W. CHRISTIE.

MOTOR DRIVEN GUN CARRIAGE.

APPLICATION FILED NOV. 21, 1917.

1,297,445.

Patented Mar. 18, 1919.

3 SHEETS—SHEET 1.

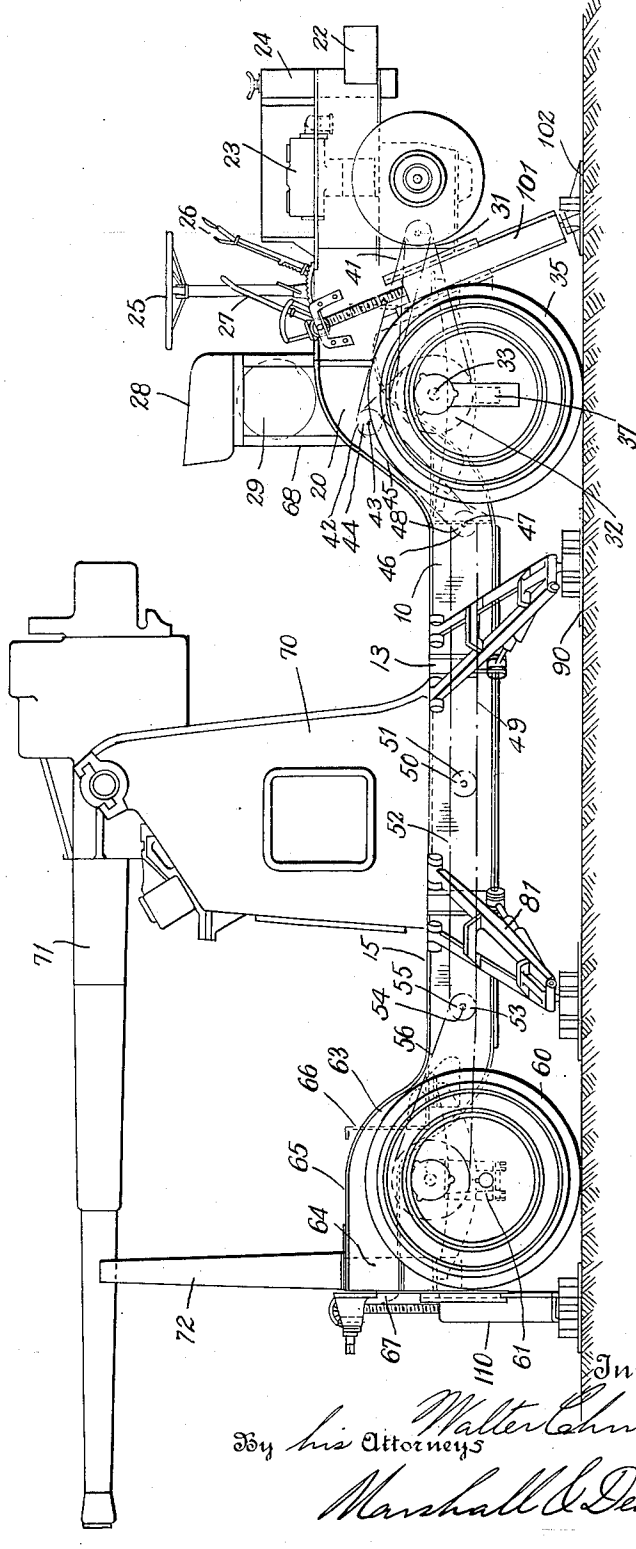



Fig. 1.

Inventor

Walter Christie

By his Attorneys

Marshall & Dearborn

W. CHRISTIE.

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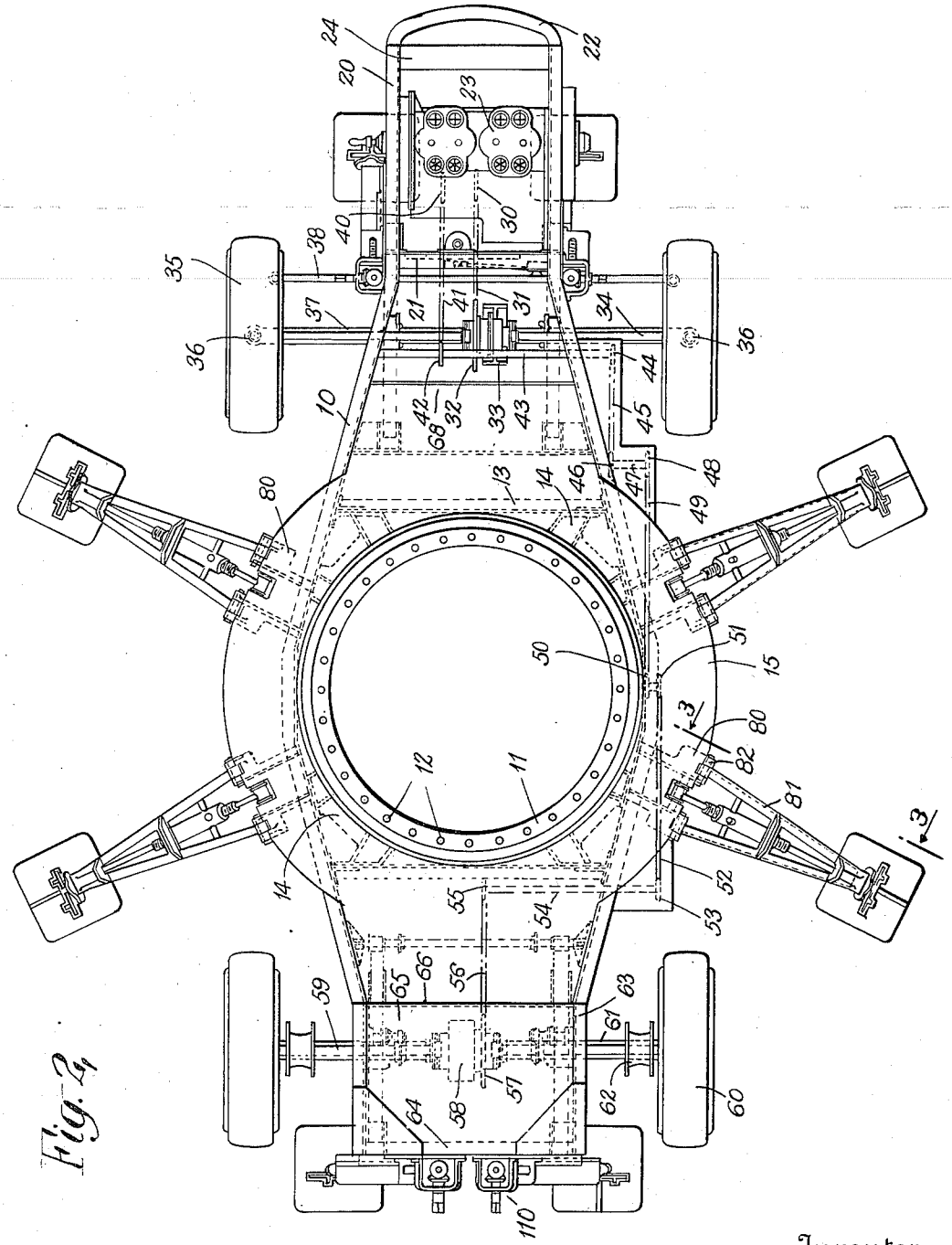


Fig. 2.

Inventor

Walter Christie

By his Attorneys

Marshall & Dearborn

W. CHRISTIE.

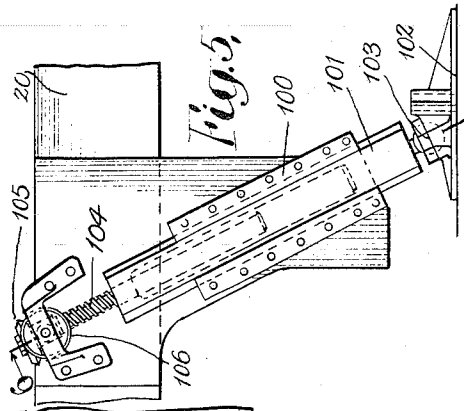
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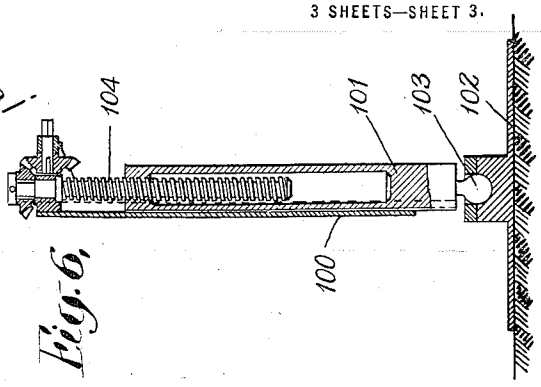
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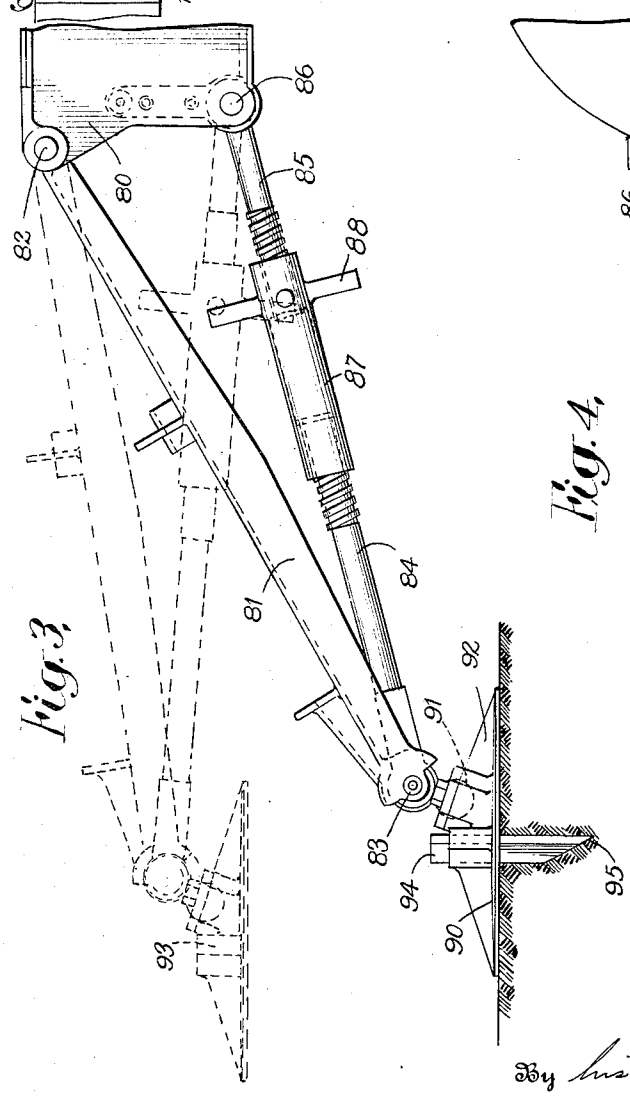
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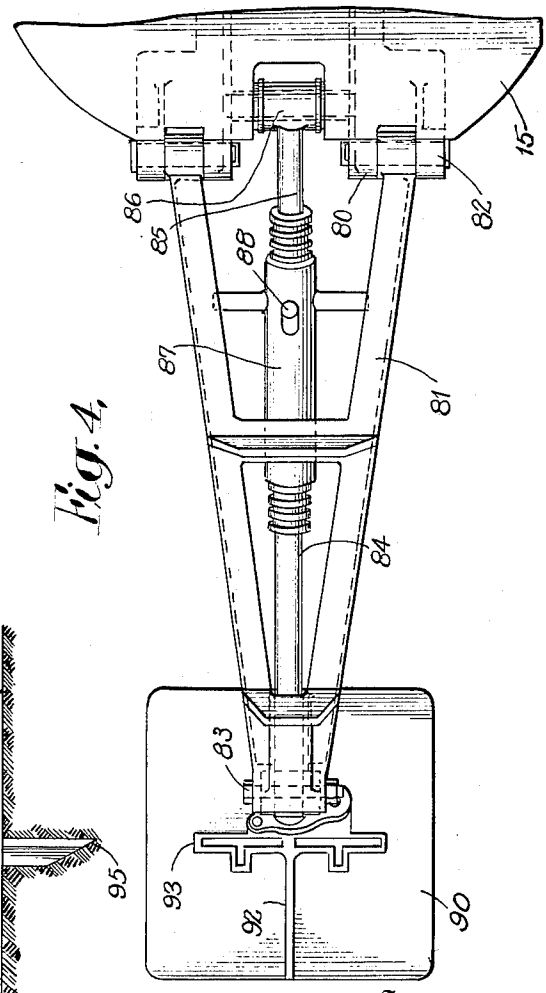
Patented Mar. 18, 1919.

3 SHEETS—SHEET 3.




Inventor

Walter Christie

By his Attorneys

Marshall & Dearborn

# UNITED STATES PATENT OFFICE.

WALTER CHRISTIE, OF WEEHAWKEN, NEW JERSEY.

## MOTOR-DRIVEN GUN-CARRIAGE.

1,297,445. Specification of Letters Patent. Patented Mar. 18, 1919.

Application filed November 21, 1917. Serial No. 203,208.

*To all whom it may concern:*

Be it known that I, WALTER CHRISTIE, a citizen of the United States, and a resident of Weehawken, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Motor-Driven Gun-Carriages, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to motor driven gun carriages, and its object is to provide a simple and rugged automobile mounting for comparatively heavy guns, by means of which such ordnance may be quickly moved from place to place, and on which the gun is so mounted and supported that it may be adjusted for all-around fire and may be given any desired elevation. Another object is to so construct the carriage that the gun may be discharged from it in any of its positions without any especially prepared base, without dislocating its position and without disturbing its adjustments.

These and other objects of my invention will be set forth hereinafter, and in order that my invention may be thoroughly understood, I will now proceed to describe the same in the following specification, and then point out the novel features thereof in appended claims.

Referring to the drawings,

Figure 1 is a side elevation of a motor-driven gun carriage made according to and embodying my invention.

Fig. 2 is a plan view of the same apparatus with the gun and its mounting removed.

Fig. 3 is an elevation of certain parts of the device, the view being taken from the line 3—3 of Fig. 2 looking in the direction of the arrows.

Fig. 4 is a plan view of the parts shown in Fig. 3.

Fig. 5 is a side elevation of certain parts shown in Fig. 1.

Fig. 6 is a sectional end elevation of the parts shown in Fig. 5, the section being taken on the line 6—6 of the latter figure.

Like characters of reference designate corresponding parts in all the figures.

10 designates the side frames of the central portion of the apparatus. These are spread apart as shown in Fig. 2, to embrace a circular gun carriage base 11 in which are a plurality of bolt holes 12 equally spaced upon a circular line. 13 are transverse beams and 14 are angle brackets. All of these parts are securely fastened together. Over the frame thus formed and surrounding the gun carriage base is a plate platform 15.

Secured to the forward ends of the side frames 10 are front plates 20 which are curved upwardly immediately in front of the side frames and then extend horizontally as shown in Fig. 1. These are connected by a transverse beam 21 and by a front fender bar 22. On these front plates are supported an internal combustion engine 23, a radiator 24, a steering wheel 25, control and brake levers 26 and 27 with their respective mechanisms, and a driver's seat 28 under which is a fuel tank 29.

The engine's shaft is connected through suitable transmission gearing with two sprocket wheels 30 and 40. The first of these is connected by a chain 31 with a sprocket wheel 32, a clutch and differential gearing 33 on a shaft 34 by means of which it may be connected with or disconnected from driving pinions on the ends of shaft 34 which are in mesh with internal gears affixed to the front wheels 35. These front wheels are centrally pivoted on vertical stub axles 36 on the ends of an axle 37 and flexible joints are provided between the driving shaft 34 and the pinions so that the wheels may be steered by a rod 38 connected by suitable mechanism with the steering wheel 25 without interfering with the drive, as more fully described in Patent No. 1,203,647 November 7, 1916.

The sprocket wheel 40 is connected by a chain 41 with a sprocket wheel 42 on a front jack shaft 43 which is raised to clear the front wheel drive mechanism. On one end of jack shaft 43 is a sprocket wheel 44 connected by chain 45 with a sprocket wheel 46 on a lower transverse shaft 47 on which is a similar sprocket wheel 48. A chain 49 connects the latter sprocket wheel with a sprocket wheel 50 on a short shaft located in the center of one of the side frames 10. On the same short shaft is another sprocket wheel 51 from which a chain 52 runs back to a sprocket wheel 53 on one end of a rear jack shaft 54. On the other end of jack shaft 54 is another sprocket wheel 55 which is connected by a chain 56 with a sprocket wheel 57 on a differential gearing 58. This gearing is connected with two parts of a rear driving shaft 59 which by means of pinions

on the ends of shaft 59 and internal gears on the rear wheels 60 and driving connection is completed. In neither the front or rear wheels are these pinions and gears shown as they are not a part of the present invention and including them would only complicate the drawings. 61 is the axle upon which the rear wheels 60 are supported. On the rear driving shaft 59 are flanged drums 62.

The rear wheels and their driving mechanism are supported on rear plates 63 which extend upwardly as shown and the ends of which are connected by a transverse beam 64. These parts are connected by a top plate 65 and front plate 66 which extends down to the platform plate 15 and by a rear plate 67. 68 is a vertical plate which extends from the driver's seat 28 down to the front end of the platform plate 15.

70 is a standard gun mounting, in this case for a marine type 3-inch rifle designated by 71. The base of this mounting is a circular flange provided with bolt holes which register with the holes 12 in the base 11. 72 is a gun support bracket removably fastened to the rear of the vehicle frame.

Rigidly affixed to the side frames 10 and to the gun carriage base, are heavy brackets 80. Supporting truss arms 81 are pivotally connected with these brackets 80 at 82. A cross pin 83 passes through each of these truss arms near their outer ends. A heavy bolt 84 has an eye at one end through which the pin 83 passes and its other end portion is provided with a left hand screw-thread. 85 is a similar bolt pivoted at one end as at 86 to the bracket 80. Its other end portion is provided with a right-hand screw-thread. These two bolts are joined by an intermediate member 87 which is internally threaded to engage the threads of bolts 84 and 85. It is also provided with projections 88 by means of which it may be rotated. These parts 84, 85 and 87 form an adjustable brace for the transverse arm 81.

90 is a flat shoe supported at the end of a truss arm by a ball and socket joint 91. It has cross ribs 92 and 93 on its upper side which serve to strengthen it and the latter rib is provided with two openings through which may be driven spikes 94 which are made of T-iron pointed at one end as at 95.

At the front and rear of the vehicle other adjustable braces are provided. Those at the front are mounted in guides 100 on a plate affixed to the front plates 20. 101 is a slide in these guides, and 102 is a shoe similar to shoe 90, connected with the lower end of slide 101 by a ball and socket joint 103. 104 is a screw which fits in internal threads in the upper part of the slide 101. A bevel gear 105 meshes with a similar gear 106 on a short shaft, the outer end of which is squared for the reception of the hub of a crank handle by means of which the screw 104 may be turned to adjust the slide.

The adjustable braces at the rear of the vehicle are similarly constituted and are designated by the reference numeral 110.

It is obvious that this apparatus may be moved from place to place under its own power. The frame of the vehicle is so constructed that a much larger foundation for the gun carriage is provided than is possible on a truck made according to former practice and that the base for this gun mounting is much lower than is possible with former constructions. It is of great importance that a structure of this kind be propelled by all four of its wheels. In order to accomplish this result with an enlarged depressed base for a gun mounting, it has been found necessary to make the driving connections between the motor and the wheels at the opposite end of the vehicle base around the side of the gun mounting in a manner which I have shown and described.

When the vehicle with the gun thereon has reached the desired position the truss arms 81 are placed in position with the shoes 90 resting upon the ground and with the spikes 94 in place, after which the adjustable braces therefor are turned to make a rigid connection between the base for the gun mounting and the ground.

The adjustable braces at the front and rear of the vehicle are also moved into position to exert a desired amount of pressure upon the surrounding ground. The whole structure then becomes a rigid and firm support for the gun and its mounting.

The flanged drums 62 are provided for use as power driven winches by means of which chains or cables attached to some rigid object may be wound to pull the vehicle over obstacles or out of ditches or the like.

I do not mean to limit myself to any specific form or construction of parts or intend no limitations other than those imposed by the appended claims.

What I claim is:

1. In a motor driven gun carriage, a vehicle frame having raised front and rear portions, vehicle wheels upon said portions, a motor transmission mechanism connecting said motor with all of said wheels, and a lower intermediate section wider than said front and rear portions, adapted to receive a gun mounting, the transmission mechanism to the wheels near the end opposite the engine being extended transversely at said wider intermediate section.

2. In a motor driven gun carriage, a vehicle frame having raised front and rear portions, a motor on said front portion of the frame, adjustable wheels on said front portion of the frame, driving connections between the motor and the adjustable wheels, manual means for adjusting said wheels to

steer the apparatus, a pair of vehicle wheels on the rear portion of the frame, said frame having a lower intermediate section wider than said front and rear portions adapted to receive a gun mounting, and driving connections between the motor and the rear wheels extended laterally at said intermediate section.

3. In a motor driven gun carriage, a vehicle frame having raised front and rear portions, a motor on said front portion of the frame, adjustable wheels on said front portion of the frame, driving connections between the motor and the adjustable wheels, manual means for adjusting said wheels to steer the apparatus, a pair of vehicle wheels on the rear portion of the frame, said frame having a lower intermediate section wider than said front and rear portions adapted to receive a gun mounting, and driving connections between the motor and the rear wheels extended laterally at said intermediate section, and a winch drum in said driving connections near said rear wheels.

4. In a motor driven gun carriage, a vehicle frame having raised front and rear portions, a motor on said front portion of the frame, adjustable wheels on said front portion of the frame, driving connections between the motor and the adjustable wheels, manual means for adjusting said wheels to steer the apparatus, a pair of vehicle wheels on the rear portion of the frame, said frame having a lower intermediate section wider than said front and rear portions comprising a circular base, adapted to receive the base of a gun mounting, a plurality of transverse shafts and interconnecting chains between the motor and the rear wheels, arranged to provide a driving connection offset at said wider intermediate section, and winch drums in said driving connection near said rear wheels.

5. In a motor driven gun carriage, a vehicle frame having raised front and rear portions, vehicle wheels upon said portions, a motor, transmission mechanism connecting said motor with all of said wheels, and a lower intermediate section wider than said front and rear portions, adapted to receive a gun mounting, the transmission mechanism to the wheels near the end opposite the engine being extended transversely at said wider intermediate section, and adjustable truss arms connected with said frame, adapted to form rigid supports between the frame and the ground.

6. In a motor driven gun carriage, a vehicle frame having raised front and rear portions, a motor on said front portion of the frame, adjustable wheels on said front portion of the frame, driving connections between the motor and the adjustable wheels, manual means for adjusting said wheels to steer the apparatus, a pair of vehicle wheels on the rear portion of the frame, said frame having a lower intermediate section wider than said front and rear portions adapted to receive a gun mounting, driving connections between the motor and the rear wheels extended laterally at said intermediate section, truss arms connected with the sides of said intermediate section, and adjustable braces therefor under said truss arms.

7. In a motor driven gun carriage, a vehicle frame having raised front and rear portions, a motor on said front portion of the frame, adjustable wheels on said front portion of the frame, driving connections between the motor and the adjustable wheels, manual means for adjusting said wheels to steer the apparatus, a pair of vehicle wheels on the rear portion of the frame, said frame having a lower intermediate section wider than said front and rear portions adapted to receive a gun mounting, and driving connections between the motor and the rear wheels extended laterally at said intermediate section, truss arms connected with the sides of said intermediate section, adjustable braces therefor under said truss arms, and adjustable braces on said front and rear portions of the frame.

8. In a motor driven gun carriage, a vehicle frame having raised front and rear portions, a motor on said front portion of the frame, adjustable wheels on said front portion of the frame, driving connections between the motor and the adjustable wheels, manual means for adjusting said wheels to steer the apparatus, a pair of vehicle wheels on the rear portion of the frame, said frame having a lower intermediate section wider than said front and rear portions adapted to receive a gun mounting, and driving connections between the motor and the rear wheels extended laterally at said intermediate section, truss arms connected with the sides of said intermediate section, adjustable braces therefor under said truss arms, adjustable braces on said front and rear portions of the frame, flat shoes at the ends of said truss arms and front and rear braces and universal joints between said shoes and the truss arms and braces.

9. In a motor driven gun carriage, a vehicle frame having raised front and rear portions, a motor on said front portion of the frame, adjustable wheels on said front portion of the frame, driving connections between the motor and the adjustable wheels, manual means for adjusting said wheels to steer the apparatus, a pair of vehicle wheels on the rear portion of the frame, said frame having a lower intermediate section wider than said front and rear portions adapted to receive a gun mounting, and driving connections between the motor and the rear wheels extended laterally at said intermedi-

ate section, truss arms connected with the sides of said intermediate section, adjustable braces therefor under said truss arms, adjustable braces on said front and rear portions of the frame, flat shoes at the ends of said truss arms and front and rear braces, universal joints between said shoes and the truss arms and braces, said shoes having slotted T shaped ribs, and T shaped spikes sharpened at one end adapted to be driven into the ground through said shoes.

10. In a motor driven gun carriage, a vehicle frame having raised front and rear portions, a motor on said front portion of the frame, adjustable wheels on said front portion of the frame, driving connections between the motor and the adjustable wheels, manual means for adjusting said wheels to steer the apparatus, a pair of vehicle wheels on the rear portion of the frame, said frame having a lower intermediate section wider than said front and rear portions comprising a circular base, adapted to receive the base of a gun mounting, a plurality of transverse shafts and interconnecting chains between the motor and the rear wheels, arranged to provide a driving connection offset at said wider intermediate section, and winch drums in said driving connection near said rear wheels, truss arms connected with the sides of said intermediate section, adjustable braces therefor under said truss arms, adjustable braces on said front and rear portions of the frame, flat shoes at the ends of said truss arms and front and rear braces, universal joints between said shoes and the truss arms and braces, said shoes having slotted T shaped ribs, and T shaped spikes sharpened at one end adapted to be driven into the ground through said shoes.

In witness whereof, I have hereunto set my hand this 19 day of November, 1917.

WALTER CHRISTIE.