B. B. HOTCHKISS.

GUN-CARRIAGE.

No. 192,830. Patented July 10, 1877.

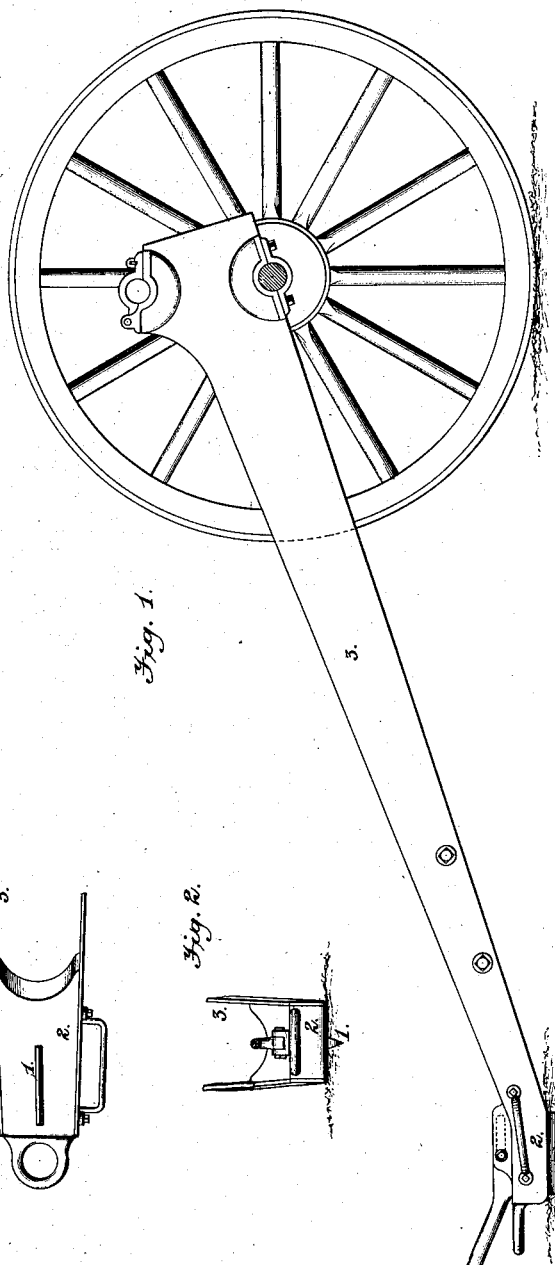

Fig. 1.

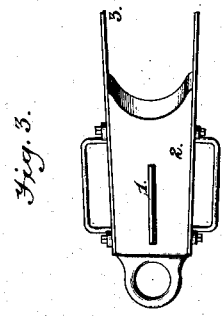

Fig. 3.

Fig. 2.

Witnesses:

Geo. L. Graham.

Louis C. Tidd

Inventor;

Benjamin B. Hotchkiss,

by Munson & Philipp.

Attorneys

UNITED STATES PATENT OFFICE.

BENJAMIN B. HOTCHKISS, OF NEW YORK, N. Y.

IMPROVEMENT IN GUN-CARRIAGES.

Specification forming part of Letters Patent No. **192,830**, dated July 10, 1877; application filed February 19, 1877.

To all whom it may concern:

Be it known that I, BENJAMIN B. HOTCHKISS, of the city, county, and State of New York, (now temporarily residing in Paris, France,) have invented a certain new and useful Improvement in Gun-Carriages, of which the following is a specification:

In the drawings, Figure 1 is a side elevation of a gun-carriage with one wheel removed; Fig. 2, a rear elevation of the trail end of the carriage-stock, and Fig. 3 a bottom view of the trail end, all of which figures show the application of my improvement.

The purpose of this invention is to provide gun carriages with a means for guiding them in their rearward movements so as to accurately preserve the alignment of the gun under the recoil resulting from its discharge; and the invention consists in a guide-rib applied to the trail of the gun-carriage in manner and operating as is more fully hereinafter set forth.

In the present improved state of ordnance, particularly such as require to be fired with great rapidity, or those which discharge explosive shells, as machine-guns, it is of great importance, after they have been carefully aimed, to maintain them accurately in the ascertained line and elevation.

It is a well-understood fact that in discharging cannons, the recoil under the force of the firing-charge causes the gun-carriage to move rearward. This movement, repeating itself as often as the gun is fired, soon causes the gun-carriage to be moved more or less sidewise, thus deranging the aligument of the gun.

In ordinary field-pieces the gun may be moved sidewise by the condition of the material upon which the trail 2 of the carriage rests, or from the varying resistance opposed to the free and equal rearward movement of both of the carriage-wheels. In machine-guns, which are generally operated by a crank upon one side, the power thus applied upon one side of the gun tends to work its carriage in an opposite direction.

The greatest danger of this derangement, however, arises from the fact that when a gun has been traversed either to the right or left of a line parallel with its carriage-stock, the force of the recoil of the gun in its angular position relative to its carriage is such as to drive the carriage a little either to the right or left at each discharge, and this movement, many times repeated, soon utterly deranges the alignment of the guns and renders accuracy impossible without oft-repeated sighting.

All of these obstacles to rapid or continuous firing of a cannon without readjusting its position are obviated by providing its carriage with a guide-rib, which is of such a character as will direct its rearward movements in a straight line. This guide-rib 1 consists of a plate or narrow strip of metal secured upon the under side of the trail 2 of the stock 3 of the gun-carriage, its position being parallel with a vertical line drawn through the longitudinal center of the carriage-stock.

As illustrated, this guide-rib is provided, by casting it in one piece, with the block which forms the trail 2, but it might be a part of a shoe bolted onto the trail end of the carriage.

Two or more such ribs might be placed parallel with each other on the trail, but practical test has determined the efficiency of a single one, as shown.

If desirable, since this rib should have a thin wearing-edge, it may be made of steel, in which case it may be a separate piece from the block forming the trail 2, or the shoe attached thereto, when it may be bolted in place or let into a socket formed in the trail. It might be formed by a sharp-edged wheel, or a series of them, either placed in line or parallel with each other; but this form of the device is not the most advantageous.

A gun having its carriage provided with this guide-rib will retain the position in which it is aimed, for the reason that, no matter what degree it may be traversed, the movement imparted by the force of its discharge will be controlled by the guide-rib, which, having a long bearing upon the ground or other support, will steer the carriage, and

cause it to move directly rearward and resist any tendency to sidewise movements.

What, therefore, is claimed is—

The combination, with the stock of a gun-carriage, of a guide-rib for directing the rearward movements of the same under the shock of discharge, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

B. B. HOTCHKISS.

Witnesses:

H. T. MUNSON,

JNO. D. PATTEN.