

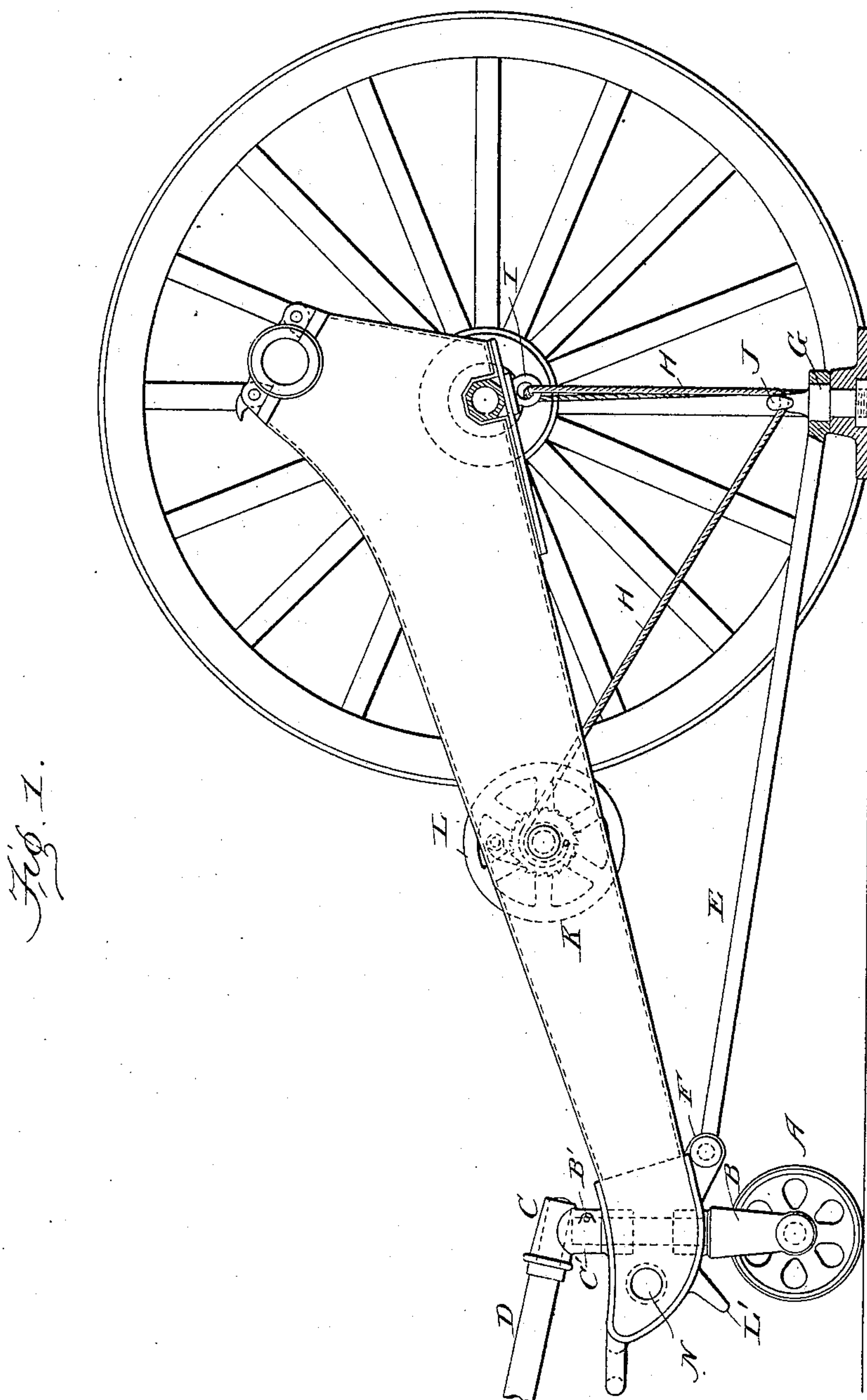
(No Model.)

2 Sheets—Sheet 1.

E. W. VERY.  
GUN CARRIAGE.

No. 575,773.

Patented Jan. 26, 1897.



**WITNESSES:**

Edwin L. Bradford  
M. D. Cloude

**INVENTOR**

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Edwin Wilson Very

BY

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*Woodbury Lowrey*  
ATTORNEY.

**ATTORNEY**

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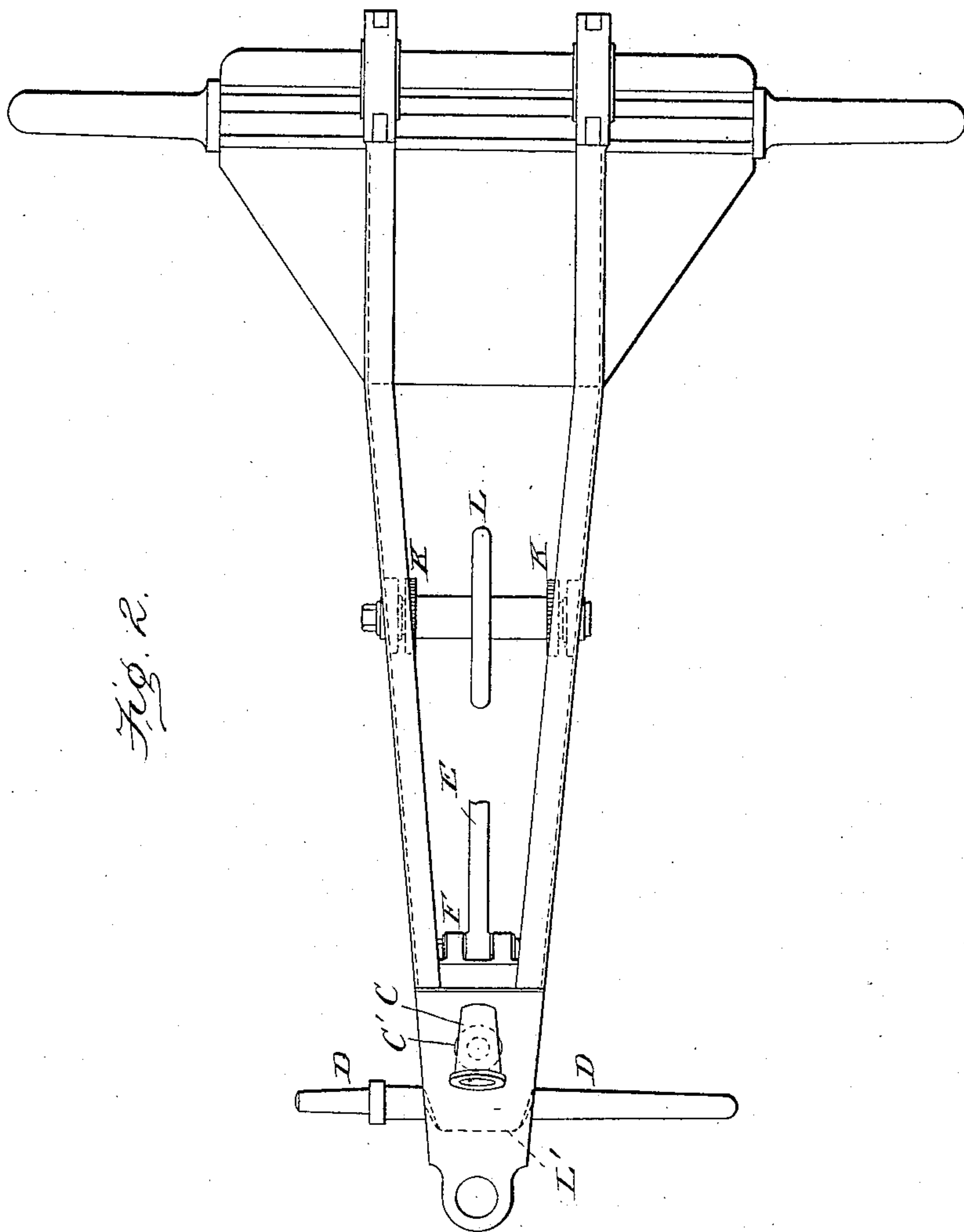


Fig. 2.

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# UNITED STATES PATENT OFFICE.

EDWARD WILSON VERY, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO THE AMERICAN ORDNANCE COMPANY, OF SAME PLACE.

## GUN-CARRIAGE.

SPECIFICATION forming part of Letters Patent No. 575,773, dated January 26, 1897.

Application filed August 3, 1896. Serial No. 601,531. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD WILSON VERY, a citizen of the United States, residing in the city of Washington, District of Columbia, have invented certain new and useful Improvements in Gun-Carriages, of which the following is a specification.

My invention relates to improvements in gun-carriages, and has for its objects to prevent the recoil of the carriage, to prevent its jumping or lifting under the shock of recoil of the gun, to render the carriage substantially immovably fixed during the firing, and to increase the mobility of the carriage in transportation.

My invention consists of the devices and combinations of devices hereinafter described and claimed.

Reference is had to the accompanying drawings, wherein the same parts are indicated by the same letters, and in which—

Figure 1 represents a side elevation of a gun-carriage embodying my improvements. Fig. 2 represents a plan view of the same carriage.

In order to secure efficiency of fire in field-guns when mounted behind parapets, it is necessary to check the recoil of the carriage as much as possible both to save the time otherwise lost in returning the gun to battery and also to save space in rear of the guns. Arrangements applied for this object should at the same time permit the guns to be freely pivoted in the horizontal plane to secure rapidity and efficiency of aim. In such positions great mobility of carriage should be secured in order to permit the gun to be rapidly shifted in emplacement from one position to another.

The object of my invention is to apply such connections to the carriage as shall facilitate its transport from one position to another and prevent its recoil when fired from a platform. I have represented these improvements as applied to the common general form of field-gun carriage, but do not limit their application to such carriage, as they are equally applicable to siege and fortress carriages. In the tread of the trail of the carriage is fitted a trail-wheel A, by means of a vertical pivot B, passing through the trail-piece, so arranged that the wheel may be freely pivoted about its ver-

tical axis and thus have its tread turned into any desired vertical plane. This wheel, with its pivot, is so mounted as to permit of being quickly removed from the trail altogether, so as to permit the latter to rest on the ground. Forming part of the upper end of this wheel-pivot is a socket C, arranged to receive and hold the end of a handspike D, by means of which arrangement the wheel may be slued in any direction. The provision shown for such removal consists in providing the horizontal socket-casting for the handspike with an under socket C', to receive the upper end of the pivot of the trail-wheel, and a key or cotter-pin B' for securing the socket-casting to the wheel-pivot, so that the removal of the pin leaves the socket and wheel-pivot free for separation and the removal of the wheel. By this arrangement of trail-wheel the gun-carriage may be transported by hand from place to place without lifting the trail or attaching it to a limber and the gun-carriage may be steered in any direction while being transported. When in action on a platform and the carriage being secured so that it cannot move backward in recoil by sluing its trail-wheel transversely to the axis of the carriage, the latter may be freely pivoted in aiming. If no platform exists, but the carriage be brought into action on the natural ground, the trail-wheel may be removed, so as to drop the trail on the ground and thus offer a maximum of natural resistance to recoil.

A stout steel bar E is attached at one end F to the bottom of the trail in such a way, by pivoting, as to permit the bar to be raised and hooked up at its other end when not in use. This movable end of the bar has a stout eye by which it may be dropped and secured over a fixed pintle in the platform, as shown at G. When in position on its pintle, the length of the bar is such as to bring the center of the carriage-axle directly over the center of the pintle. When not in use, this bar may be lifted up and held by a hook or other device close to the bottom line of the trail-cheeks of the carriage. By this arrangement of bar when a carriage is brought onto a firing-platform it may be quickly secured to a pintle-pivot, and the bar completely resists the tendency of the carriage to recoil in firing



and at the same time maintains it in a fixed pivoting position, the action of pivoting the gun in aiming being further and greatly facilitated by sluing the trail-wheel in a plane transverse to the axis of the carriage.

A stout rope H, preferably of steel wire, but may be of any other suitable material, is looped to the axle of the gun-carriage, as shown at I. The bight of this rope is caught under a hook J, projecting from the top of the pintle, and the ends of the rope are secured to a common winch or windlass K, mounted between the trail-cheeks of the gun-carriage in such a manner that the rope may be brought tight by the winch and with an equal strain, or be slackened for disengagement from the pintle-hook to permit it to be wound up out of the way on the winch. By this arrangement both the front and the rear ends of the gun-carriage are prevented from jumping or lifting up under the shock of recoil, and at the same time, since the bight of the rope is brought to the pintle center and directly in the pivoting-line of the carriage, the latter may be freely pivoted without further adjustment of the rope. For this purpose I have shown the rope as being looped to the under side of the carriage-axle and leading therefrom through the hook on the fixed pintle to the windlass, whereby the rope will be under equal pulling force to hold the carriage down, and while I prefer a single rope for this purpose, yet it is obvious that separate ropes may be used. I prefer also to use double windlass-ratchets K and a hand-wheel L, mediately fixed upon the drum of the windlass for operating it.

The employment of the rope drawn firmly taut gives an unyielding holddown upon the carriage, vertically upon the axle and obliquely upon the carriage-cheeks in rear of the axle, both forces being from the same fixed point in the platform, so that the carriage is firmly bound to the platform at the trail end and at the mounting-wheels and is made practically immovable during the firing instant.

To release the rope from its holding-down function, the windlass is unwound, the rope disengaged from the pintle-hook, and then wound up out of the way.

Thus, in general, when a carriage is mounted upon a platform the combination of the pivoting trail-wheel, pivoting-rod, securing-rope, and pintle retain the carriage securely against recoil, permit it to be pivoted freely in aiming, and enable the carriage to be quickly released from restraint for a change of position.

Assuming the non-existence of a platform at the position necessary for bringing the gun into action, the natural ground must be relied upon for checking the recoil. In such a case, when coming into action the trail-wheel is removed from the trail, permitting the latter to rest upon the ground, so that in firing the trail-spade L' digs into the ground and checks

recoil. As under circumstances of very soft ground the trail is liable to be forced deeper at each discharge, thus giving the gun an unnatural elevation, which may become too great for the scope of the elevating-gear to counteract, I make use of the handspike to check or prevent this submersion of the trail in the following manner:

One or more holes N are pierced horizontally through the trail-piece and are sufficiently braced and lined to give adequate strength and are of a size to permit of the insertion of the handspike D through them. The surface thus gained for resistance by the handspike checks or prevents the submersion of the trail.

While I have described the preferred embodiment of my invention, it will be understood that parts of my invention may be used separately or together or in connection with other equivalent parts, and that changes in the form, proportions, and details of construction as are embodied in the terms of the claims herein may be resorted to without departing from the essential features of my invention. This will be indicated in the claims, as in any one of them the omission of an element or the omission of reference to the particular features of the elements mentioned is intended to be a formal declaration of the fact that the omitted elements or features are not essential to the invention therein set out.

I claim—

1. In a gun-carriage and in combination with the carriage a fixed emplacement pintle or stud, a holdback pivotally connecting the carriage-trail and said pintle and a holddown vertically connecting and binding the pintle and carriage-axle and connecting diagonally and binding the pintle and the carriage-cheeks, whereby during the firing the carriage is caused to retain a fixed position.

2. The combination, with a gun-carriage the trail-tread whereof has a vertical bore provided with bearings, a trail-wheel mounted to swivel within said bearings and having a double socket-piece keyed upon the upper end of the wheel-pivot for the purpose stated.

3. The combination, with a gun-carriage, of a pivotally-mounted trail-wheel, a rod pivoted at one end to the trail, the other end of said rod pivotally engaging a pintle or stud secured in fixed position beneath and centrally of the carriage-axle, and a rope connecting the pintle and the axle and the carriage-cheeks, substantially as described and for the purpose specified.

4. In a gun-carriage, and in combination with the carriage, a recoil-resisting device centrally pivoting said carriage and pivotally connecting its trail and a fixed emplacement-hook, of a holddown consisting of a rope engaging the axle and the fixed hook and adjus- tably connected to the carriage-cheeks, substantially as described.

5. In a gun-carriage and in combination with the carriage, a fixed emplacement-stud,



a recoil-resisting device pivotally connecting said stud and the carriage-trail and a fixed hook formed upon the stud, and a holddown engaging the axle, the emplacement-hook and a winding connection on the trail-cheeks, substantially as described.

6. In a gun-carriage, and in combination with the carriage, and a fixed emplacement pintle or stud, of a holdback pivotally connecting the said pintle and the carriage-trail, and a holddown-rope connecting the carriage-axle, the pintle and the carriage-cheeks in rear of the axle whereby the carriage is bound firmly to the platform against recoil and against jumping or lifting under the shock of recoil.

7. The combination with the gun-carriage and its mounting-wheels, a pintle or stud fixed in the platform and a swiveling trail-wheel, of a winch or windlass mounted between the trail-cheeks, and a rope connecting the windlass, the fixed pintle and the carriage-axle, substantially as described.

8. In a gun-carriage, and in combination with the carriage, and a fixed emplacement pintle or stud, of an unyielding holddown vertically connecting and binding the pintle and carriage-axle and diagonally connecting and binding the pintle and the carriage-cheeks, whereby the carriage is held down at its axle and at its trail end from the same fixed point.

9. The combination, with a gun-carriage, of a rigid device having its ends pivotally connecting the trail of the carriage and a pintle or stud fixed in the emplaced platform, whereby to retain the carriage securely against recoil, and a flexible holddown con-

nection freely engaging a hook on the said fixed pintle or stud and looped to the carriage-axle and a windlass mounted upon the carriage-trail whereby the said windlass is caused to maintain said holddown taut to prevent the carriage from jumping or lifting under the shock of recoil.

10. The combination, with a gun-carriage, a winch or windlass mounted between the carriage-cheeks, of a pintle or stud adapted to be fixed in the platform, a holddown-rope connecting the carriage-axle, the said pintle and the windlass, and suitable means connecting the pintle and carriage for preventing its recoil.

11. In a gun-carriage, and in combination with the carriage, a recoil-resisting device centrally pivoting the carriage to the platform and pivotally connecting the carriage-trail, and a holddown device connecting the axle and the carriage-cheeks to said central platform-pivot, whereby the holddown is caused to exert a direct holding force upon the axle and upon the trail-cheeks, substantially as described.

12. In a gun-carriage, and in combination with the carriage and a fixed emplacement pintle or stud, of an unyielding holddown having a direct connection with the carriage the trail-cheeks and with the said fixed pintle, whereby to form a binder holding the carriage down in two directions from a fixed point.

EDWARD WILSON VERY.

Witnesses:

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W. H. BEVANS.