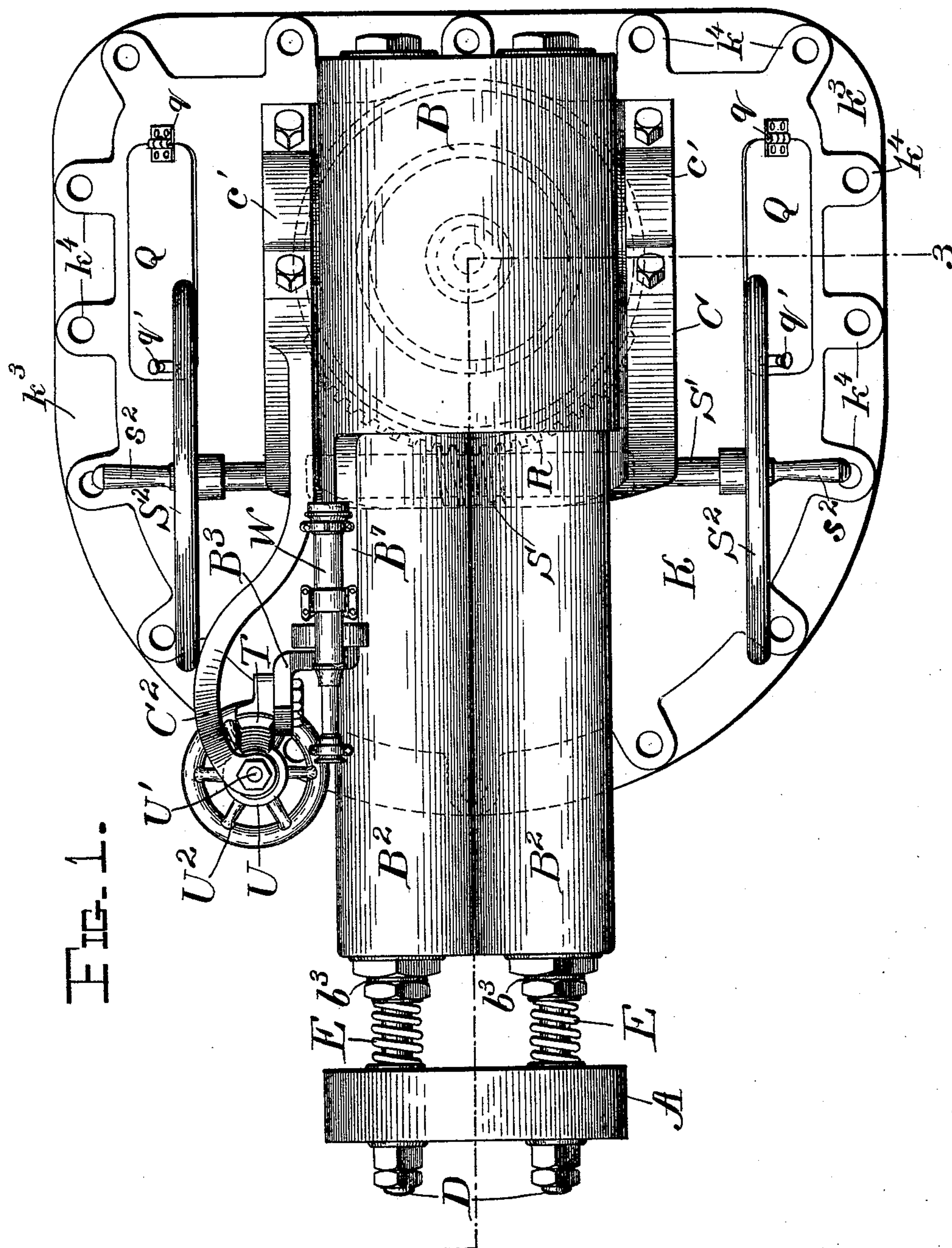


3 Sheets—Sheet 1.

No. 573,210.

Patented Dec. 15, 1896.



1-511

Witnesses

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3 Sheets—Sheet 2.

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FIG. 3.

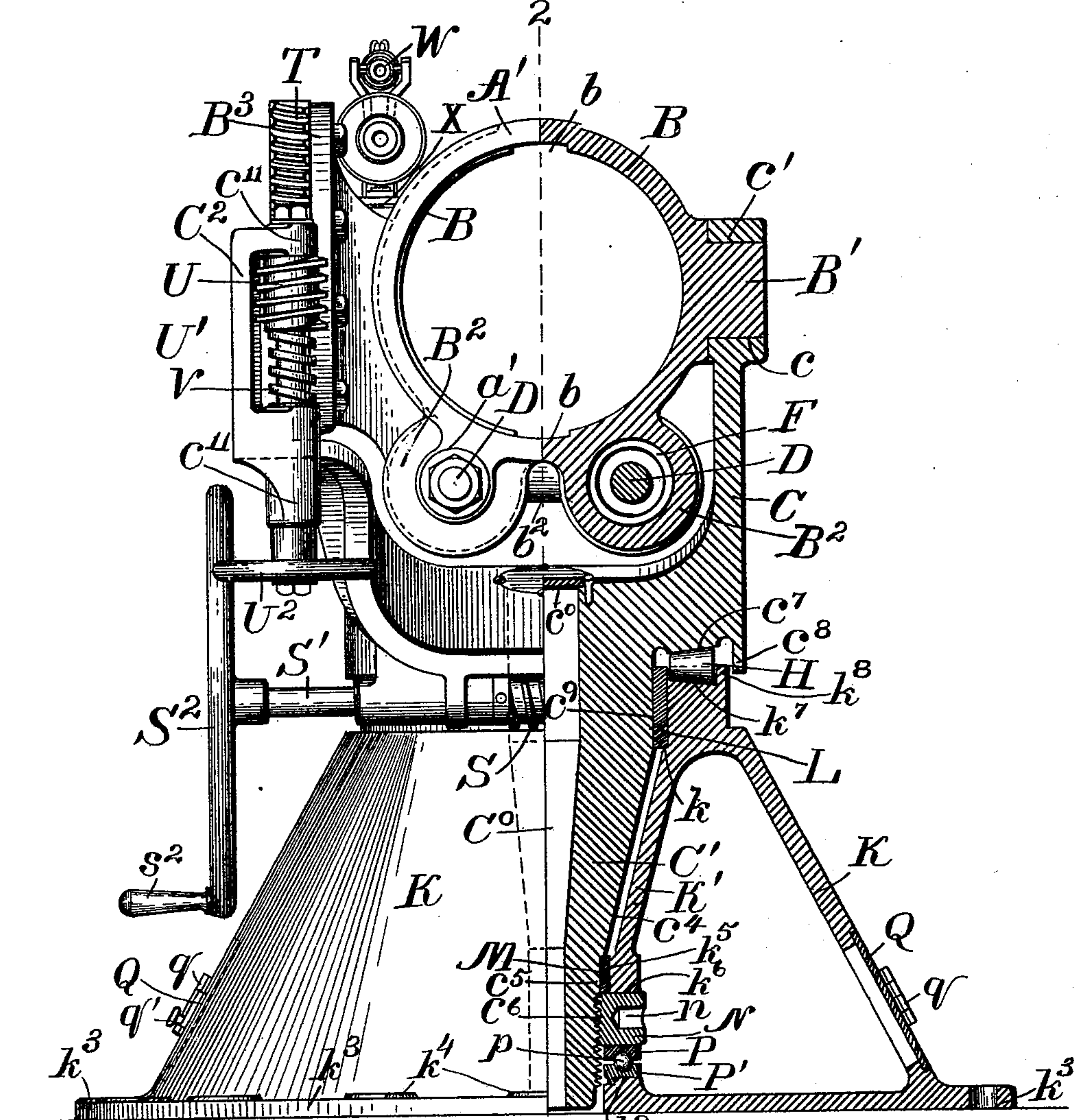
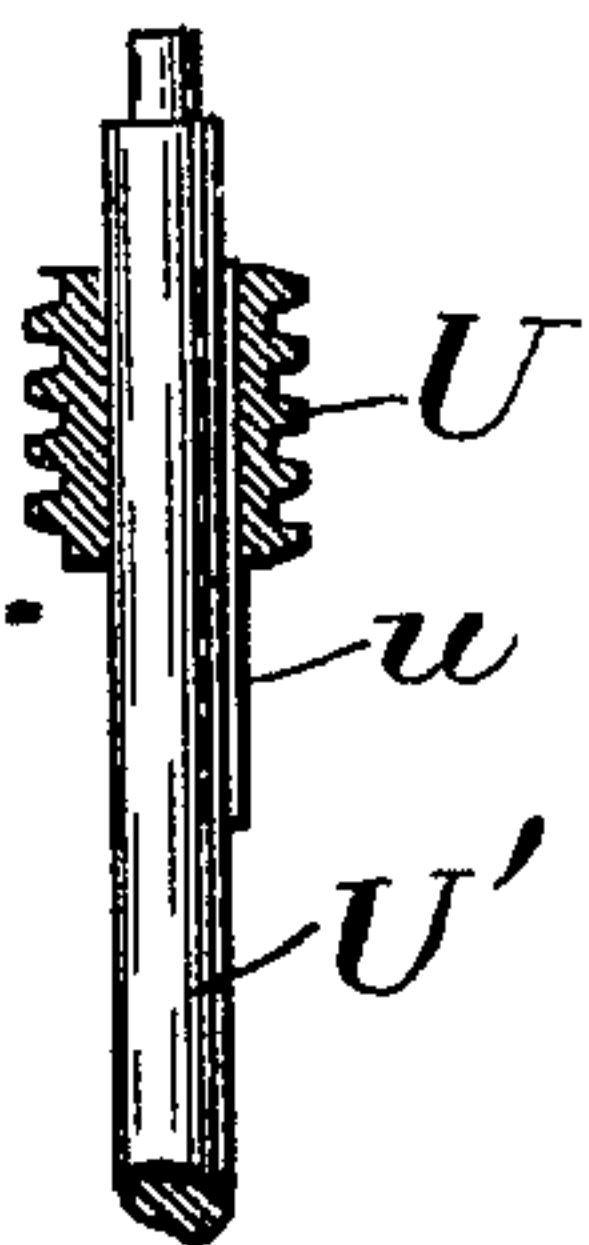
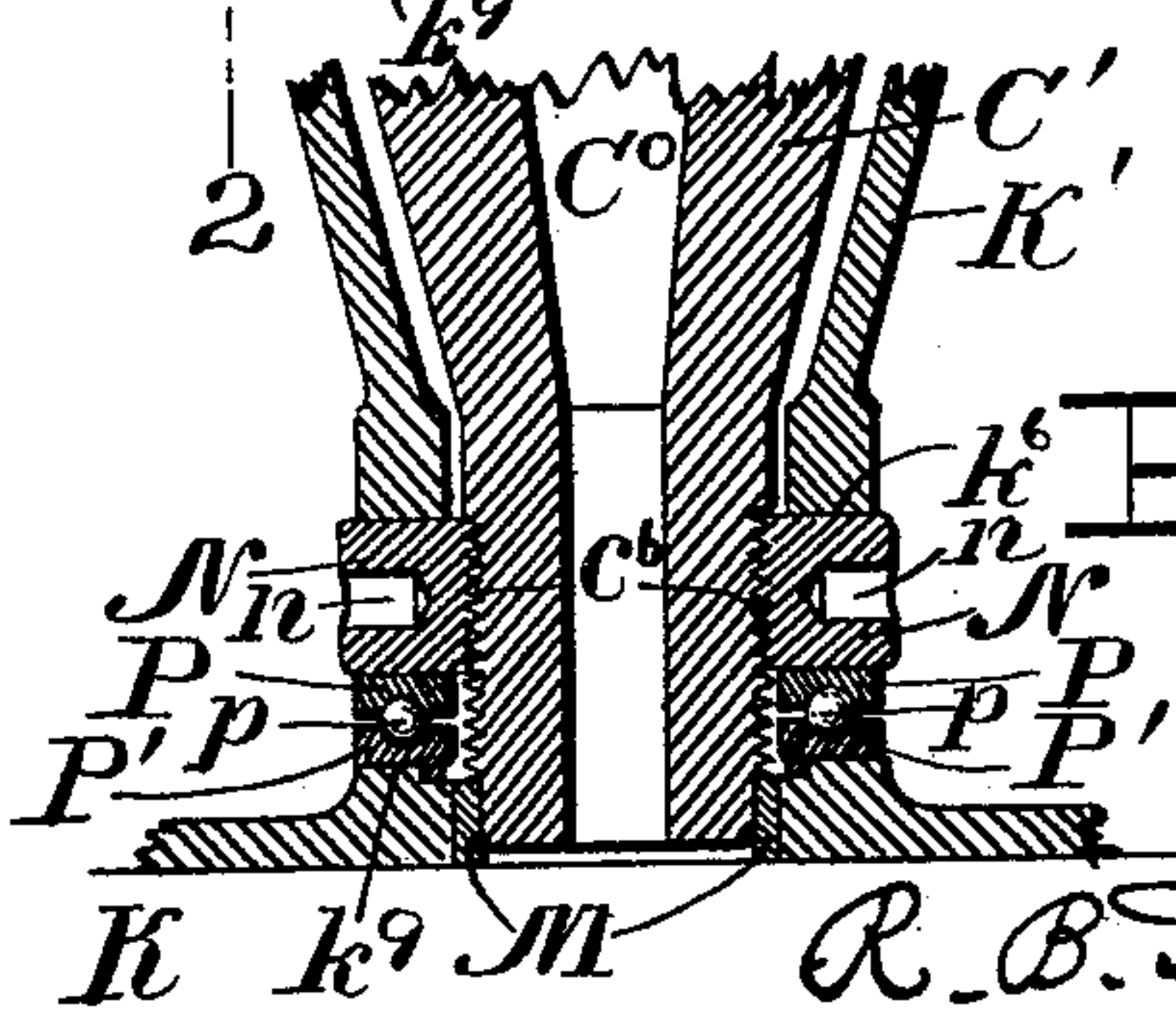



FIG. 4.3



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FIG. 5.



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UNITED STATES PATENT OFFICE.

ROBERT BROOKE DASHIELL, OF WASHINGTON, DISTRICT OF COLUMBIA.

GUN-MOUNT.

SPECIFICATION forming part of Letters Patent No. 573,210, dated December 15, 1896.

Application filed July 30, 1896. Serial No. 601,069. (No model.)

To all whom it may concern:

Be it known that I, ROBERT BROOKE DASHIELL, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Gun-Mounts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in mounts for rapid-fire guns; and it consists of certain novel features hereinafter described and claimed.

Reference is had to the accompanying drawings, in which the same parts are indicated by the same letters throughout the several views.

Figure 1 represents a plan view of my improved gun-mount, the body of the gun being omitted therefrom. Fig. 2 represents a central longitudinal vertical section through the gun-mount, the body of the gun being shown in dotted lines and the section being along the line 2 2 of Fig. 3. Fig. 3 represents a section along the broken line 3 3 of Fig. 1 and looking to the right. Fig. 4 represents a detail view of the worm and feather used in the elevating-gear, and Fig. 5 represents a section of a modification in which one of the bearings of the upper carriage is shown lower down than in Figs. 2 and 3.

A represents the body of the gun, which is provided with a small band a near the rear thereof and a band A' in the rear of the band a , carrying the lugs a' for the rear end of the piston-rods D, which will be hereinafter more fully described.

The body of the gun is provided with guide-lugs, (not shown,) which engage in the grooves b in the rocking slide B, which is mounted on trunnions B' , resting on bearings c of the upper gun-carriage C. Above these trunnions are placed the cap-squares c' , which are bolted in place in the usual way. Beneath the rocking slide B and on either side of the center thereof are provided the hydraulic cylinders B^2 , filled with fluid and containing springs F, either or both, as is well known in the art. These cylinders are placed on either side of the vertical line through the center of the gun, and by this arrangement it is possible to bring the center of the recoil-cylinder closer to

the axis of the gun than where a single cylinder is used below this axis. The rear ends of these cylinders are closed by the glands b^3 , which permit the passage therethrough of the piston-rods D.

Buffer-springs E are placed between the lugs a' and the glands b^3 , whereby the momentum of the gun is checked as it returns to the initial or firing position. These two cylinders B are connected by a rib b^2 , which is perforated, as at b^0 , to allow fluid to flow from one cylinder to the other, whereby a uniform pressure is maintained in both cylinders, and thus any irregularities in the action of the two cylinders due to inequality of pressure are avoided.

The upper carriage C is preferably cast with a hollow core C^0 , which may be covered over with the cap c^0 , if desired. This upper carriage is provided with an annular bearing-surface c^1 , which rests on the cone-rollers H, which rest on the bearing-surface k^7 of the lower carriage K. The upper carriage is preferably provided with the overhanging lip c^8 , hanging over the edge k^8 of the lower carriage, whereby the same is better protected from dust, moisture, and the like. This lower carriage K is preferably made vertical in front, as at k^1 , and conical toward the rear, as at k^2 , and is provided with the flange k^3 , thickened, as at k^4 , around the several bolt-holes, by means of which it is bolted to the deck or gun-platform. This lower carriage is provided with conical inner walls K' , terminating at the upper end in the shoulder k , above which is supported the bearing-ring L, which ring fits snugly on the cylindrical portion c^9 of the upper carriage C, but at the same time allows the said upper carriage to rotate freely therein, and when the gun is fired the major portion of the strain along the axis of the gun is taken up by this ring and by the lower carriage supporting the same. Between these conical walls K' and the exterior wall of the carriage a plurality of webs K^0 are provided, which serve to stiffen and strengthen the lower carriage. It will thus be seen that the lower carriage is approximately in the form of an inverted frustum of a cone within a frustum of a cone, and that the antifriction-rollers between the upper and lower carriages are exterior to the upper

bearing-ring, thus giving a broad support for the upper carriage. These conical walls K' terminate at their lower ends in cylindrical bearing-surfaces k^5 , between which and the similar surfaces c^5 of the upper carriage a lower bearing-ring M is provided, below which ring the exterior of the downwardly-projecting arm of the upper carriage is screw-threaded, as at c^6 , to engage in the nut N , which nut is provided with a plurality of recesses n to receive capstan-bars (not shown) through the doors Q from the opposite sides of the carriage, and thus the nut may be turned and the upper carriage raised or lowered, as may be desired. It becomes important to raise and lower the carriage through a few inches, when desired, in order that the parts may be properly cleaned and inspected. This nut N is ordinarily locked in place by the set-screw N' , so that the nut may not turn when the carriage is trained to the right or left. This nut N is supported on the ring P , which rests on the balls p , supported on the ring P' , which latter ring rests on the bearing-surface k^9 of the lower carriage. These rings are preferably made of chilled steel and grooved, as shown, and the rings, with the balls, form a ball-bearing for the nut N and the mass of metal supported thereon when the gun is in the raised position, whereby the friction of turning the nut is minimized.

The doors Q are hinged, as at q , and are supplied with any suitable latch q' and are normally kept closed. Thus the interior of the lower carriage is protected from water or dust, and it may be used as a store-room or closet for the cleaning-gear for the gun or for other purposes.

The training-gear for the gun comprises a segmental rack R , concentric with the center of the lower carriage and rigidly attached to the lower carriage and engaged by the worm S , mounted on the shaft S' and rotated by the hand-wheels S^2 , which hand-wheels may be provided with handles s^2 , or instead of wheels simply cranks may be provided. Two of these wheels are shown, one on either side of the gun, but one may be omitted, if desired. This shaft S is journaled in suitable bearings in the upper carriage, and it will be evident that the rotation of the shaft S' will cause the worm S to swing the gun through an angle laterally. Moreover, it will be obvious that the training-gear is in an eminently protected position and is extremely simple in construction and operation.

The elevating-gear comprises a segmental rack T , made fast to the arm B^3 , projecting from the rear of the rocking slide and engaging the worm U , which is feathered by means of the feather u on the shaft U' , (see Fig. 4,) which worm is normally pressed upward by the heavy spring V , while the shaft U' is rotated by means of the hand-wheel U^2 . This shaft U' is journaled in suitable bearings c^{11} ,

provided at the ends of the ribs c^9 of the arm C^2 , which arm projects from the rear of the upper carriage, as shown most clearly in Fig. 2.

The gun may be sighted in the ordinary way or by means of the well-known telescope-sight W , mounted in any suitable way.

With larger guns it may be necessary to carry the ring M as low down as possible, whereby the effect of the leverage on the ring L may be materially reduced, and for this purpose I have shown ring M as placed at the lower end of the outwardly-projecting portion c' of the upper carriage in Fig. 5. Otherwise the construction and arrangement of parts are similar to that shown in Figs. 2 and 3.

By the herein-described gun-mount the parts are assembled in a compact and well-protected form, and the gun-mount takes up very little room aboard ship and may be used without sponsons or like structures, while the gun may be elevated and trained with great rapidity, convenience, and precision.

The various other advantages of the herein-described construction will readily suggest themselves to any one skilled in the art.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a gun-mount, the combination with a lower carriage and two bearing-rings mounted therein at some distance apart vertically, the upper being of a greater diameter than the lower and antifriction-rollers mounted in an annular groove in said lower carriage exterior to said upper ring, of an upper carriage mounted above said lower carriage, and normally resting on said antifriction-rollers, and provided with a downwardly-projecting portion engaging said bearing-rings, and a rocking slide trunnioned in said upper carriage, substantially as described.

2. In a gun-mount, the combination with a lower carriage and two cylindrical bearing-rings mounted therein at some distance apart vertically, the upper being of a greater diameter than the lower, and antifriction-rollers mounted in an annular groove in said lower carriage, exterior to said upper ring, of an upper carriage mounted above said lower carriage and normally resting on said antifriction-rollers, and provided with a downwardly-projecting portion in lateral engagement with said bearing-rings, and a rocking slide trunnioned in said upper carriage, substantially as described.

3. In a gun-mount, the combination with a lower carriage and two bearing-rings mounted therein at some distance apart vertically, the upper being of a greater diameter than the lower, and cone-rollers mounted in an annular groove in said lower carriage exterior to said upper ring, of an upper carriage mounted above said lower carriage and normally resting on said cone-rollers, and provided with a downwardly-projecting portion engaging said

bearing-rings, and a rocking slide trunnioned in said upper carriage, substantially as described.

4. In a gun-mount the combination with a carriage and a rocking slide trunnioned therein, of a segmental rack secured to the rocking slide and a worm for turning the rack mounted on the carriage, and a spring adapted to take up the downward pressure on said worm as the gun recoils, substantially as described.

5. An elevating-gear for gun-carriages of the character described, comprising a segmental rack secured to the rocking slide, a shaft journaled in a fixed portion of the gun-carriage, a worm splined on said shaft, and engaging said rack, a spring interposed between said worm and the lower journal-bearing of said shaft, and means for turning said shaft, substantially as described.

6. An elevating-gear for gun-carriages of the character described, comprising a segmental rack secured to the rocking slide, a shaft journaled in a fixed portion of the gun-carriage, a worm held against turning on said shaft, but longitudinally movable thereon, engaging said rack, a spring interposed between said worm and the lower journal-bearing of said shaft, and means for turning said shaft, substantially as described.

7. In a gun-mount, the combination with a carriage and a rocking slide trunnioned therein, of a segmental rack secured to the rocking slide, a shaft journaled in a fixed portion of the gun-carriage, a worm splined on said shaft and engaging said rack, a spring interposed between said worm and the lower journal-bearing of said shaft, and means for turning said shaft, substantially as described.

8. In a gun-mount, the combination with a gun-carriage having an arm projecting to the rear thereof with journal-bearings in said arm, a shaft journaled in said bearings, a worm splined on said shaft and engaging said rack, a spring interposed between said worm and the lower journal-bearing of said shaft, means for turning said shaft, and a segmental rack secured to said rocking slide and engaging said worm, substantially as described.

9. In a gun-mount, the combination with a lower carriage and two bearing-rings mounted therein at some distance apart vertically, of an upper carriage mounted above said lower carriage and provided with a downwardly-projecting portion engaging said bearing-rings, with screw-threads on a part of said downwardly-projecting portion, a nut engaging said screw-threads, with antifriction-bearings between said nut and said lower carriage, and means for turning said nut, substantially as described.

10. In a gun-mount, the combination with a lower carriage and two cylindrical bearing-rings mounted therein at some distance apart vertically, of an upper carriage mounted above said lower carriage and provided with a downwardly-projecting portion in lateral

engagement with said bearing-rings, with screw-threads on a part of said downwardly-projecting portion, a nut engaging said screw-threads, with antifriction-bearings between said nut and said lower carriage, and means for turning said nut, and a rocking slide trunnioned in said upper carriage, substantially as described.

11. In a gun-mount, the combination with a lower carriage and two bearing-rings mounted therein at some distance apart vertically, and antifriction-rollers mounted in an annular groove in said lower carriage, of an upper carriage mounted above said lower carriage, and normally resting on said antifriction-rollers, and provided with a downwardly-projecting portion engaging said bearing-rings, with screw-threads on a part of said downwardly-projecting portion, a nut engaging said screw-threads, with antifriction-bearings between said nut and said lower carriage, and means for turning said nut, substantially as described.

12. In a gun-mount, the combination with a lower carriage and two cylindrical bearing-rings mounted therein at some distance apart vertically, and antifriction-rollers mounted in an annular groove in said lower carriage, of an upper carriage mounted above said lower carriage and normally resting on said antifriction-rollers, and provided with a downwardly-projecting portion in lateral engagement with said bearing-rings, with screw-threads on a part of said downwardly-projecting portion, a nut engaging said screw-threads, with antifriction-bearings between said nut and said lower carriage, and means for turning said nut, and a rocking slide trunnioned in said upper carriage, substantially as described.

13. In a gun-mount, the combination with a lower carriage in the form of an inverted frustum of a cone inclosed in an outer frustum of a cone forming a closed chamber, with doors in said chamber, and two bearing-rings mounted in said lower carriage at some distance apart vertically, of an upper carriage mounted above said lower carriage and provided with a downwardly-projecting portion projecting into said inverted frustum of a cone, engaging said bearing-rings, with screw-threads on a part of said downwardly-projecting portion, a nut engaging said screw-threads, with antifriction-bearings between said nut and said lower carriage, and means for turning said nut, substantially as described.

14. In a gun-mount, the combination with a lower carriage in the form of an inverted frustum of a cone inclosed in an outer frustum of a cone forming a closed chamber, with doors in said chamber, and two cylindrical bearing-rings mounted in said lower carriage at some distance apart vertically, of an upper carriage mounted above said lower carriage and provided with a downwardly-projecting portion projecting into said inverted

frustum of a cone, in lateral engagement with said bearing-rings, with screw-threads on a part of said downwardly-projecting portion, a nut engaging said screw-threads, with
5 antifriction-bearings between said nut and said lower carriage, and means for turning said nut, substantially as described.

15. In a gun-mount, the combination with a lower carriage in the form of an inverted
10 frustum of a cone inclosed in an outer frustum of a cone forming a closed chamber, with doors in said chamber, and two bearing-rings mounted in said lower carriage at some distance apart vertically, and antifriction-rollers
15 mounted in an annular groove in said lower carriage, of an upper carriage projecting into said inverted frustum of a cone mounted above said lower carriage, and normally resting on said antifriction-rollers,
20 and provided with a downwardly-projecting portion engaging said bearing-rings, with screw-threads on a part of said downwardly-projecting portion, a nut engaging said screw-threads, with antifriction-bearings between
25 said nut and said lower carriage, and means for turning said nut, substantially as described.

16. In a gun-mount, the combination with a lower carriage in the form of an inverted
30 frustum of a cone inclosed in an outer frustum of a cone forming a closed chamber, with doors in said chamber, and two cylindrical bearing-rings mounted in said lower carriage at some distance apart vertically, and antifriction-rollers mounted in an annular groove in
35 said lower carriage, of an upper carriage projecting into said inverted frustum of a cone mounted above said lower carriage and normally resting on said antifriction-rollers, and
40 provided with a downwardly-projecting por-

tion in lateral engagement with said bearing-rings, and a rocking slide trunnioned in said upper carriage, with screw-threads on a part of said downwardly-projecting portion, a nut engaging said screw-threads, with anti-
45 friction-bearings between said nut and said lower carriage, and means for turning said nut, substantially as described.

17. In a gun-mount of the character described, a lower carriage in the form approximately of an inverted frustum of a cone within a frustum of a cone, the two cones being rigidly connected together and openings through the outer cone with doors covering the same, whereby a combined gun support
55 and locker is provided, substantially as described.

18. In a gun-mount of the character described, a lower carriage in the form approximately of an inverted frustum of a cone within a frustum of a cone the two cones being rigidly connected together with webs connecting the two, and openings through the outer cone with doors covering the said openings, whereby a combined gun support and locker
65 is provided, substantially as described.

19. In a gun-mount of the character described, a lower carriage in the form approximately of an inverted frustum of a cone within a frustum of a cone, the two cones being
70 rigidly connected together, and openings through the outer cone whereby a combination gun support and locker is provided, substantially as described.

In testimony whereof I affix my signature
75 in presence of two witnesses.

ROBERT BROOKE DASHIELL.

Witnesses:

JOS. H. BLACKWOOD,
JOHN H. HOLT.