

J. A. DEPORT.
ANCHORING WHEELED GUN CARRIAGES TO THE GROUND.
APPLICATION FILED SEPT. 21, 1907.

910,794.

Patented Jan. 26, 1909.

4 SHEETS—SHEET 1.

Fig. 1.

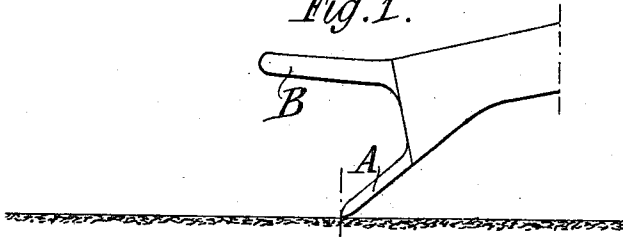


Fig. 2.

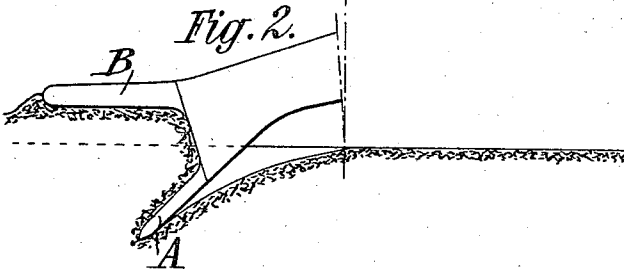


Fig. 3.

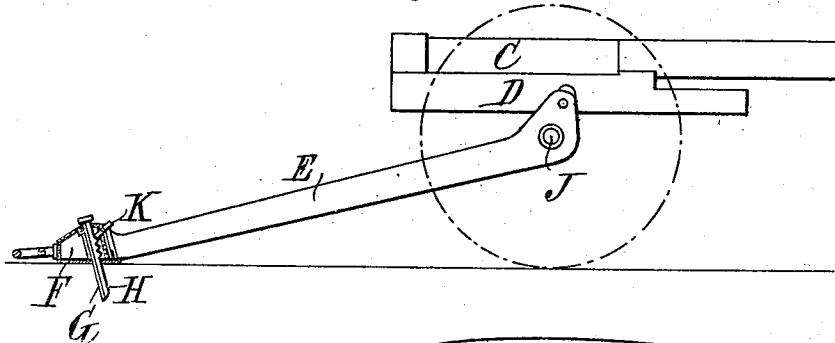
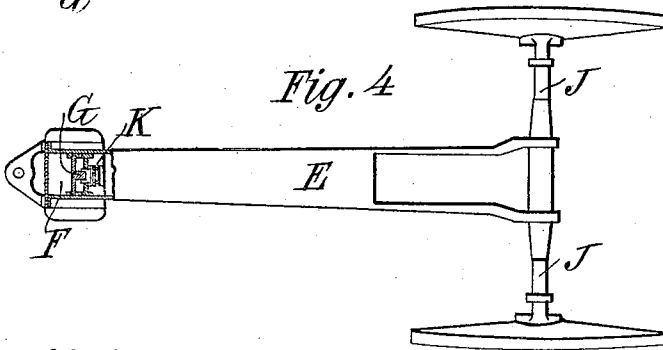


Fig. 4.



WITNESSES:

Fred White
René Muine

INVENTOR:

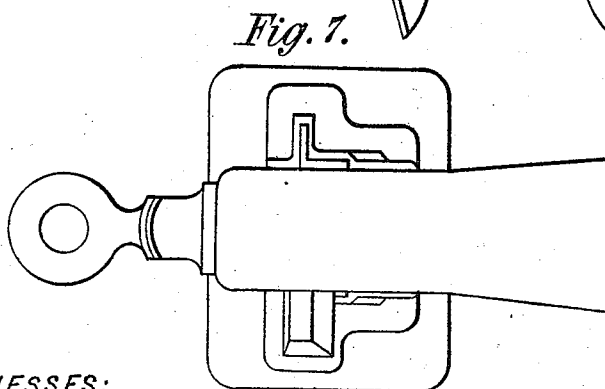
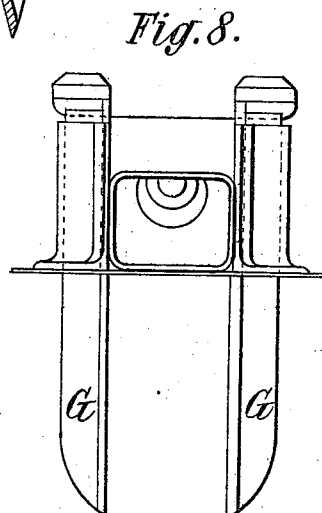
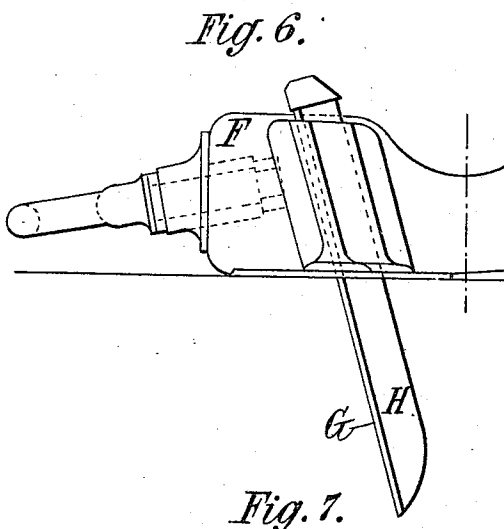
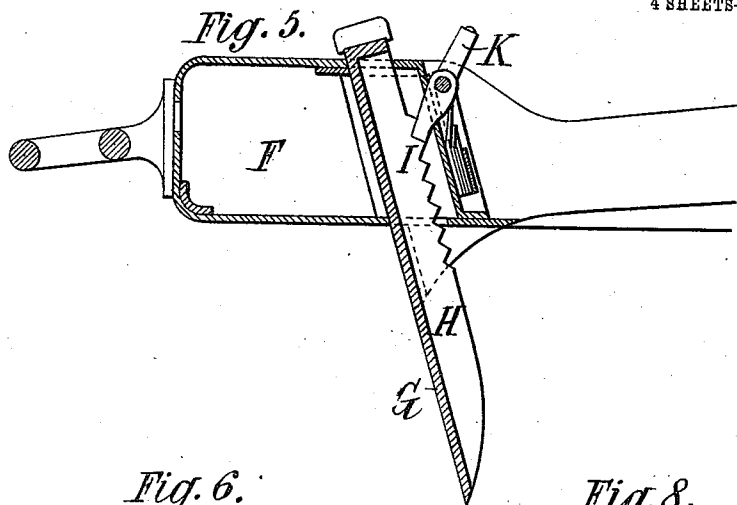
Joseph Albert Deport,
By his Attorneys
William C. Draper & Son

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4 SHEETS—SHEET 2.



WITNESSES:

Fred White
René Guine

INVENTOR:

Joseph Albert Deport,
By his Attorneys
Arthur C. Crocker & Co.

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4 SHEETS—SHEET 3.

Fig. 11.

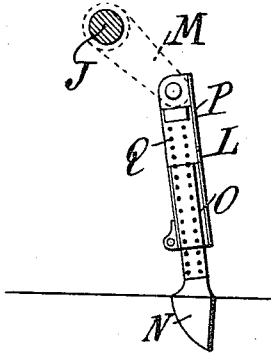


Fig. 9.

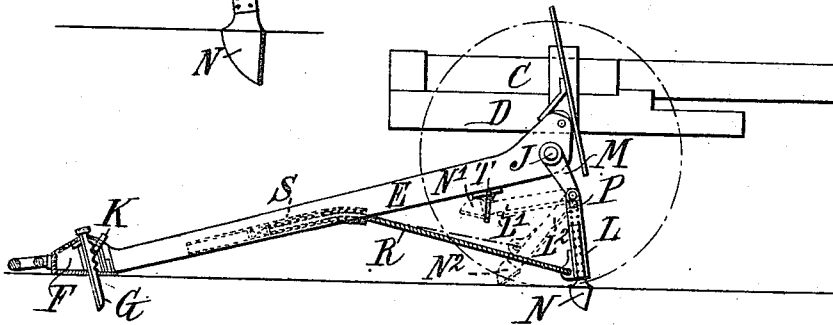
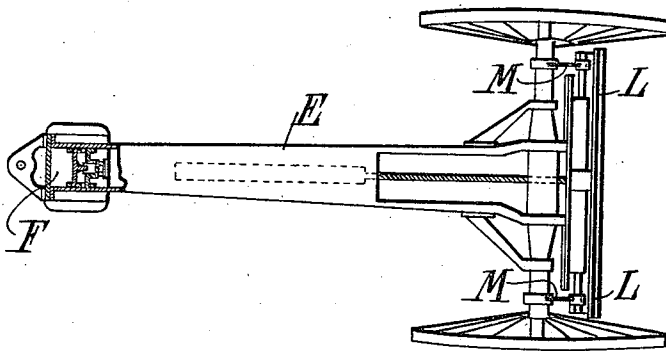


Fig. 10.



WITNESSES:

Fred White
René Guine

INVENTOR:

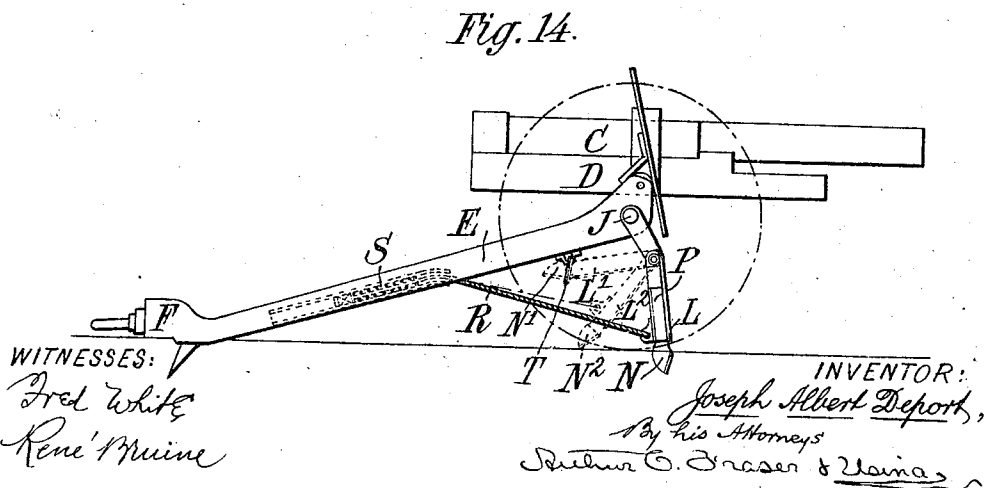
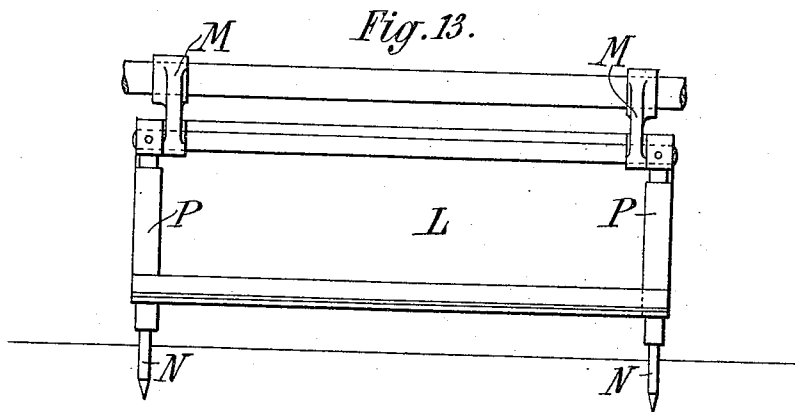
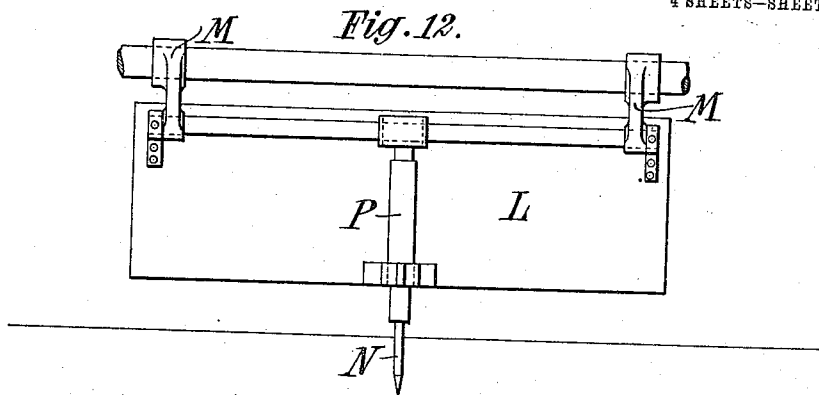
Joseph Albert Deport,
By his Attorneys
Sullivan C. Travers & Son

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4 SHEETS—SHEET 4.



UNITED STATES PATENT OFFICE.

JOSEPH ALBERT DEPORT, OF PARIS, FRANCE.

ANCHORING WHEELED GUN-CARRIAGES TO THE GROUND.

No. 910,794.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed September 21, 1907. Serial No. 393,959.

To all whom it may concern:

Be it known that I, JOSEPH ALBERT DEPORT, a citizen of the Republic of France, residing in Paris, France, have invented certain new and useful Improvements in Anchoring Wheeled Gun-Carriages to the Ground, of which the following is a specification.

This invention relates to a mode of anchoring to the ground the carriage of a gun mounted on wheels, for the purpose of insuring its stability in firing and to avoid vertical displacements and displacements of the direction of fire. The vertical displacements are actually due to the progressive advance of the trail spade into the ground and to the fact that the spade is only properly seated after a certain number of rounds has been fired. Displacements of direction arise from the absence of means for anchoring laterally the gun carriage the wheels of which slide on the sloping ground. To avoid these two inconveniences I have invented a gun carriage having a trail spade which will insure, even before the gun is fired, a satisfactory seating of the trail and also lateral anchoring devices arranged on the sides of the shield, which devices entirely prevent lateral displacement of the carriage. This mode of anchoring a gun carriage at the trail and at the shield of the front part, insures stability of the piece both at the beginning of firing and in the course thereof, an essential condition for rapidity of firing and for the efficiency of rapid firing.

The invention is illustrated in the accompanying drawings, wherein—

Figures 1 and 2 are part elevations of the trail of a gun carriage having a spade constructed in the manner hitherto usual; Fig. 3 is an elevation of a field gun having its trail constructed according to my invention; Fig. 4 is a plan of the gun carriage, the gun and its cradle having been removed; Fig. 5 is a vertical section drawn to an enlarged scale through the trail and spade; Figs. 6, 7 and 8 are respectively a part side elevation, a part plan and an end elevation of a trail provided with two spades; Fig. 9 is an elevation of a gun provided with a blade for preventing lateral displacement according to my invention; Fig. 10 is a plan thereof, the gun and its cradle having been removed; Fig. 11 is a vertical section through the shield of the gun, drawn to an enlarged scale; Fig. 12 is a front view, showing the lower hinged shield provided with a central blade; Fig. 13 is a

like view of the lower shield provided with two blades; Fig. 14 is an elevation of a gun having front blades in accordance with this invention.

Referring first to Figs. 1 and 2, the former shows the position of the well-known spade before the gun is fired and Fig. 2 the position in course of the firing. These spades which may be fixed or jointed consist of a point A inclined rearwardly which is progressively forced into the ground by the recoil, producing a sort of embankment on which the horizontal shoe ought to be firmly supported in order that the spade may have a proper bearing. But the embankment formed has but little firmness and a certain number of shots must be fired before the spade is properly seated. Moreover, owing to its rearward inclination the point of the spade has a tendency to penetrate further into the ground, in the manner of the plowshare. These inconveniences are remedied by making the spade to slide in the trail in the direction substantially normal to the resultant of the forces exerted by the gun on the carriage when the former is fired at a small elevation, this direction being substantially or approximately normal to the beam of the carriage. This spade is driven home before firing, by striking it with a mallet to a depth varying with the resistance of the ground. The spade and its shoe thus immediately find a bearing upon the virgin soil at an angle the most suitable for the resistance of the ground and are thus at once properly seated, so that the corrections of the elevation of the gun are avoided or reduced to a considerable degree.

In Figs. 3, 4 and 5, C is the field gun having a long recoil on its cradle D carried by the beam E which is pivoted on the axle J and terminates in the trail shoe F which in action rests on the ground. The spade consists of a steel blade G of suitable dimensions strengthened by a web H to diminish its tendency to bend and sliding in a suitable guide in the trail shoe F of the gun carriage. In order that the spade may not jump out of the ground, owing to the vibrations during firing, and that it may be kept at a suitable height when the gun is being transported, the web H is serrated at its upper part I and with the teeth thus formed there engages a spring pawl K. Instead of this mode of retaining the spade in place there may be used a simple wedge for the same purpose. The length of

the blade G is substantially tangential to the circle having for its center the axis of the axle-tree J, so that there is no difficulty in withdrawing the blade from the ground after firing. It is obvious that this sliding spade can also be added to the ordinary form of spade, so as to provide a supplementary resistance in very soft ground. In certain urgent cases, the spade may project to some extent from the ground at first, like the ordinary spade, and then be driven home more or less by striking its exposed head with a mallet. Thus it is possible to give it a position appropriate for the resistance of the particular ground. This spade has, moreover, the advantage that it prevents the gun carriage from being drawn forward during the return of the gun.

Figs. 6, 7 and 8 show the application of two blades G which are not provided with the serrations and detent of the previous construction. The sliding trail spade G is first driven in to avoid vertical displacements, and the fixing of the piece is completed by one or two lateral blades N adapted to the lower hinged part of the gun carriage shield. This or these prevent lateral displacements. These lateral blades are parallel to the longitudinal bisecting vertical plane of the gun carriage and penetrate into the ground like a plowshare, and thus oppose lateral displacements.

As shown in Figs. 9 to 12, the lower part L of the shield is hinged to two fixed arms M M keyed to the ends of the axle-tree J. This articulation of the shield allows the latter to be turned beneath a carriage during transport. In gun carriages which are rigidly connected with the axle-tree without sliding in the direction of the axis thereof, this lower shield may be hinged to the head of the carriage. The lateral shield blade consists as shown in Fig. 11 of a blade N parallel to the longitudinal bisecting vertical plane of the gun carriage and fixed to a hollow shank O which can slide in a hollow cylinder P fixed to the shield L. A helical spring Q bears at one end against the end of the cylinder and at its other end against the bottom of the hollow shank, thus pressing the blade into the ground. A stop and a guide prevent the socket of the blade from leaving the cylinder and also from turning therein. The cylinder P is connected by a rope R to a spring device S fitted within the beam of the carriage. When the shield L is turned back under the carriage for transport it has the position L' shown in dotted lines in Fig. 9 and is kept therein by a hook T. When the gun is to be fired, the shield is unhooked and allowed to fall into the position L², also shown in dotted lines in Fig. 9. The gunners then push the carriage back a little in order that the shield may come into a substantially vertical position as shown at L in full lines in Fig. 9. In

this position the lateral blade or blades dig into the soil. A mallet is then applied to the trail spade and the carriage is thus anchored to the ground both by the trail spade and the lateral blades. When firing is over, the trail is raised to disengage the trail spade from the ground, the gun carriage is pushed forward a short distance so as to disengage the lateral blades, whereupon the shield can again be suspended beneath the carriage.

It is preferable to use two lateral blades, as illustrated in Fig. 13 for example, instead of a single central blade, because the lateral blades being near the wheels are not likely to be above appreciable hollows or humps of ground, so that they need not have such a long stroke as is necessary in the case of a single central blade. Moreover, changes in the direction of firing cause the right or left wheel to advance as the case may be, in such a manner that the lateral blades do not present any impediment to these changes of front. This arrangement of lateral blades on the shield may also be adapted to carriages provided with an ordinary trail spade as shown in Fig. 14. In this case it is not necessary for the gunners to push the carriage backwards before firing, as this will be effected automatically by the firing of the first round.

Having thus described the nature of this invention and the best means I know of carrying the same into practical effect, what I claim is:—

1. The combination with a wheeled gun carriage having a lower front shield, of devices for anchoring the carriage against rearward and lateral movement and for insuring the stability of the piece at the beginning of firing and in the course thereof, said devices consisting of a trail spade adapted to be forced into the soil before firing and of lateral blades mounted on the sides of the lower front shield and pressed downward with an elastic pressure.

2. The combination with a wheeled gun carriage having a trail shoe, of a trail spade adapted to slide in the trail shoe in a direction substantially normal to the direction of the beam of the carriage and having its head exposed to permit the driving of it with a mallet.

3. The combination with a wheeled gun carriage having a lower hinged shield and a trail shoe, of devices for anchoring the carriage against rearward and lateral movement and for insuring the stability of the piece at the beginning of firing and in the course thereof, said devices consisting of a trail spade adapted to slide in the trail shoe in a direction substantially at right angles to the direction of the beam, and two lateral blades mounted on the said shield at the sides thereof and pressed downward with an elastic pressure.

4. The combination with a wheeled gun carriage having a lower hinged shield and a trail shoe, of devices for anchoring the carriage against rearward and lateral movement and for insuring the stability of the piece at the beginning of firing and in the course thereof, said devices consisting of a trail spade adapted to slide in the trail shoe in a direction substantially at right angles to the direction of the beam and a lateral blade

mounted on said shield and pressed downward with an elastic pressure.

In witness whereof I have hereunto signed my name this 27th day of August, 1907, in the presence of two subscribing witnesses.

JOSEPH ALBERT DEPORT.

Witnesses:

H. C. COXE,
GABRIEL BELLIARD.