

No. 696,064.

Patented Mar. 25, 1902.

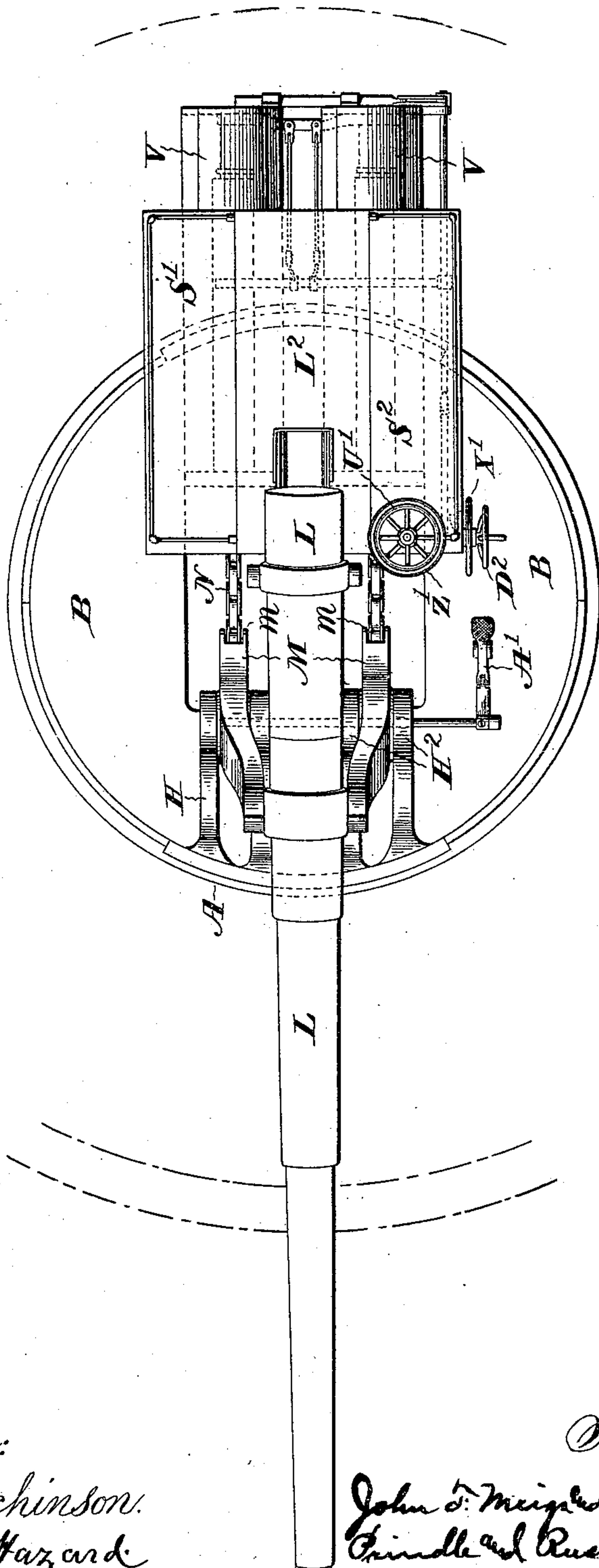
J. F. MEIGS & R. P. STOUT.
GUN CARRIAGE OR MOUNT.

(Application filed Jan. 30, 1900.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



Witnesses:
Jas. E. Hutchinson.
Henry L. Hazard.

Inventors.
John F. Meigs & Robt. P. Stout, by
Erinelle and Russell, their Attys.

No. 696,064.

Patented Mar. 25, 1902.

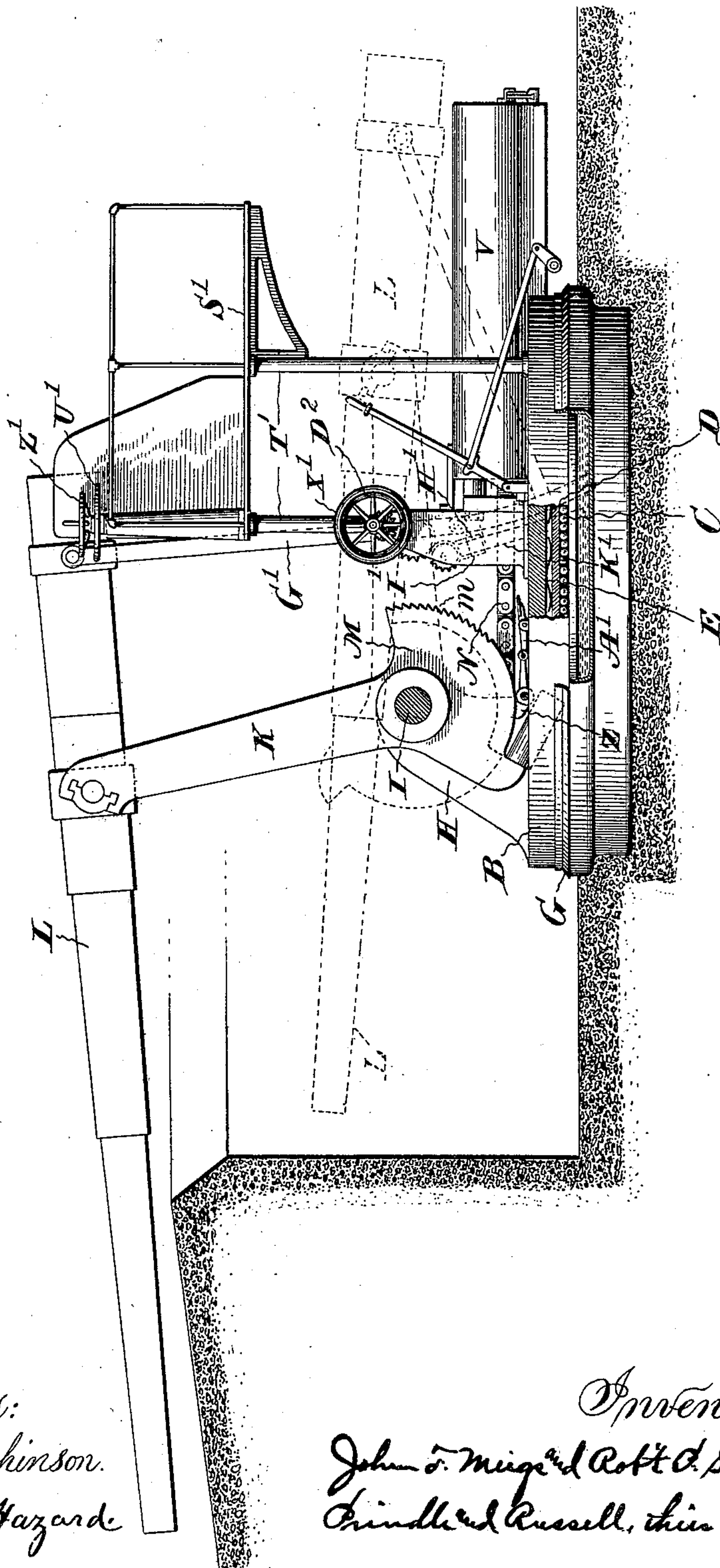
J. F. MEIGS & R. P. STOUT.
GUN CARRIAGE OR MOUNT.

(Application filed Jan. 30, 1900.)

(No Model.)

4 Sheets—Sheet 2.

Fig. 2.



Witnesses:
Jas. E. Hutchinson.
Henry C. Hazard.

Inventors.
John F. Meigs & Robt. P. Stout, by
Erindred Russell, their Attys.

No. 696,064.

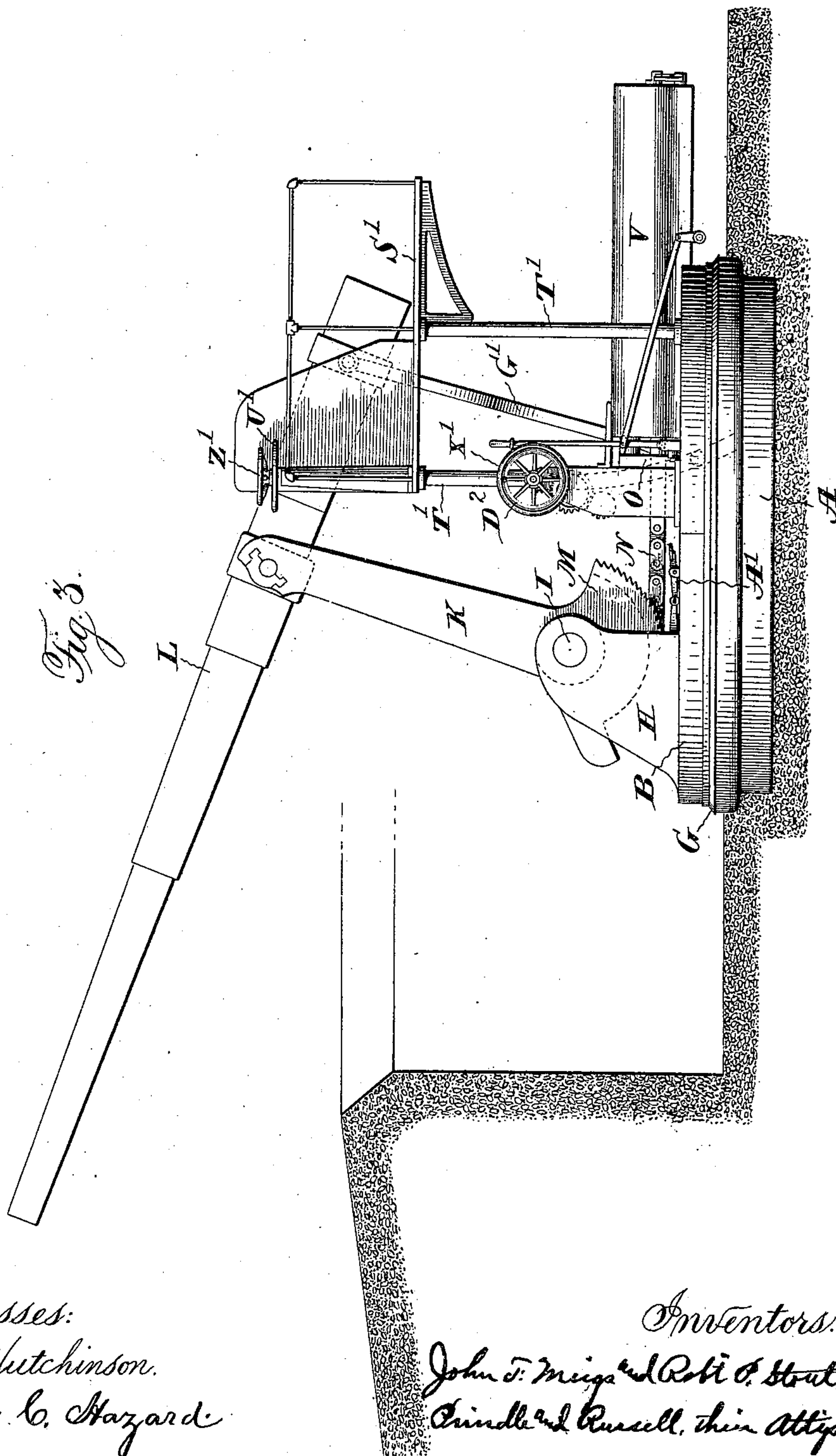
Patented Mar. 25, 1902.

J. F. MEIGS & R. P. STOUT.
GUN CARRIAGE OR MOUNT.

(Application filed Jan. 30, 1900.)

(No Model.)

4 Sheets—Sheet 3.



Witnesses:
Jas. C. Hutchinson.
Henry C. Hazard.

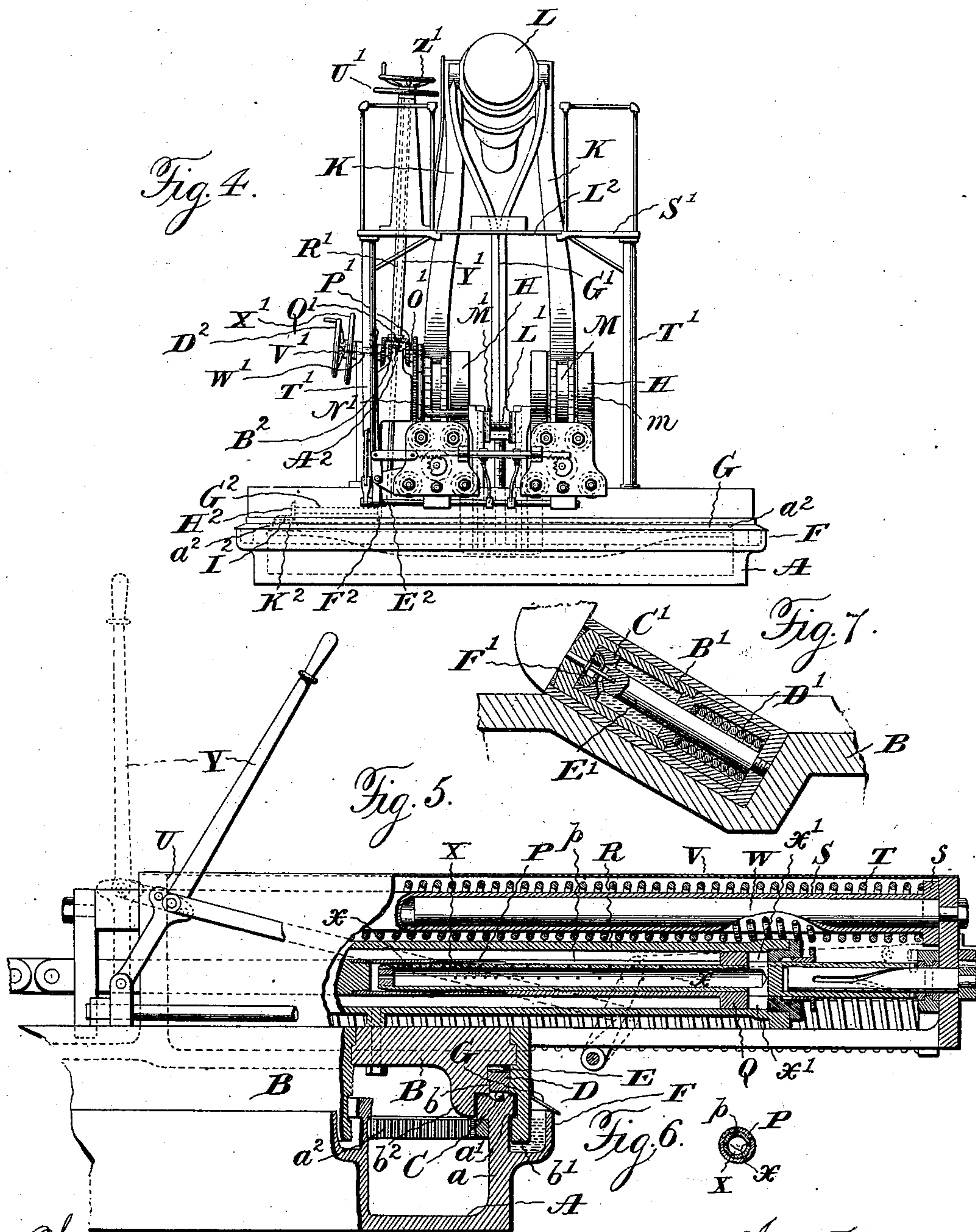
Inventors:
John F. Meigs and Robt. P. Stout, by
Crimm and Russell, their Attys.

J. F. MEIGS & R. P. STOUT.
GUN CARRIAGE OR MOUNT.

(Application filed Jan. 30, 1900.)

(No Model.)

4 Sheets—Sheet 4.



Witnesses:
Jas. C. Hutchinson.
Henry C. Hazard.

Inventors:
John F. Meigs & Robt P. Stout, by
Erindred Russell, their atty

UNITED STATES PATENT OFFICE.

JOHN F. MEIGS AND ROBERT P. STOUT, OF SOUTH BETHLEHEM, PENNSYLVANIA, ASSIGNORS TO THE BETHLEHEM STEEL COMPANY, OF SOUTH BETHLEHEM, PENNSYLVANIA.

GUN CARRIAGE OR MOUNT.

SPECIFICATION forming part of Letters Patent No. 696,064, dated March 25, 1902.

Application filed January 30, 1900. Serial No. 3,330. (No model.)

To all whom it may concern:

Be it known that we, JOHN F. MEIGS and ROBERT P. STOUT, of South Bethlehem, in the county of Northampton, and in the State of Pennsylvania, have invented certain new and useful Improvements in Gun Carriages or Mounts; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of a gun-carriage embodying our invention; Fig. 2, a side elevation thereof with the gun in its raised position; Fig. 3, a like view with the gun elevated for firing at a high angle; Fig. 4, an end elevation with the parts in position as shown in Fig. 2. Fig. 5 is a view, partly in elevation and partly in section, of the recoil controlling and adjusting mechanism; Fig. 6, a detail view in cross-section of the recoil regulating or controlling device; Fig. 7, a detail view, in longitudinal section, of the cushion device to arrest the gun after counter-recoil.

Letters of like name and kind refer to like parts in each of the figures.

The object of our invention is to provide a mount or carriage for guns that will enable the adaptation of the gun for firing to varying conditions, so that, for example, it may be used as a rapid fire gun, having such construction as will reduce to a minimum liability to derangement and will facilitate the working of the gun; and to these ends said invention consists in a gun mount or carriage having the construction substantially as hereinafter specified.

In the carrying of our invention into practice there is employed a circular bed or base that comprises a plate A and a vertical annular flange *a* at the rim thereof, upon which is mounted a turn-table B, that supports the gun and its appurtenant mechanism and by the turning of which the gun may be trained. Between the top of the flange *a* and the turn-table B are placed balls C and C, which may directly engage the table, but preferably they engage a circular plate or ring D in an annular groove *b* in the under side of said table, between which plate and the top of the groove *b* is a circular series of springs E and E of

sufficient strength to hold the table B from contact with the top of the flange *a*, except under the pressure of recoil, when they yield until table and flange abut. Crushing of the balls is thus avoided. At the periphery or rim of the turn-table is a downwardly-projecting flange *b'*, that hooks under an annular shoulder *a'* on the flange *a*, and which consists of a series of removable sections secured by bolts to the turn-table. By the removal of the sections or clips access to the balls and other parts may be readily had. The lower portion of the flange *b'* is submerged in a suitable liquid in a gutter or well F on the exterior of and encircling the flange *a*. Access of dust or sand to the balls is completely prevented, as the interior of the base is closed at the bottom and top and the arrangement of the flange and gutter afford protection from the outside. Preferably a flap G, attached to the flange *b'*, covers the space between the same and the top of the gutter or well. It will be seen that the structure combines the advantages of ready accessibility to the balls and adjacent parts and protection from dust and sand. If desired, a similar arrangement of flange and gutter may be employed inside of the flange *a*.

To sustain the horizontal thrust resulting from recoil and keep it from falling on the flange *b'*, the turn-table B has a downward extension *b''*, which under recoil brings up against the interior of the flange *a*.

On the upper side of the turn-table B, in advance of its axial center, are two pairs of standards H and H, which support each a shaft I, upon which is mounted one of the pair of arms or levers K and K, by and between which the gun L is supported and by the swinging of which the gun is moved to and from firing position by the energy developed from recoil. Each of said arms or levers has a segment or arc-shaped portion M, to the periphery of which is attached one end of a chain N, the other end of which is secured to a cross-head O, that is connected with the rods of the recoil and counter-recoil mechanisms. One of said rods is a piston-rod P, having a piston Q in a cylinder R upon the turn-table B, and the others are rods S and S, hav-

ing each a head *s*, that is engaged by one end of a coiled spring *T*, that encircles the rod and whose other end bears against a fixed abutment *U* on the turn-table. There are
 5 preferably four rods and springs, and they are grouped around the cylinder *R* and inclosed in a suitable housing *V*. Each rod *S* is tubular or hollow, and within it is a guide or support consisting of a tube *W*, fixed to one end
 10 of the housing *V*, that restrains any vibratory tendency of the spring.

Recoil is controlled by the passage of liquid from one side of the piston *Q* to another and we vary it to vary the distance traveled by
 15 the gun, according to the use to be made of the latter. Thus if the gun is to disappear or travel between firing position above the parapet and loading position down behind the latter the mechanism that controls the pas-
 20 sage of fluid is adjusted to permit the amount of movement of the gun required for this purpose. If the gun is not to disappear, but is to be used for rapid fire, such mechanism is
 25 adjusted to restrict the travel of the gun under recoil to the shortest distance practicable, and if the gun is to be fired at such a high angle that it is necessary, as shown in Fig. 3, to swing the levers *K* and *K* to place the trun-
 30 nion-bearings in rear of a vertical plane through the lever-shafts *I* and *I* to obviate the endwise pressure to which they would be otherwise subjected said mechanism is ad-
 35 justed to limit the travel of the gun to a distance intermediate the other two. Any desired form of mechanism may be employed for regulating or controlling the passage of
 40 fluid; but we prefer that shown, which consists of a longitudinally-perforated rod or tube *X*, passing through the piston *Q* and into a chamber in the piston-rod and having sev-
 45 eral sets of radial passages or perforations α and α' , any one of which sets by the adjustment of the tube may register with a radial slit or passage *p* in the wall of the piston-
 50 rod, and thus place the interior of the tube *X* in communication with the cylinder *R* and through said tube and radial openings α' and α' therein the cylinder-spaces on opposite
 55 sides of the piston in communication. As the piston-rod and piston move longitudinally relative to the tube *X* it will be seen that communication between the cylinder on
 60 one side of the piston and the interior of the tube will be gradually and then finally cut off, and as there is a set of perforations for each of the various distances which it is de-
 65 sired to have the gun move under recoil and as the sets are of varying lengths it is apparent that the flow of liquid will be stopped
 and recoil of the gun arrested at a point determined by the respective set of perforations registering with the slit or passage through the piston-rod wall. A hand-lever *Y* on the turn-
 table *B* is connected with the tube *X* to enable it to be adjusted at will, and such ad-
 justment in the case of two sets of perfora-

tions is effected by simple rotation of the tube and in the other case by rotation and longitudinal movement. The lever *Y* has
 70 motion in two directions at right angles to each other, in one of which it acts through rack-and-pinion gearing to simply turn the tube and in the other of which it acts through
 connection with a collar and pin and spiral groove to both move the tube longitudinally
 75 and turn it.

When the gun is used for rapid fire, counter-recoil ensues as soon as recoil is completed; but when it is used as a disappearing gun it is
 80 locked in its depressed position for loading, such locking being done by means of ratchet-teeth *m* on the segments of the levers *K* and *K* and a pawl *Z* for each set of teeth, pivoted
 to the turn-table *B* and connected with a treadle *A'* for effecting the disengagement of
 85 pawls and ratchets when the gun is to be returned to firing position.

As the gun in moving to firing position can pass to a point which carries the trunnion-bear-
 90 ings of the levers *K* and *K* forward of the vertical plane through the axis of the lever-shafts it will be evident that, because of the flexible-chain connection between said levers and the
 recoil mechanism, the gun will fall forward as soon as its trunnion-axis passes forward
 95 of said vertical plane. To arrest such forward fall, there is provided, preferably, for coöperation with each lever a cushion-stop or
 buffer that comprises a hollow plunger or cylinder *B'*, movable longitudinally in a guide
 100 or casing on the turn-table *B*, a piston *C'* therein, and a coiled spring *D'*, that presses the cylinder outward from said casing in the
 path of a radial lug or arm *m'* on the lever-segment *M*. The piston *C'* is on a fixed pis-
 105 ton-rod *E'*, and through the piston are several passages controlled by a perforated valve *F'*. The cylinder contains a suitable fluid
 which when the cylinder is projected outward by the spring is between its outer end and
 110 the piston *C'* and by the inward movement of the cylinder under the blow of the lug *m'* is passed to the opposite side of the piston,
 controlling the inward movement of the cylinder. On the lifting of the lug from the cyl-
 115 nder the latter is quickly projected outward by the action of the spring, the fluid on the
 inner side of the piston being promptly passed to the outer side thereof by the ample opening
 120 afforded on the raising of the valve *F'*, so that the buffer is again in readiness to act. Other means for controlling the flow of liq-
 uid can of course be substituted for that de-

scribed.
 For the elevation or depression of the gun
 125 there is, as usual, connected to the latter arms or links *G'*, that are pivotally connected to
 slides *H'* and *H'*, placed in arc-shaped guides on the turn-table *B*, to which slides is attached
 a nut *I'* upon a screw *K'*. On the screw is a
 130 bevel-pinion *L'*, with which meshes a like pin-
 ion *M'* on a horizontal shaft *N'*, which latter,

by a train of wheels, is geared to a shaft O', on which is a bevel-pinion P'. The latter meshes with a bevel-gear Q' on a shaft R', that extends upward to a platform S', elevated on posts T', rising from the turn-table, and upon the upper end of said shaft is a hand-wheel U', by which it may be revolved. Also meshing with the bevel-gear Q' is a gear V' upon a shaft W', having a hand-wheel X' accessible to one standing on the turn-table B. There are thus two stations from which the gun-elevating mechanism may be operated—one on the turn-table and the other the elevated platform. Training of the gun may also be done from either of said stations. For this purpose a vertical shaft Y' is employed that has a hand-wheel Z' on its upper end, accessible from the platform S', and by means of bevel-pinions A² and B² is geared to a shaft C², having a hand-wheel D², that is accessible from the turn-table. Preferably the shaft Y' passes through the shaft R', and the shaft C² passes through the shaft W', so that the two hand-wheels at the respective stations are concentric. On its lower end the shaft Y' carries a bevel-wheel E², that meshes with a like wheel F² on a horizontal shaft G², carried in bearings on the turn-table B, and also on said shaft G² is a bevel-wheel H², that meshes with a like wheel I² on the same shaft with a gear K², that meshes with an internal annular rack α^2 on the interior of the base-flange α . The gear K² being carried by the turn-table it is evident that by its revolution movement of the turn-table will result. It is proper to state at this point that the horizontal thrust of the turn-table from recoil may be borne by the rack α^2 , it being advisable if this be done to curve the periphery of the depending thrust-administering portion of the turn-table on an arc having the same radius as that of the teeth, so that there will be extended contact or bearing.

The platform S' is extended to each side of the gun, an opening being left for the passage of the gun when it is moved by recoil below the platform. When the gun does not move so far, but is restricted to movement above the platform, as in rapid fire, said opening is covered to provide a standing-place by a metal plate L², which will bend and be dislodged by the gun without damage to the platform should said plate be left in place when the recoil mechanism is adjusted to permit movement of the gun to a position below the platform. The platform is preferably supported so that it may be lowered into the pit behind the parapet.

It is to be understood that it is not necessary to the practice of our invention in its broadest scope that the details of construction shown and described be employed, as it is possible in some cases either to omit or vary them or to use different constructions.

The mechanism for adjusting the recoil-controlling mechanism is not claimed herein,

but forms the subject of a divisional application.

Having thus described our invention, what we claim is—

1. In a gun-carriage, the combination of a turn-table, its bearings, and a liquid-form guard for the latter, substantially as described.

2. In a gun-carriage, the combination of a turn-table, its bearings, and a liquid-holding device around the latter, substantially as described.

3. In a gun-carriage, the combination of a turn-table, its bearings, a liquid-holding gutter or well adjacent the latter, and a flange projecting from the turn-table into said gutter or well, substantially as described.

4. In a gun-carriage, the combination of a base having a ring-form flange, a turn-table, rolling supports between the latter and the top of the flange, a liquid-holding gutter or well on said flange, and a flange projecting from the turn-table into said gutter or well, substantially as described.

5. In a gun-carriage, the combination of a base, a turn-table, rolling supports between the latter and the base, in a recess in the turn-table, a spring-pressed bearing-plate for said supports, in said recess, and a removable flange forming one side of said recess, substantially as described.

6. In a gun-carriage, the combination of a turn-table, a base having a circular bearing for the turn-table, a flange projecting from the turn-table, outside of the base, and an extension of the turn-table within and adjacent to the base adapted to engage the latter to prevent the thrust from recoil falling on said flange, substantially as and for the purpose described.

7. In a gun-carriage, the combination of a turn-table, mechanism for turning the same, gun-elevating mechanism, and two sets of operating devices for said mechanisms, comprising each concentric shafts, and an operating device for each shaft, substantially as and for the purpose described.

8. In a gun-carriage, the combination of a turn-table, mechanism for turning the same, gun-elevating mechanism, two sets of operating devices for said mechanisms, comprising each concentric shafts, and operating devices for the shafts, the operating devices for one set of shafts being higher than those for the other set, substantially as and for the purpose described.

9. A gun-carriage having a movably-supported gun, and provided with a platform adapted to yield before the gun, substantially as described.

10. A gun-carriage having a movable gun-support and provided with a platform with a section adapted to yield before the gun without injury to the remainder of the platform, substantially as described.

11. In a gun-carriage, the combination of a

gun-supporting lever having a segment-shaped portion, a recoil mechanism, a flexible connection between such segment-shaped portion and the recoil mechanism, teeth on
5 said segment-shaped portion, a pawl to engage said teeth, a projection from said segment-shaped portion and a stop device in the path of said projection, substantially as and for the purpose described.

In testimony that we claim the foregoing 10
we have hereunto set our hands this 13th day
of January, A. D. 1900.

JOHN F. MEIGS.
ROBERT P. STOUT.

Witnesses:

EDWARD J. MALLOY,
EDWIN A. MILLER.