

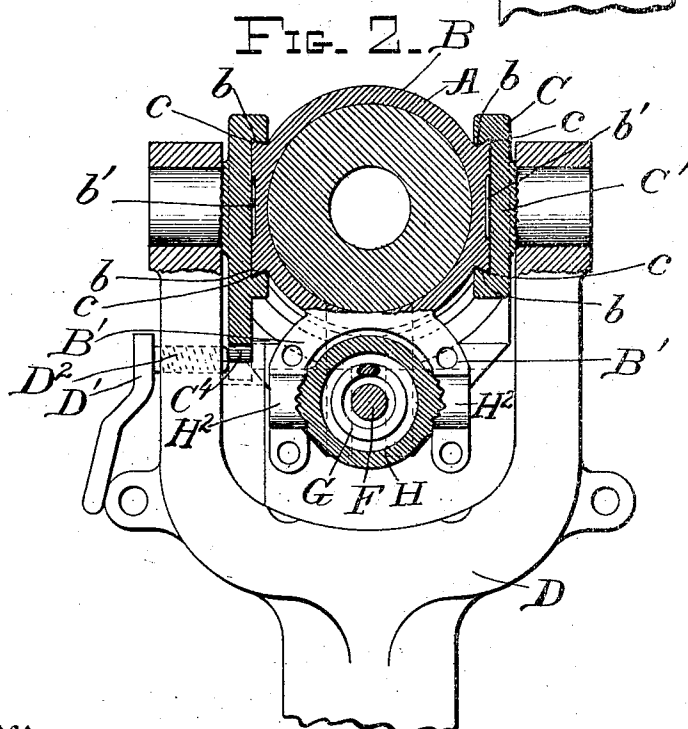
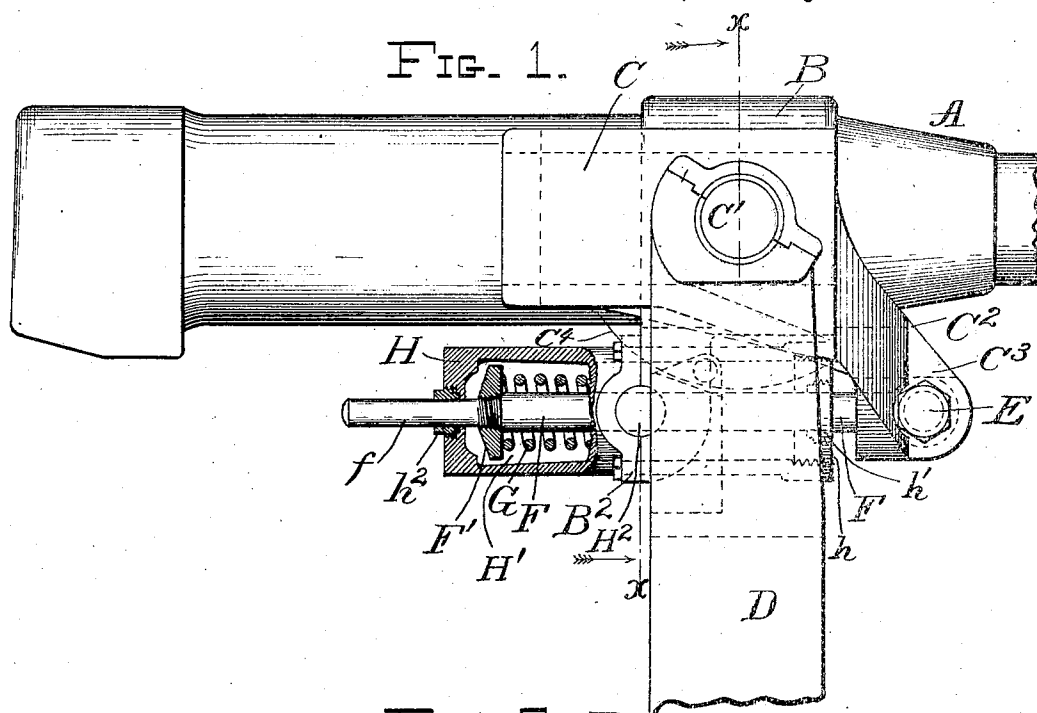
(No Model.)

2 Sheets—Sheet 1.

W. H. DRIGGS.
RECOIL MOUNT FOR ORDNANCE.

No. 502,178.

Patented July 25, 1893.



Witnesses

Wm. C. Bowen
John C. Wilson.

Inventor

By *William H. Driggs*
Whitman & Wilkinson,
Attorneys.

(No Model.)

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FIG. 3.

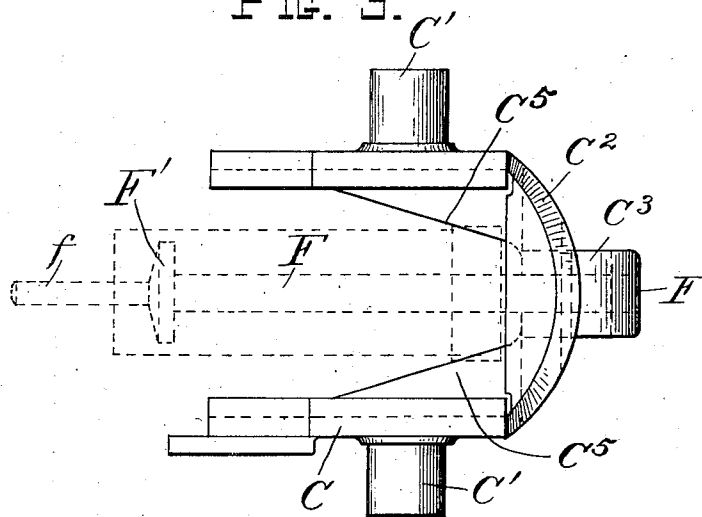


FIG. 4.

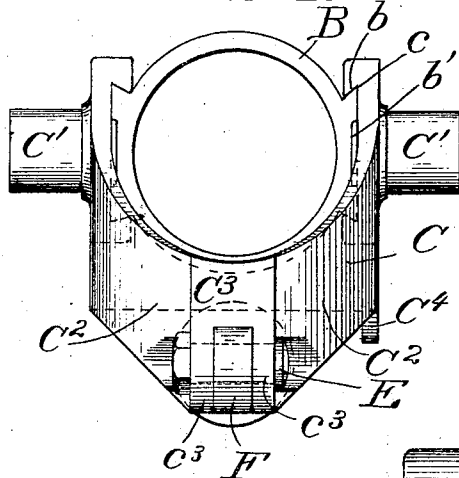


Fig. 5.

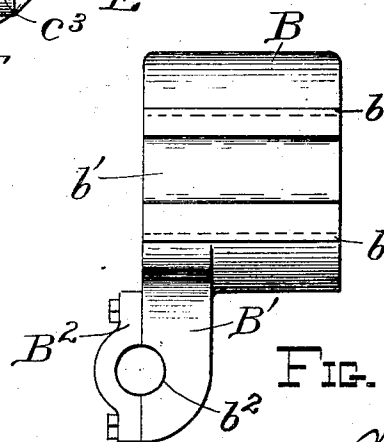
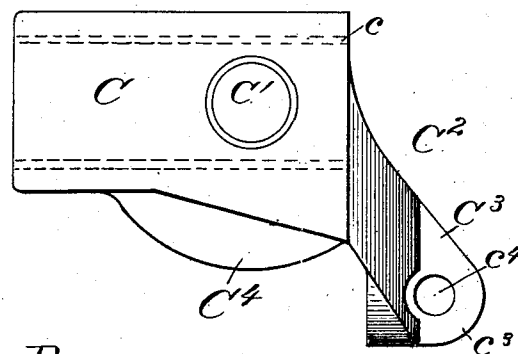


FIG. 6.

Witnesses

Percy C. Bowen
 John L. Wilson

Inventor

William H. Driggs,
By Whitman & Wilkinson,
Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM HALE DRIGGS, OF THE UNITED STATES NAVY.

RECOIL-MOUNT FOR ORDNANCE.

SPECIFICATION forming part of Letters Patent No. 502,178, dated July 25, 1893.

Application filed March 16, 1893, Serial No. 466,296. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HALE DRIGGS, a lieutenant in the United States Navy, 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 recoil mounts for 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 side elevation of a portion of the gun upon the improved mount, parts being broken away. Fig. 2 represents a section of the gun and rocking slide along the broken line *x x* of Fig. 1, looking in the direction of the arrows. Fig. 3 represents a plan view of the rocking slide detached. Fig. 4 represents a front view of the rocking slide, and the reinforce band of the gun mounted therein, the body of the gun itself being omitted. Fig. 5 represents a side elevation of the rocking slide detached, and Fig. 6 represents a side elevation of the reinforce band of the gun detached from the body of the gun.

A represents the body of the gun.

B represents the reinforce band secured on the gun in the usual way, and provided with dove-tailed guides *b*, to engage in corresponding recesses *c* on the rocking slide C, and with the recesses *b'* to diminish the surface of the reinforce band in contact with the rocking slide and so to diminish friction.

The reinforce band B is provided with downwardly projecting arms *B'*, having journals *b²* for purposes hereinafter to be described, and cap-squares *B²*.

The rocking slide C is provided with trunnions *C'*, and the sides of the rocking slide are connected together by the curved transom *C²*, having at its forward portion the rib *C³*. The sides of the rocking slide C are further strengthened against springing apart by the

webs *C³*, as shown in Fig. 3. The rocking slide is also provided with a downwardly projecting friction flange *C⁴* for the purpose hereinafter to be described. The rib *C³* of the rocking slide is provided with a transverse, cylindrical bolt hole, *c⁴*, which passes through the legs *c³*. The trunnions *C'* of the rocking slide are mounted upon the pivot D which may be of any desired construction. Through the bolt hole *c⁴* in the rib *C³*, the bolt E is passed, securing to the said rib the end of the piston rod F on which is mounted the piston F', and the spring G, inclosed in the recoil cylinder H. This recoil cylinder has the rear portion of its bore cut in the form of a cone, tapering slightly as shown at H' in Fig. 1, and the piston F' is made so as to fit closely in the contracted portion of the conical chamber H', while there is a small clearance space between the exterior of the piston and the interior of the chamber at the larger end of the said chamber, as shown in Fig. 1. In order that the piston may be centered in the said chamber, the piston rod F is extended, as at f through the rear cylinder head, the said portion f passing through the stuffing box *h²* in the rear end of the said cylinder. The opposite end of the said cylinder is closed by the screw head *h* and the stuffing box *h'*. The recoil cylinder H is provided with trunnions H², journaled in the grooves *b²* of the arms *B'*, projecting downward from the reinforce band B. These trunnions are held in place by the cap-squares *B²*. It thus will be seen that the recoil cylinder H, moves with the reinforce band, and consequently with the gun as the latter recoils, while the piston is attached to the rocking slide, and does not move actually; therefore, as the gun recoils the recoil cylinder moves backward relative to the piston, and the liquid in the recoil cylinder is forced from the forward side of the piston to the rear, through a passage which rapidly diminishes in area of cross-section. Therefore the resistance of the hydraulic recoil cylinder rapidly increases, thus neutralizing the shock of the recoil.

The spring G should be of sufficient strength to return the gun to the initial position after the recoil.

Owing to the fact that the recoil cylinder is trunnioned to the reinforce band, and that

the piston passes through both ends of the said cylinder, any derangement of the parts due to faults in the mechanical construction are rendered immaterial, for it does not make
5 any difference whether the cylinder is absolutely parallel to the line of fire or not.

The conical construction of the interior of the hydraulic cylinder is mechanically very much cheaper than the manufacture of cylinders with the tapering grooves now largely in
10 use while the method of centering the piston in the conical chamber enables a constantly increasing and predetermined resistance in the recoil cylinder to be obtained.

15 It will be evident that the recoil cylinder may be connected by trunnions to the rocking slide and the piston rod may be connected to the gun.

The plate C⁴ and clamping screw D² and lever D⁷ are provided for the purpose of clamping the rocking slide and gun at any desired elevation.

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

1. In a gun mount, the combination with a trunnioned rocking slide and a gun mounted therein, of a trunnioned recoil cylinder mounted approximately parallel to the gun, and a
30 piston adapted to move relative to said cylinder as the gun recoils, substantially as and for the purposes described.

2. In a gun mount, the combination with a trunnioned rocking slide and a gun; of a reinforce band mounted on said gun and provided with projections engaging in said rocking slide, downwardly-projecting arms rigidly attached to said reinforce band, a recoil cylinder trunnioned in said arms, a piston in said
40 recoil cylinder, and a piston rod connected to said piston and attached to said rocking slide, substantially as and for the purposes described.

3. In a gun mount, the combination with a trunnioned rocking slide and a gun mounted therein, of a trunnioned recoil cylinder mounted approximately parallel to the gun and provided at one end with a conical chamber; and a piston adapted to move from the larger to the smaller portion of the chamber as the gun
50 recoils, substantially as and for the purposes described.

4. In a gun mount, the combination with a

trunnioned rocking slide and a gun mounted therein, of a recoil cylinder trunnioned beneath said gun and moving axially therewith, the said cylinder having a tapering chamber in the rear end thereof, a piston in said chamber and concentric therewith, and a piston rod connected to said piston and attached to
60 said rocking slide, substantially as and for the purposes described.

5. In a gun mount, the combination with a trunnioned rocking slide and a gun mounted therein, of a recoil cylinder trunnioned beneath said gun and moving axially therewith, the said cylinder having a conical shaped chamber in the rear end thereof, a piston in said chamber and concentric therewith, and a piston rod connected to said piston and passing through both ends of said cylinder, and attached to said rocking slide, substantially
70 as and for the purposes described.

6. In a gun mount, the combination with a trunnioned rocking slide and a gun; of a reinforce band mounted on said gun and provided with projections engaging in said rocking slide, downwardly-projecting arms rigidly attached to said reinforce band, a recoil cylinder trunnioned in said arms, the said cylinder having a tapering chamber near the rear end thereof, a piston in the said chamber, and a piston rod connected to said piston and attached to said rocking slide, substantially
80 as and for the purposes described.

7. In a gun mount, the combination with a trunnioned rocking slide and a gun; of a reinforce band mounted on said gun and provided with projections engaging in said rocking slide, downwardly-projecting arms rigidly attached to said reinforce band, a recoil cylinder trunnioned in said arms, the said cylinder having a tapering chamber near the rear end thereof; a piston in said chamber and concentric therewith, and a piston rod
95 connected to said piston and passing through both ends of said cylinder and attached to said rocking slide, substantially as and for the purposes described.

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

WILLIAM HALE DRIGGS.

Witnesses:

JOHN C. WILSON,
LOUIS P. KELLER.