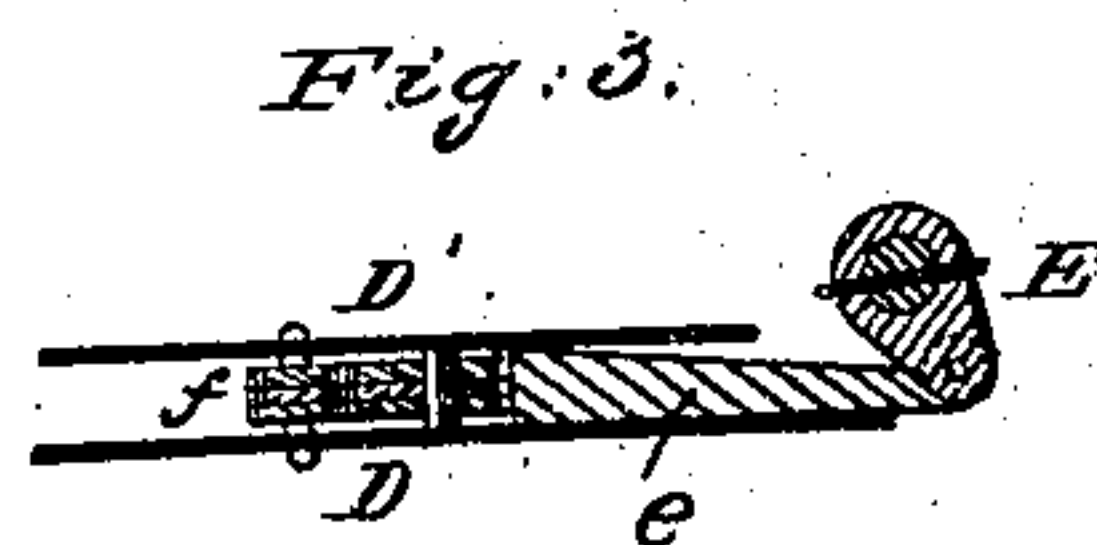
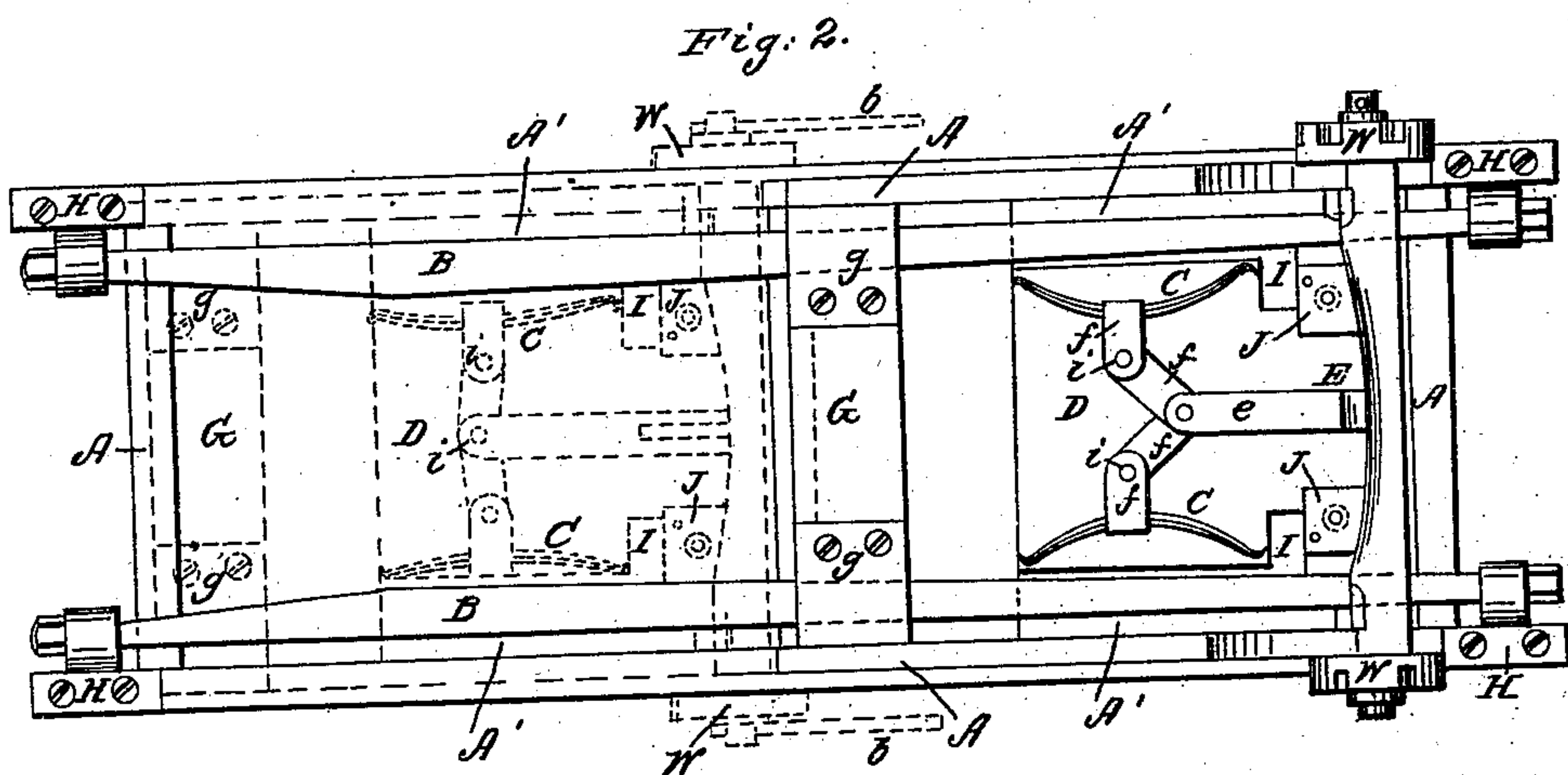
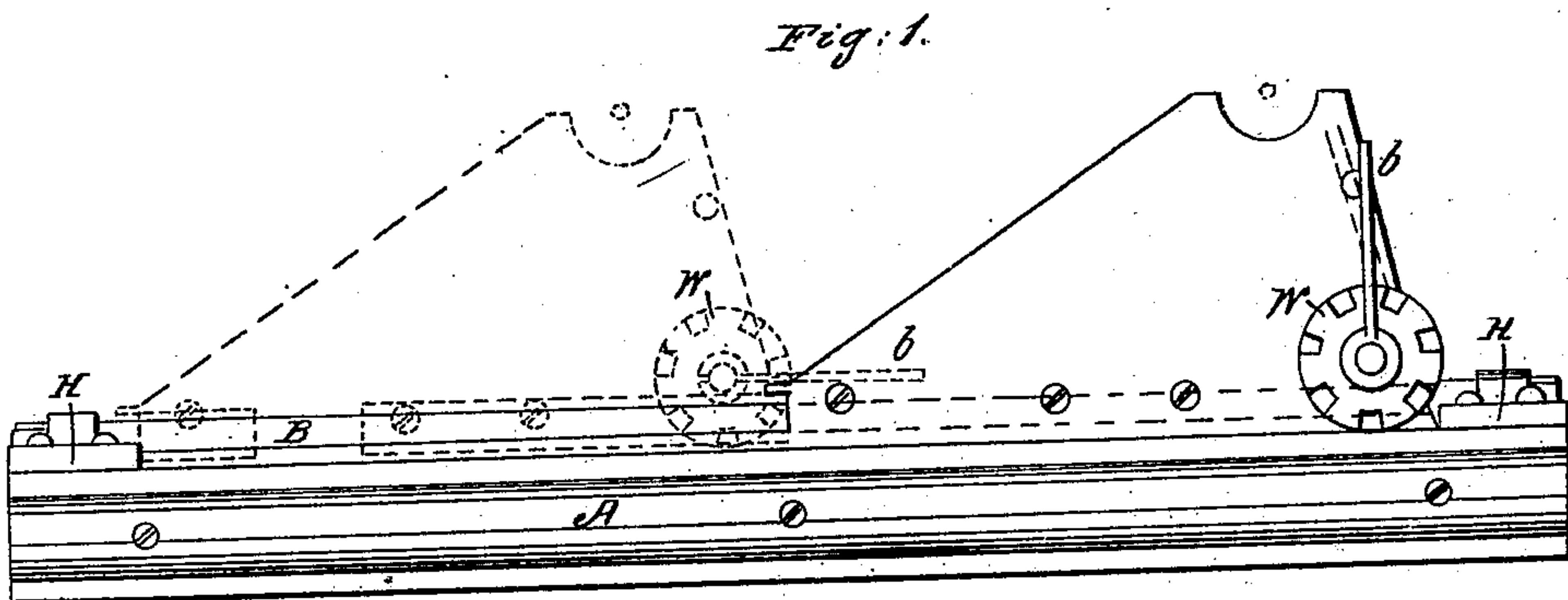


C. S. TYSON.
Gun Carriage.

No. 78,030.

Patented May 19, 1868.



Witnesses:
James A. Marshall
T. C. Kendall

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United States Patent Office.

CHARLES S. TYSON, OF OLD POINT COMFORT, VIRGINIA.

Letters Patent No. 78,030, dated May 19, 1868.

IMPROVEMENT IN GUN-CARRIAGES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES S. TYSON, of Old Point Comfort, in the county of Elizabeth City, and State of Virginia, have invented a new and useful Improvement in Gun-Carriages, for taking up the recoil of heavy guns; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in taking up the recoil of the gun by means of springs, running back between bars or other surfaces inclining towards each other rearward, forming a wedge-shaped space, in which the springs move, so that the recoil force will encounter a regularly-increasing resistance as the carriage runs back.

In the accompanying drawings—

Figure 1 is a side elevation of a gun-carriage to which my improvement is applied.

Figure 2 is a plan view of the same, with the upper transom-plate, which covers the springs, removed.

Figure 3 is a cross-section through the centre of the forward axle, showing the crank, E, which operates the links to spread the springs apart and draw them towards each other.

A is the lower carriage or frame, which supports the gun-carriage proper. This frame is constructed in the usual manner, and is to be mounted on trucks, as heretofore.

B B are two strong wrought-iron bars, running the whole length of the carriage or frame A, and connected thereto, at the front and rear, by the hurters H. These bars are elevated a little above the tracks on which the carriage-wheels W run, as will be seen by the drawings. Their upper, lower, and outer sides are parallel, but their inner sides incline towards each other, rearward, as far back as the springs run. Two rails, A' A', on the sides of the carriage, of the same dimensions, vertically, as the bars B B, work against said outer parallel sides of said bars, and the upper and lower parallel sides of said bars are embraced by and between a cross-bar, G, on the rear end of the carriage, below the bars B B, and plates g g above them, also on the rear end of the carriage.

C C are two powerful springs, attached together by a hinged coupling, f f f f.

D is a transom-plate, firmly attached to the under sides of the side-rails of the carriage-rails A' A', and D' (shown in fig. 3) is a similar transom-plate, attached to the upper sides of the same side-rails. These transom-plates are of wrought iron, five-eighths of an inch thick, and being secured firmly above and below the bars B B and the intermediate mechanism, hold the springs, their hinged couplings, and slides in position, so that no piece or part can get displaced.

I I are intermediate bars or slides, against which the springs press. These are not made fast to any other part of the machine, but are kept in place by the transom-plates, the studs J J, and the springs. They can be easily taken out and replaced by removing the upper transom, D'.

J J are studs between the said transom-plates, D and D', and to which both of said plates are secured by screw-bolts. They prevent the intermediate bars I I from going too far forward.

Only the front carriage-wheels, W, are represented in the drawing. The rear wheels, and their axles, being made and operating precisely as heretofore, and not being connected to any of my improvements, it is deemed unnecessary to show them.

On the centre of the front axle there is a short crank, E, to which is pivoted a link-bar, e, and the rear end of this link-bar is pivoted to the centre of the hinged coupling which connects the springs.

When the gun is in battery, and about to be discharged, (the springs and their coupling being in the position shown by the black lines in fig. 2,) one-third of a revolution is given to the axle by means of the manoeuvring-bars, which brings the crank, E, and link-bar e in line, and this also forces the hinged coupling f f f f into a straight line, pressing the springs apart, as shown in the red lines, fig. 2. The springs are now in position to press upon the inclined bars B B, and so resist the recoil, as the carriage slides back. When the gun is to be run back into battery, a reverse motion of the axle, by means of the manoeuvring-bars, releases the springs, bringing their coupling again into the position shown by the black lines, fig. 2.

The pivot-bolts *i i* of the hinged coupling *f* extend above and below the coupling-bar, passing through slots in the transom-plates, in which they move as the springs are spread apart and drawn towards each other.

Every part of my improvement is made of strong wrought iron, and any piece can be easily taken out, and repaired or replaced, by the army-forge.

The use of my improvement involves no change whatever in the tactics for manœuvering the gun heretofore in use, as prescribed by the Army Regulations, nor does it require any new implements or change in the implements heretofore used. Precisely the same movements of the axle, by means of the manœuvering-bars, which raise and lower the carriage on the rails, will open and close the springs at the proper times.

If the springs and all other parts of my improvement are made sufficiently strong, the recoil of the heaviest gun, whatever may be the weight of projectile or charge of powder, will be so far checked before the carriage reaches the hurters, that no damage can result from its contact therewith.

It is manifest that considerable changes may be made in the construction of various parts of my improvement, without changing the principles of my invention.

Having thus fully described my invention, and its operation, what I claim as new, and desire to secure by Letters Patent, is—

1. A mechanism for taking up the recoil of heavy guns, consisting of a spring or springs working against or between inclined surfaces, so that the spring or springs will be more and more compressed as the carriage runs back, opposing a regularly-increasing resistance to the recoil force; substantially as described.

2. In combination with the springs *C C*, and the inclined bars *B B*, I claim the crank, *E*, on the forward axle of the carriage, the link-bar *e*, and the hinged coupling of the springs, all constructed, arranged, and operating substantially as described.

3. In combination with the inclined bars and springs, I claim the intermediate sliding bars *I I*, as and for the purpose set forth.

4. In combination with the side-rails of the carriage pressing against the outer sides of the bars *B B*, and the cross-bar *G* and plates *g g* pressing against the upper and lower sides of said bars, and the springs *C C*, I claim said bars *B B*, with their outer upper and lower sides parallel, and their inner sides inclined, substantially as and for the purpose set forth.

5. In combination with the inclined bars *B B*, springs, hinged coupling, and intermediate sliding bars, substantially as described, I claim the transom-plates *D* and *D'*, to hold all the parts in place, as set forth and described.

In witness whereof, I have subscribed my name to the foregoing specification, this 25th day of October, A. D. 1867.

CHAS. S. TYSON.

Witnesses:

J. J. COOMBS,

T. C. KENDALL.