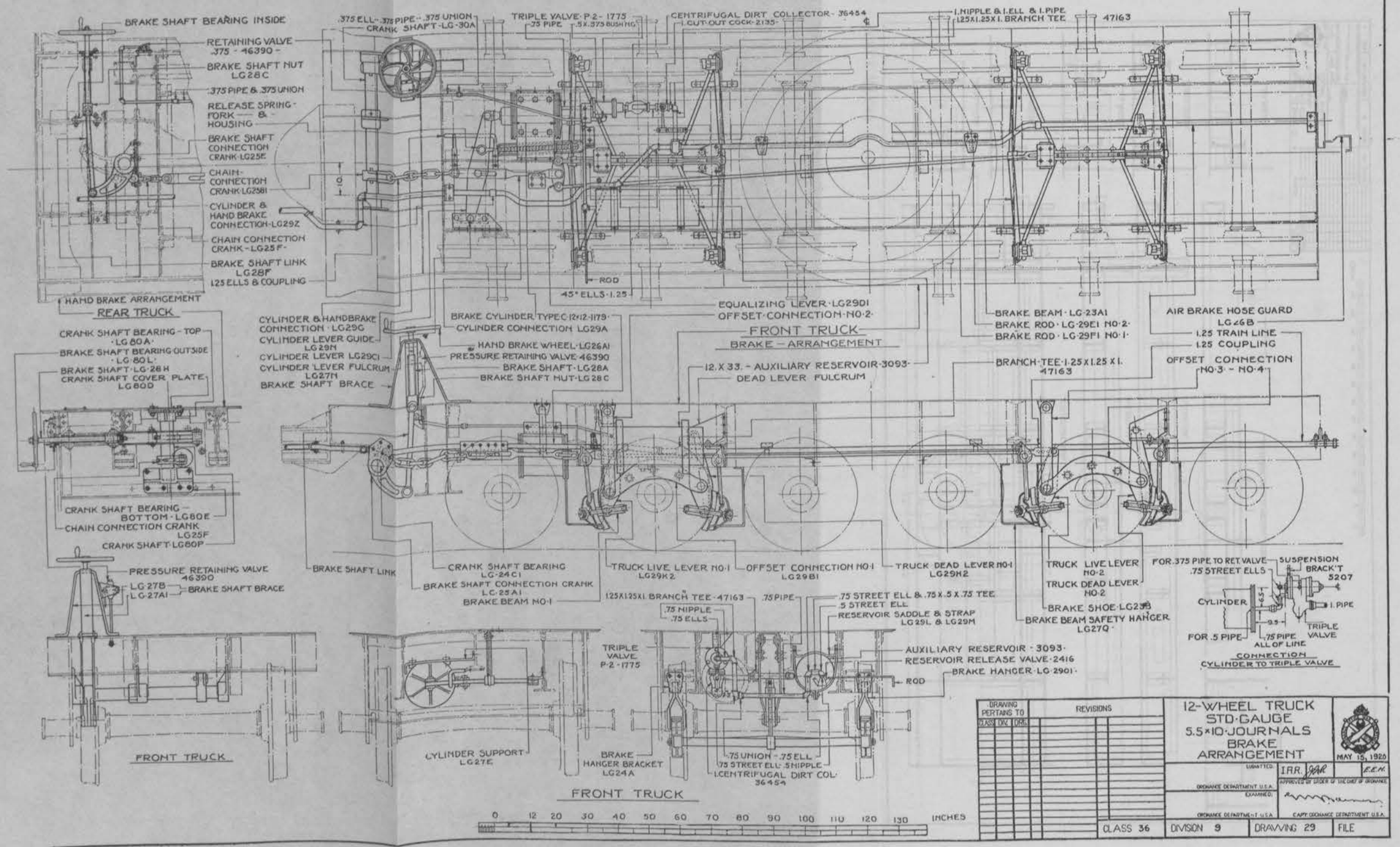


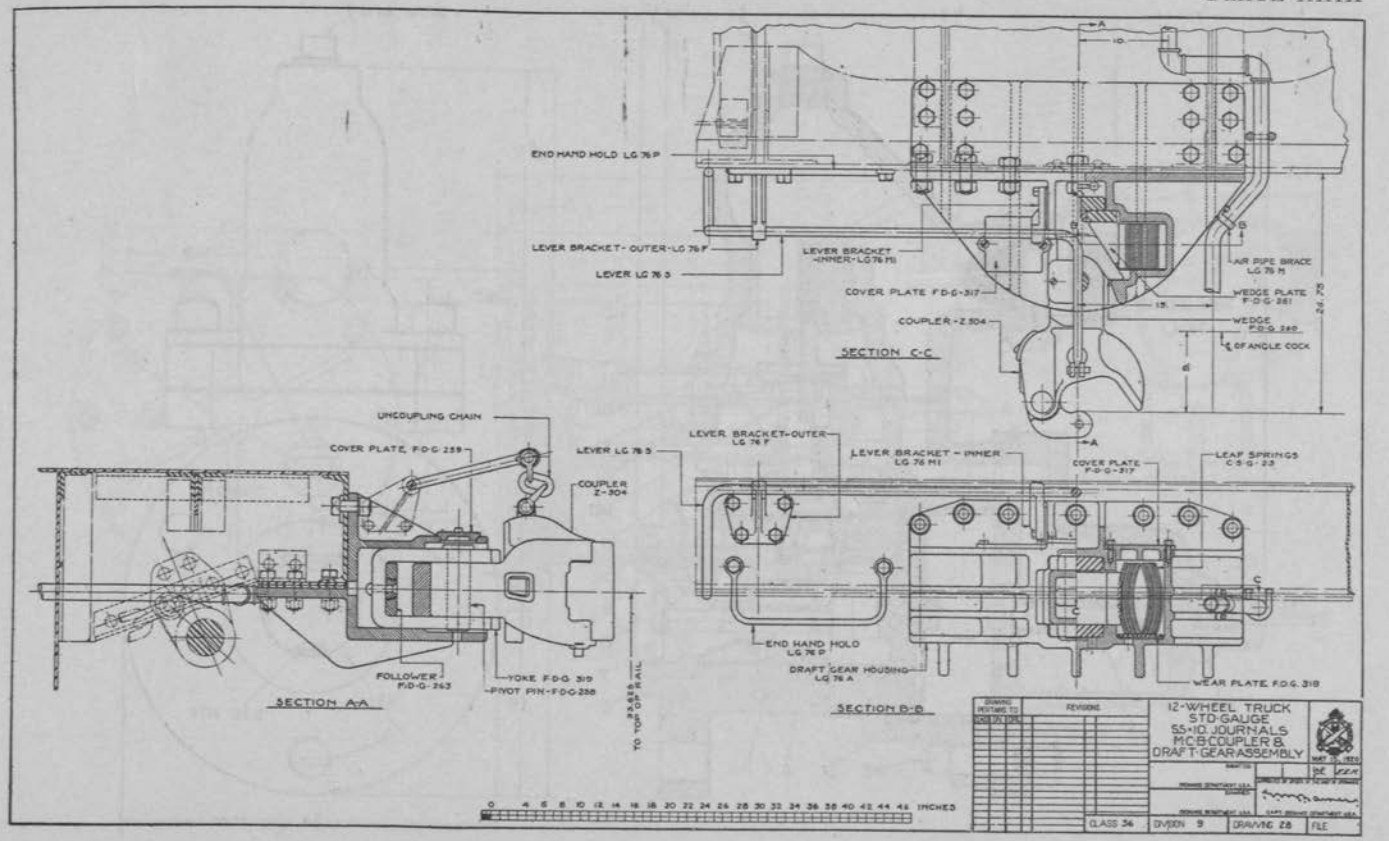
DRAWING PERTAINS TO	REVISIONS	SLIDING RAILWAY MOUNT MODEL OF 1919 FOR 10-INCH GUNS FIRING TRACK ASSEMBLY & DETAILS	
		CLASS 36	DIVISION 9 DRAWING 23 FILE

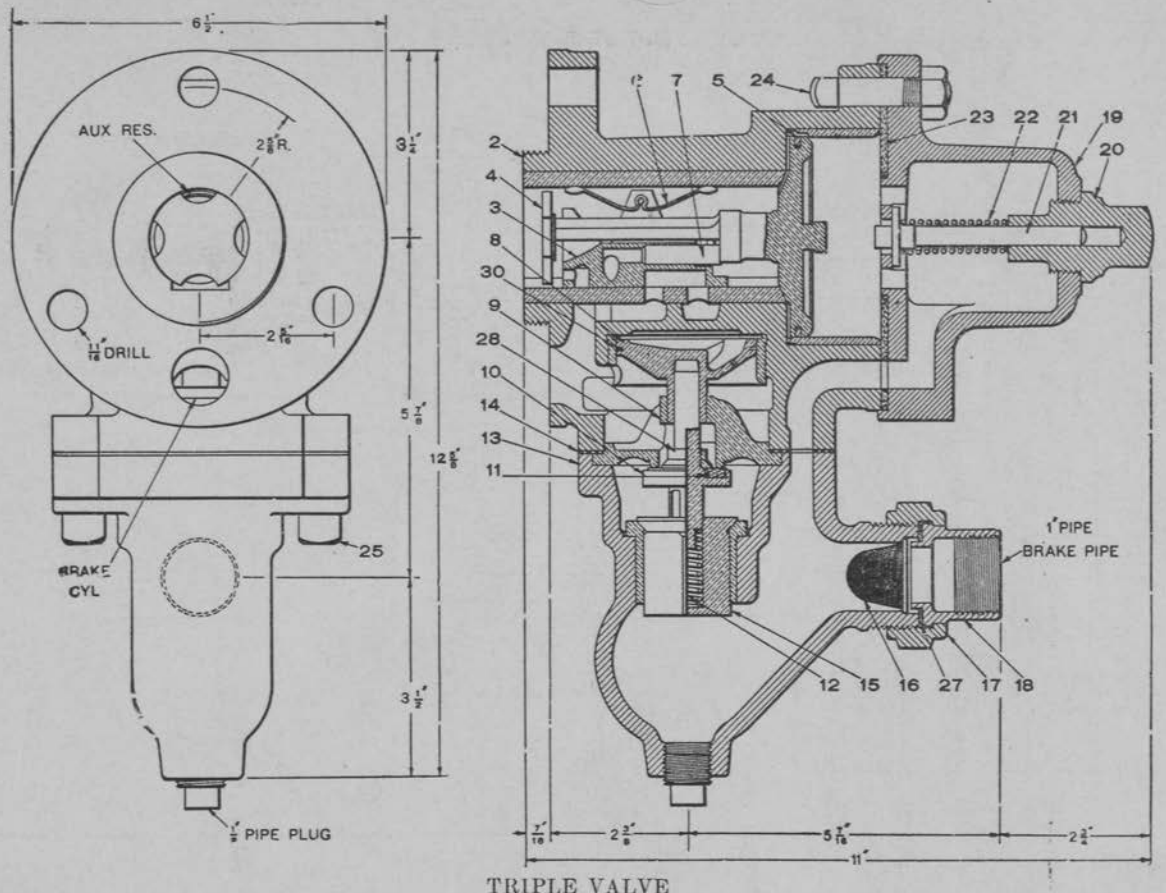

FOLDING PLATFORM
END HAND HOLD
AIR LINE ANGLE COCK
RETAINING VALVE
UNCOUPLING LEVER
END HAND HOLD
RAILING
JOURNAL BOXES LG44A1
TRANSLATING MECHANISM GEAR CASE LG55A
ROLLER PATH LG50A1
M.C.B. COUPLER AND DRAFT GEAR
HAND BRAKE WHEEL
RETAINING VALVE
SPRING HANGER CAP LG46C1
BEARING SPRING LG43A1
SPRING HANGER LG47A1
TRANSLATING MECHANISM CRANK LG63C1
CENTER PLATE LG73A2
WHEEL PIECE PLATE
SIDE STEPS
AIR HOSE
AIR HOSE COUPLING
PEDESTALS LG45A2 - LG45B2
SMALL HANGER BRACKET-END LG49C2
EQUALIZER BRACKET LG45D2
LARGE EQUALIZER LG46A2
SMALL EQUALIZER LG46B2
SPRING HANGER CONNECTION LG47B1
TRANSLATING MECHANISM GEAR CASE COVER LG57A
WHEEL
0 10 20 30 40 50 60 70 80 90 100 110 INCHES
REVISIONS
12-WHEEL TRUCK
STD GAUGE
5½×10 JOURNALS
GENERAL ARRANGEMENT
FRONT TRUCK
MAY 15, 1920
CLASS 36
DIVISION 9
DRAWING 19
FILE


SHOT TRUCK LOCK
STEPS
END HANDHOLD
AIR LINE ANGLE COCK
UNCOUPLING LEVER
END HANDHOLD
LOADING RIG EXTENSION
JOURNAL BOXES LG44A1
ROLLER PATH LG50A1
CENTER PLATE LG73A2
SHELL RACK
M.C.B. COUPLER & DRAFT GEAR
HAND BRAKE WHEEL LG26A1
SPRING HANGER CAP LG46C1
SPRING HANGER LG47A1
BEARING SPRING LG43A1
JACK SCREW OPERATING HANDLE
WHEEL PIECE PLATE
ROLLER PATH SUPPORT LG49A2
SHOT TRUCK LOCK FOOT PEDAL
AIR HOSE
AIR COUPLING
LG48A2 PEDESTALS LG43B2
SPRING HANGER BRACKET LG45C2
LARGE EQUALIZER LG46A2
EQUALIZER BRACKET LG45D2
SPRING HANGER CONNECTION LG47B1
SMALL EQUALIZER LG46B2
WHEEL
TRUCK SLEEPER
0 10 20 30 40 50 60 70 80 90 100 110 INCHES
DRAWING PERTAINS TO LOT NO. 1200
REVISIONS
12-WHEEL TRUCK
STD. GAUGE
55,10. JOURNALS
GENERAL ARRANGEMENT
REAR TRUCK
MAY 15, 1923
CLASS 36
DIVISION 9
DRAWING 25
FILE

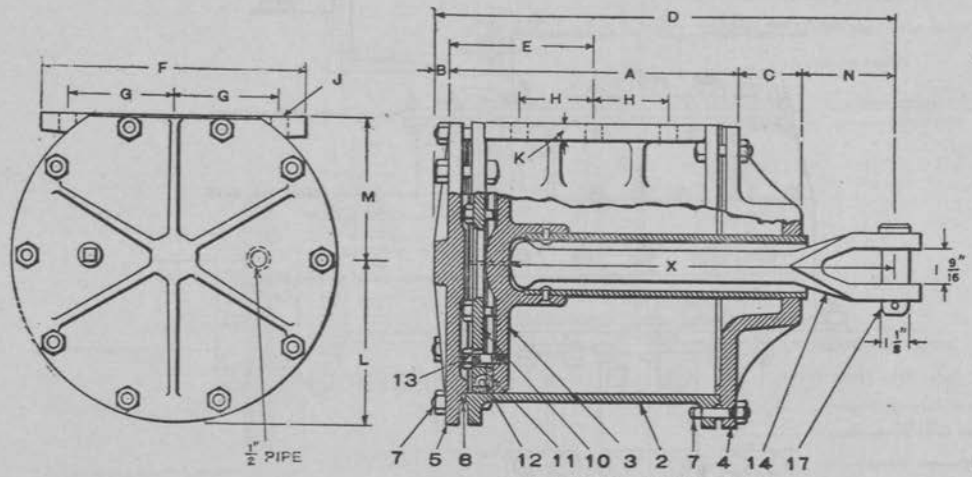

THIS VIEW APPLIES TO FRONT TRUCK
THIS SECTION APPLIES TO REAR TRUCK
HALF SECTION BB
HALF SECTION AA
SECTION DD
SECTION EEEEE
SECTION CCCC
0 5 8 12 16 20 24 28 32 36 40 44 48 52 56 INCHES
REVISIONS
12-WHEEL TRUCK
STD GAUGE
5 5×10 JOURNALS
CENTER PLATE
ARRANGEMENT
CLASS 34
DIVISION 9
DRAWING 27
FILE


BRAKE SHAFT BEARING INSIDE
RETAINING VALVE .375 - 46390 -
BRAKE SHAFT NUT LG28C
.375 PIPE & .375 UNION
RELEASE SPRING FORK & HOUSING
BRAKE SHAFT CONNECTION CRANK LG25E
CHAIN CONNECTION CRANK LG25B1
CYLINDER & HAND BRAKE CONNECTION LG29Z
CHAIN CONNECTION CRANK LG25F
BRAKE SHAFT LINK LG28F
1.25 ELLS & COUPLING
HAND BRAKE ARRANGEMENT
.375 ELL - .375 PIPE - .375 UNION
CRANK SHAFT LG30A
TRIPLE VALVE P-2-1775
.75 PIPE
.5 X .375 BUSHING
CENTRIFUGAL DIRT COLLECTOR - 36454
1. CUT-OUT COCK 2135
1. NIPPLE & 1. ELL & 1. PIPE
1.25 X 1.25 X 1. BRANCH TEE
47163
ROD
45° ELLS 1.25
EQUALIZING LEVER LG29D1
OFFSET CONNECTION NO 2
BRAKE BEAM LG23A1
BRAKE ROD LG29E1 NO 2
BRAKE ROD LG29F1 NO 1
AIR BRAKE HOSE GUARD LG26B
1.25 TRAIN LINE
1.25 COUPLING
OFFSET CONNECTION NO 3 - NO 4
REAR TRUCK
CRANK SHAFT BEARING - TOP LG80A
BRAKE SHAFT BEARING OUTSIDE LG80L
BRAKE SHAFT LG28H
CRANK SHAFT COVER PLATE LG80D
CRANK SHAFT BEARING - BOTTOM LG80E
CHAIN CONNECTION CRANK LG25F
CRANK SHAFT LG80P
CYLINDER & HANDBRAKE CONNECTION LG29G
CYLINDER LEVER GUIDE LG29M
CYLINDER LEVER LG29C1
CYLINDER LEVER FULCRUM LG27M
BRAKE SHAFT BRACE
BRAKE CYLINDER TYPE C 12-12-1179
CYLINDER CONNECTION LG29A
HAND BRAKE WHEEL LG26A1
PRESSURE RETAINING VALVE 46390
BRAKE SHAFT LG28A
BRAKE SHAFT NUT LG28C
FRONT TRUCK - BRAKE - ARRANGEMENT
12 X 33 - AUXILIARY RESERVOIR 3093
DEAD LEVER FULCRUM
BRANCH TEE 1.25 X 1.25 X 1. 47163
PRESSURE RETAINING VALVE 46390
LG27B
LG27A1
BRAKE SHAFT BRACE
BRAKE SHAFT LINK
CRANK SHAFT BEARING LG24C1
BRAKE SHAFT CONNECTION CRANK LG25A1
BRAKE BEAM NO 1
TRUCK LIVE LEVER NO 1 LG29K2
OFFSET CONNECTION NO 1 LG29B1
TRUCK DEAD LEVER NO 1 LG29H2
TRUCK LIVE LEVER NO 2
TRUCK DEAD LEVER NO 2
BRAKE SHOE LG23B
BRAKE BEAM SAFETY HANGER LG27Q
FOR .375 PIPE TO RET. VALVE
.75 STREET ELLS
SUSPENSION BRACKET 5207
CYLINDER
1. PIPE
TRIPLE VALVE
FOR .5 PIPE
.75 PIPE ALL OF LINE
CONNECTION CYLINDER TO TRIPLE VALVE
1.25 X 1.25 X 1. BRANCH TEE - 47163
.75 PIPE
.75 NIPPLE
.75 ELLS
.75 STREET ELL & .75 X .5 X .75 TEE
.5 STREET ELL
RESERVOIR SADDLE & STRAP LG29L & LG29M
TRIPLE VALVE P-2-1775
AUXILIARY RESERVOIR - 3093
RESERVOIR RELEASE VALVE - 2416
BRAKE HANGER LG29D1
ROD
FRONT TRUCK
CYLINDER SUPPORT LG27E
BRAKE HANGER BRACKET LG24A
.75 UNION - .75 ELL
.75 STREET ELL .5 NIPPLE
1. CENTRIFUGAL DIRT COL. 36454
0 12 20 30 40 50 60 70 80 90 100 110 120 130 INCHES
DRAWING PERTAINS TO
CLASS DIV. DRG.
REVISIONS
12-WHEEL TRUCK
STD-GAUGE
5.5 X 10 JOURNALS
BRAKE ARRANGEMENT
MAY 15, 1926
DRAWN
I.A.R.
JAR
E.E.M.
ORDNANCE DEPARTMENT U.S.A.
APPROVED BY ORDER OF THE CHIEF OF ORDNANCE
EXAMINED
ORDNANCE DEPARTMENT U.S.A.
CAPT ORDNANCE DEPARTMENT U.S.A.
CLASS 36
DIVISION 9
DRAWING 29
FILE


END HAND HOLD LG 76 P
LEVER BRACKET - OUTER - LG 76 F
LEVER LG 76 S
LEVER BRACKET - INNER - LG 76 M1
COVER PLATE F-D-G-317
COUPLER - Z-304
SECTION C-C
AIR PIPE BRACE LG 76 M
WEDGE PLATE F-D-G-261
WEDGE F-D-G-260
℄ OF ANGLE COCK
UNCOUPLING CHAIN
COVER PLATE F-D-G-259
LEVER LG 76 S
COUPLER Z-304
FOLLOWER F-D-G-263
YOKE F-D-G-319
PIVOT PIN - F-D-G-258
SECTION A-A
TO TOP OF RAIL
LEVER BRACKET - OUTER LG 76 F
LEVER BRACKET - INNER LG 76 M1
COVER PLATE F-D-G-317
LEAF SPRINGS C-S-G-23
END HAND HOLD LG 76 P
DRAFT GEAR HOUSING LG 76 A
WEAR PLATE F-D-G-318
SECTION B-B
0 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 INCHES
DRAWING PERTAINS TO
REVISIONS
12-WHEEL TRUCK
STD-GAUGE
55-10 JOURNALS
M.C.B. COUPLER &
DRAFT GEAR ASSEMBLY
CLASS 36
DIVISION 9
DRAWING 28
FILE



TRIPLE VALVE



AIR-BRAKE CYLINDER

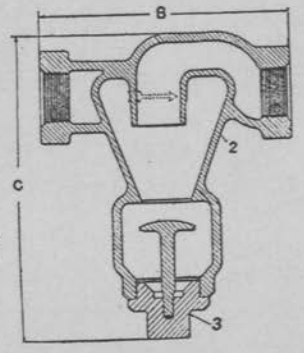
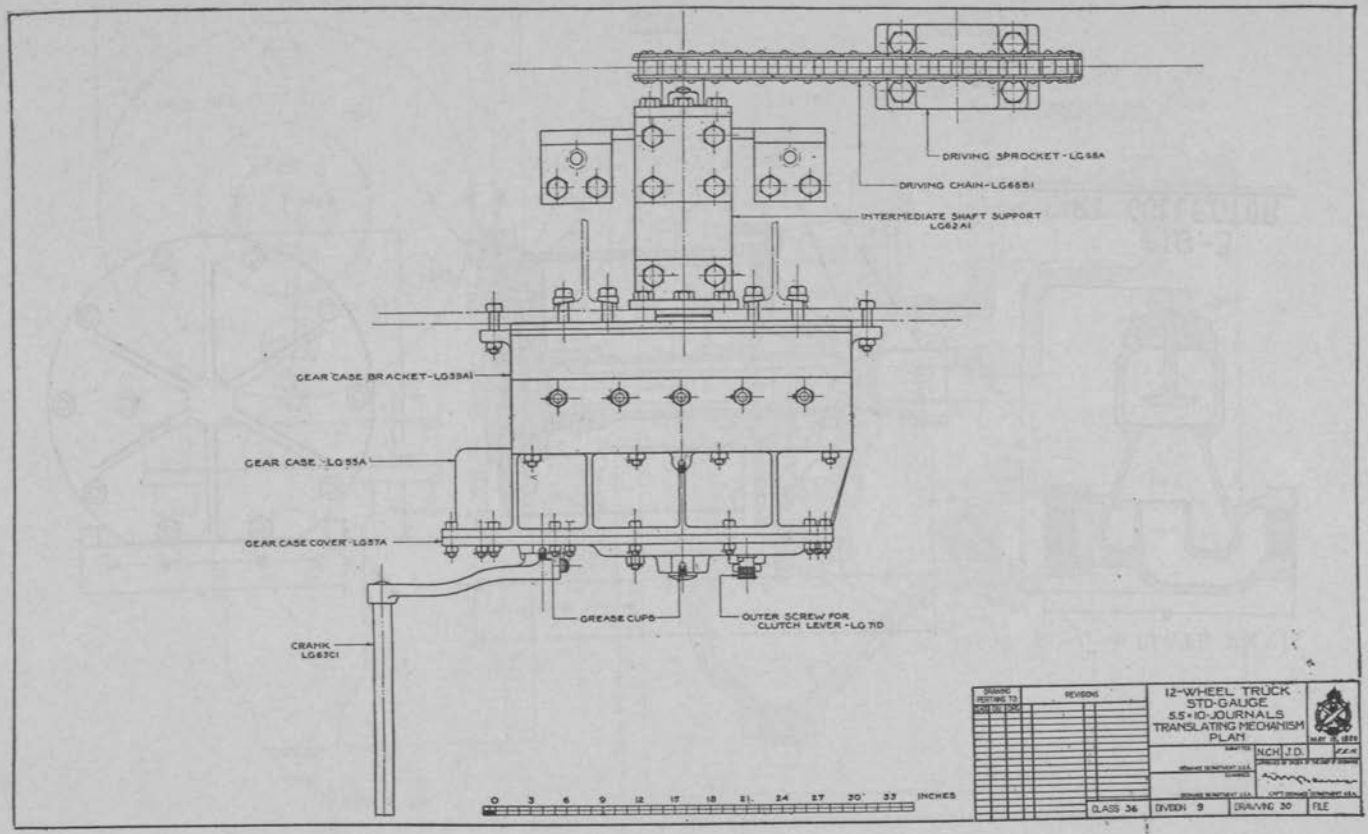
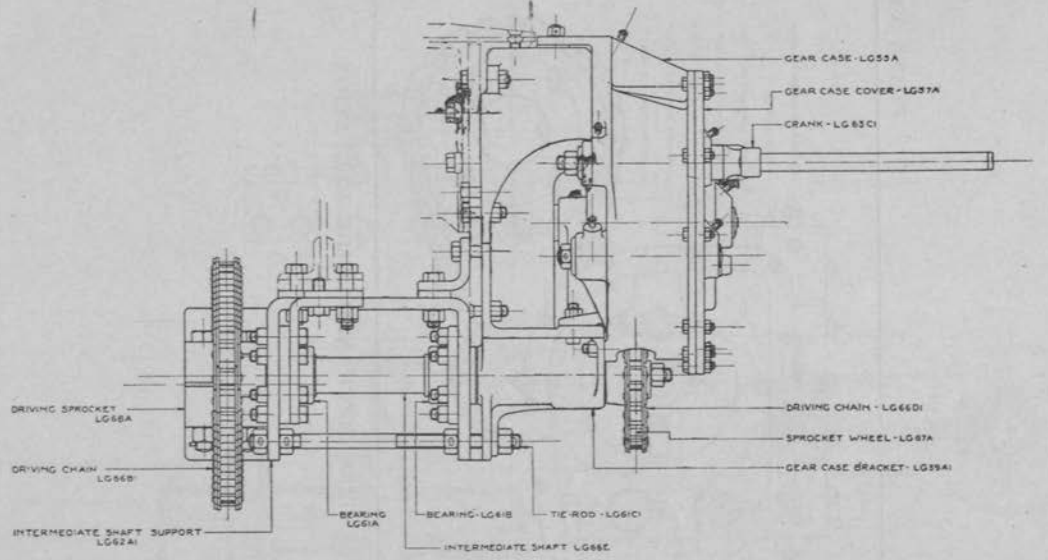


FIG.-3
DIRT COLLECTOR

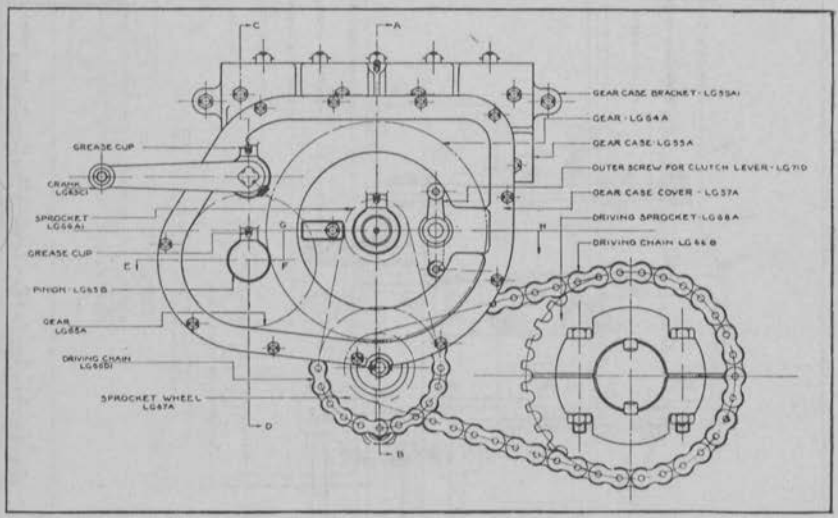

DRIVING SPROCKET - LG 68A
DRIVING CHAIN - LG 65B1
INTERMEDIATE SHAFT SUPPORT LG 62A1
GEAR CASE BRACKET - LG 53A1
GEAR CASE - LG 55A
GEAR CASE COVER - LG 57A
GREASE CUPS
OUTER SCREW FOR CLUTCH LEVER - LG 71D
CRANK LG 63C1
0 3 6 9 12 17 18 21 24 27 30 33 INCHES
REVISIONS
12-WHEEL TRUCK
STD-GAUGE
5.5 × 10-JOURNALS
TRANSLATING MECHANISM
PLAN
N.C.H. J.D.
CLASS 36
DIVISION 9
DRAWING 30
FILE



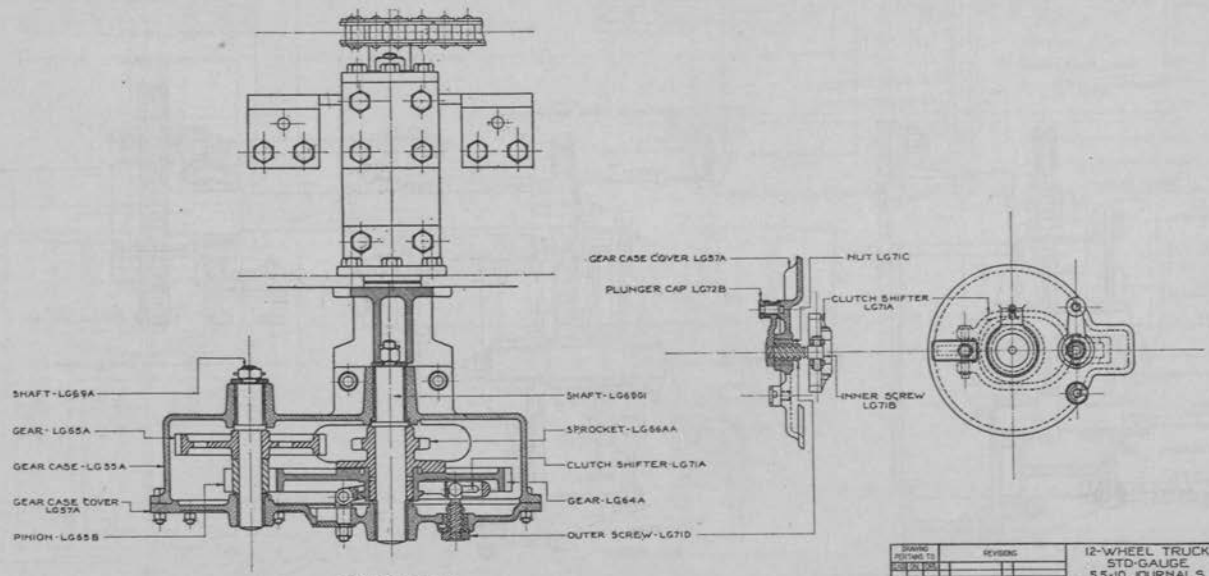
12-WHEEL TRUCK
STD-GAUGE
5.5×10 JOURNALS
TRANSLATING MECHANISM
END ELEVATION

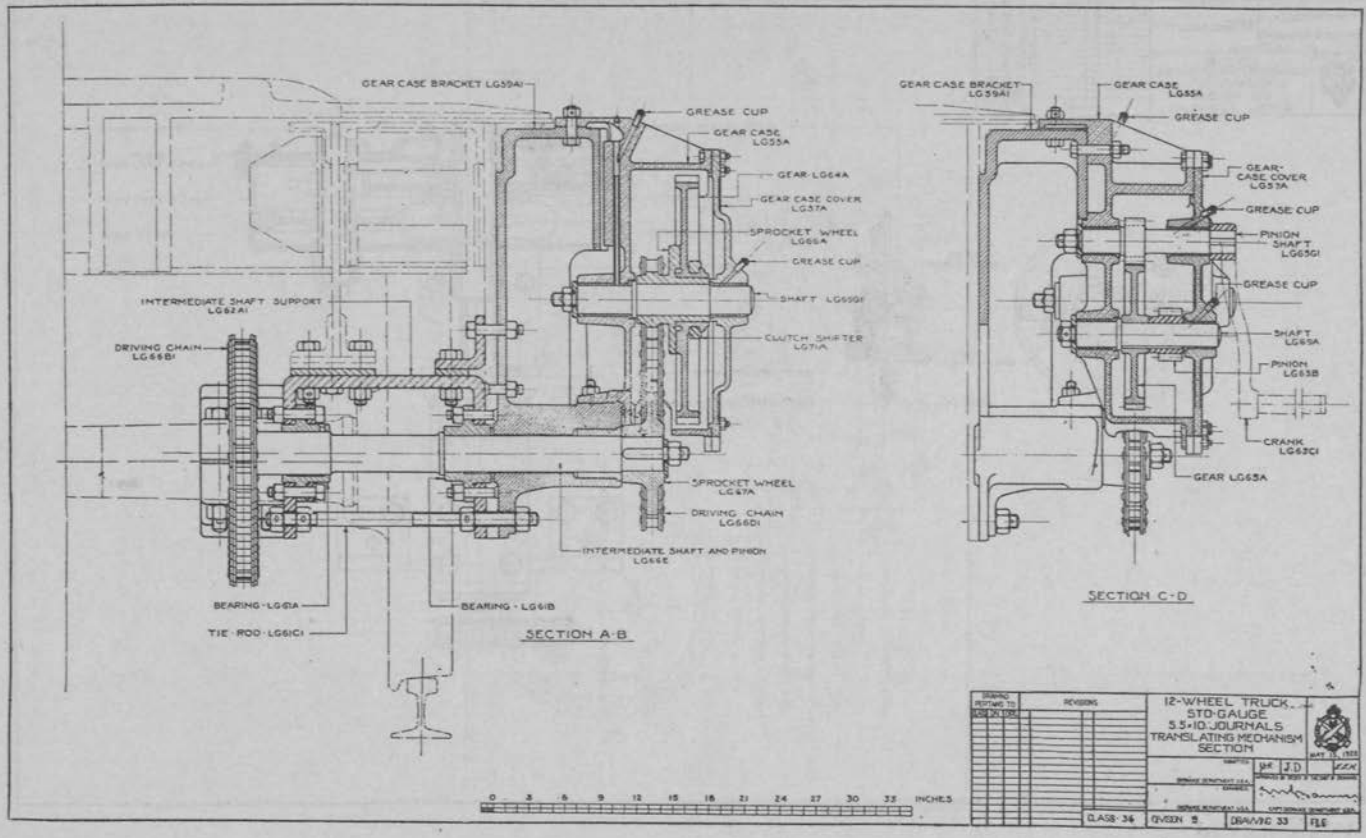
CLASS 36 | DIVISION 9 | DRAWING 31 | FILE

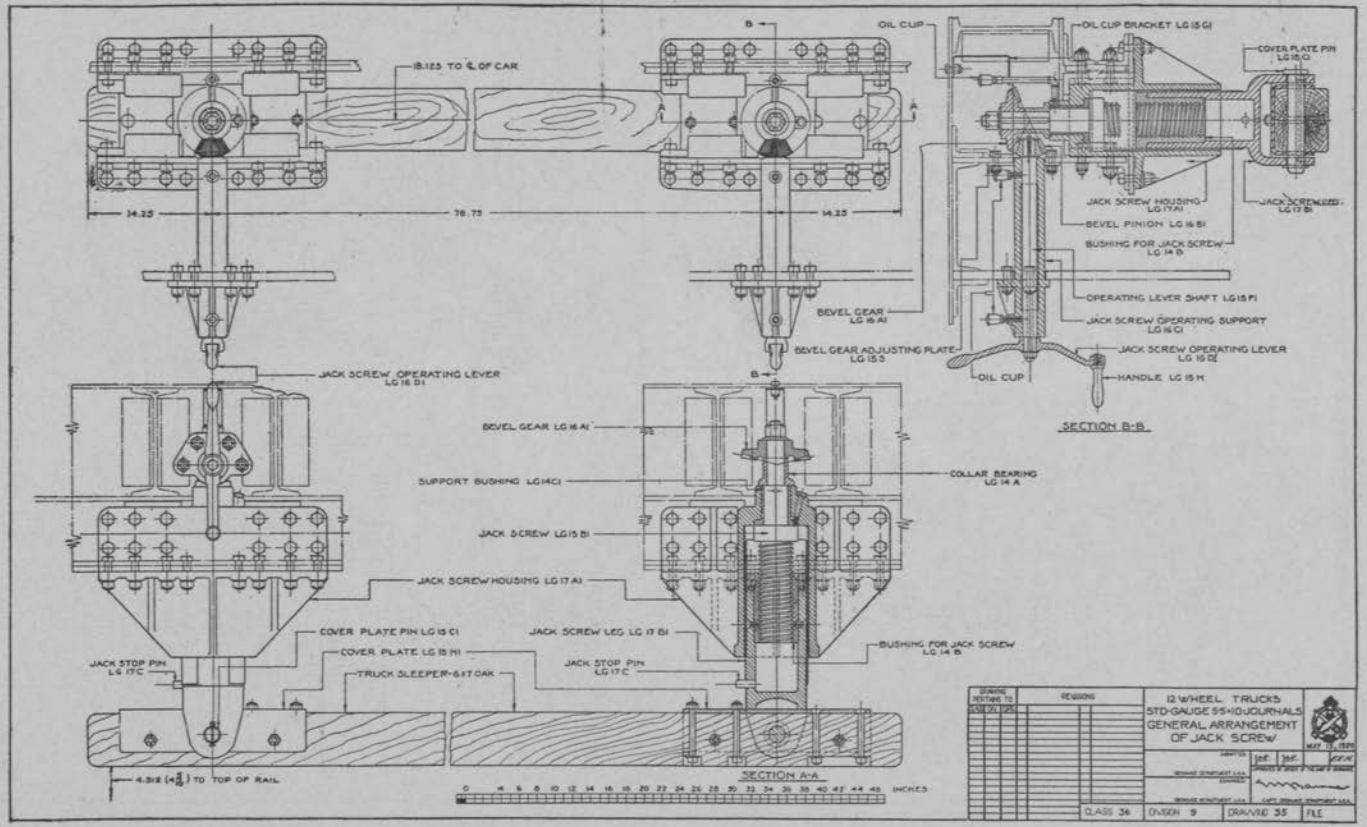
PLATE XXXV

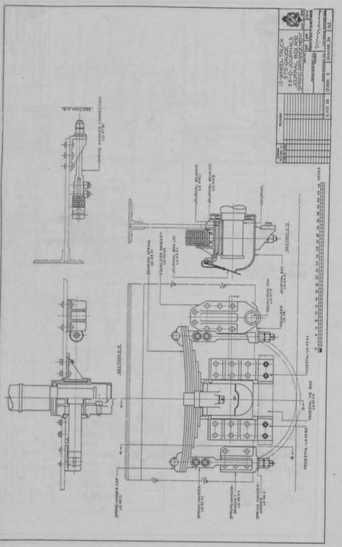


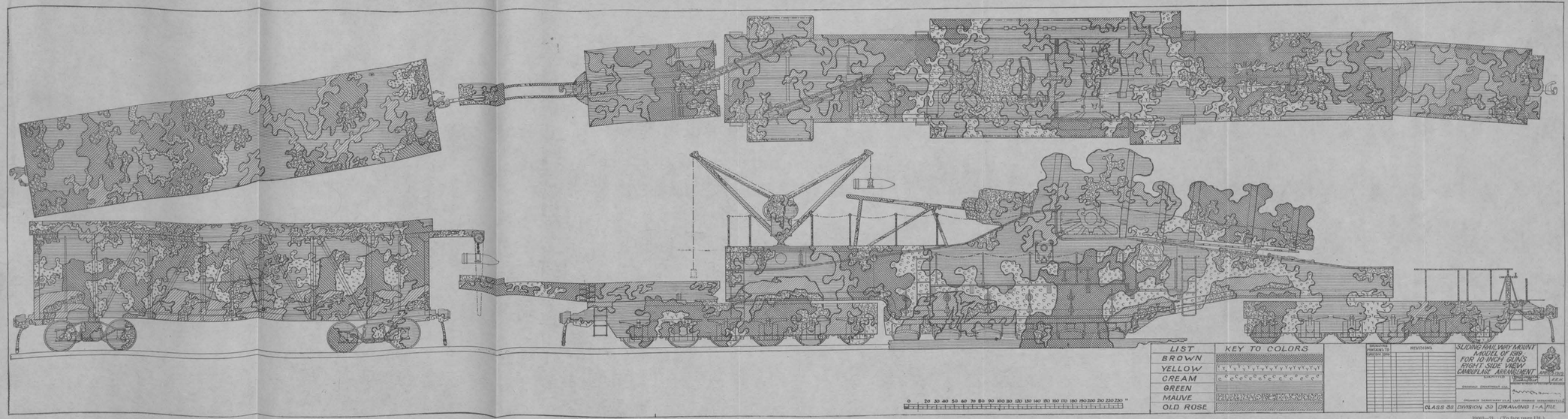
TRANSLATING MECHANISM, SIDE ELEVATION


GEAR CASE COVER LG57A
NUT LG71C
PLUNGER CAP LG72B
CLUTCH SHIFTER LG71A
INNER SCREW LG71B
SHAFT-LG69A
GEAR-LG65A
GEAR CASE-LG55A
GEAR CASE COVER LG57A
PINION-LG65B
SHAFT-LG69DI
SPROCKET-LG66AA
CLUTCH SHIFTER-LG71A
GEAR-LG64A
OUTER SCREW-LG71D
SECTION E-F-G-H
0 3 6 9 12 15 18 21 24 27 30 33 INCHES
REVISIONS
12-WHEEL TRUCK
STD-GAUGE
5.5×10 JOURNALS
TRANSLATING MECHANISM
SECTION
MAY 20 1925
N.C.H. J.D.
CLASS 36
DIVISION 9
DRAWING 34
FILE


GEAR CASE BRACKET LG59AI
GREASE CUP
GEAR CASE LG55A
GEAR LG64A
GEAR CASE COVER LG57A
SPROCKET WHEEL LG66A
GREASE CUP
SHAFT LG59GI
CLUTCH SHIFTER LG7IA
INTERMEDIATE SHAFT SUPPORT LG62AI
DRIVING CHAIN LG66BI
SPROCKET WHEEL LG67A
DRIVING CHAIN LG66DI
INTERMEDIATE SHAFT AND PINION LG64E
BEARING - LG61A
BEARING - LG61B
TIE ROD LG61CI
SECTION A-B
GEAR CASE BRACKET LG59AI
GEAR CASE LG55A
GREASE CUP
GEAR-CASE COVER LG57A
GREASE CUP
PINION SHAFT LG65GI
GREASE CUP
SHAFT LG65A
PINION LG63B
CRANK LG63CI
GEAR LG63A
SECTION C-D
0 3 6 9 12 15 18 21 24 27 30 33 INCHES
REVISIONS
12-WHEEL TRUCK
STD GAUGE
5.5×10 JOURNALS
TRANSLATING MECHANISM
SECTION
MAY 13, 1920
JD
CLASS 34
DIVISION B
DRAWING 33
FILE


18.125 TO ℄ OF CAR
14.25
78.75
14.25
OIL CUP
OIL CUP BRACKET LG 15 G1
COVER PLATE PIN LG 15 C1
JACK SCREW HOUSING LG 17 A1
JACK SCREW LG 17 B1
BEVEL PINION LG 16 B1
BUSHING FOR JACK SCREW LG 14 B
OPERATING LEVER SHAFT LG 15 F1
JACK SCREW OPERATING SUPPORT LG 16 C1
JACK SCREW OPERATING LEVER LG 15 D2
HANDLE LG 15 H
SECTION B-B
BEVEL GEAR LG 16 A1
BEVEL GEAR ADJUSTING PLATE LG 15 S
JACK SCREW OPERATING LEVER LG 16 D1
BEVEL GEAR LG 16 A1
SUPPORT BUSHING LG 14 C1
JACK SCREW LG 15 B1
JACK SCREW HOUSING LG 17 A1
COLLAR BEARING LG 14 A
JACK SCREW LEG LG 17 B1
BUSHING FOR JACK SCREW LG 14 B
COVER PLATE PIN LG 15 C1
COVER PLATE LG 15 H1
JACK STOP PIN LG 17 C
TRUCK SLEEPER-6 X 7 OAK
JACK STOP PIN LG 17 C
4.312 (4 3/8) TO TOP OF RAIL
SECTION A-A
INCHES
DRAWING PERTAINS TO
REVISIONS
12 WHEEL TRUCKS
STD-GAUGE 9"x10" JOURNALS
GENERAL ARRANGEMENT
OF JACK SCREW
MAY 13, 1920
CLASS 36
DIVISION 9
DRAWING 35
FILE




0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 "
LIST
KEY TO COLORS
BROWN
YELLOW
CREAM
GREEN
MAUVE
OLD ROSE
REVISIONS PERTAINING TO ORIGINAL ISSUE
REVISIONS
SLIDING RAILWAY MOUNT
A MODEL OF BIP.
FOR 10 INCH GUNS
RIGHT SIDE VIEW
CAMOUFLAGE ARRANGEMENT
CLASS 38
DIVISION 30
DRAWING 1-A FILE.

