Jan. 17, 1933. E. C. GOEBERT 1,894,680

GUN CARRIAGE

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Fig. 1.

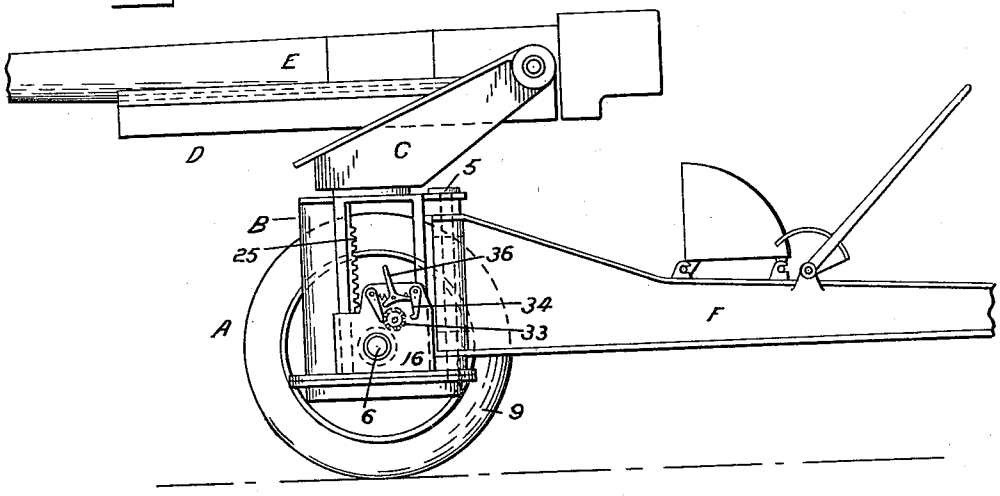
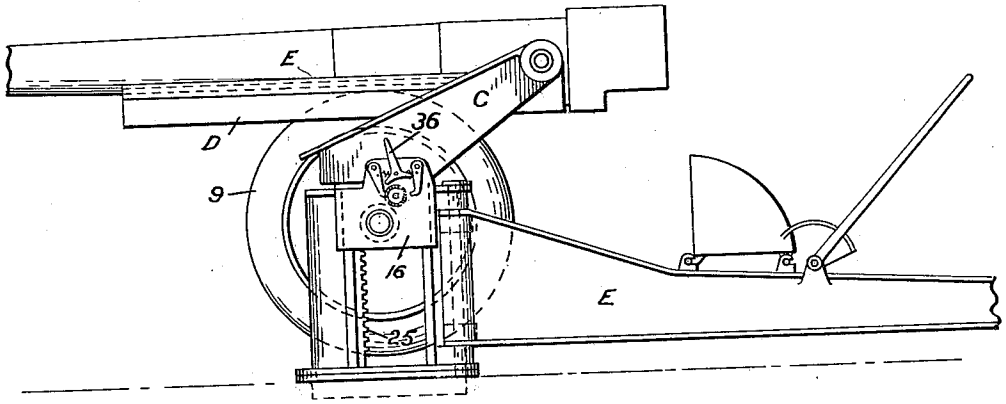


Fig. 2.



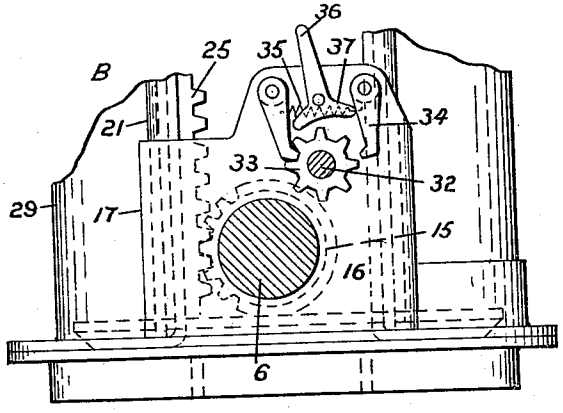


Fig. 3.

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GUN CARRIAGE

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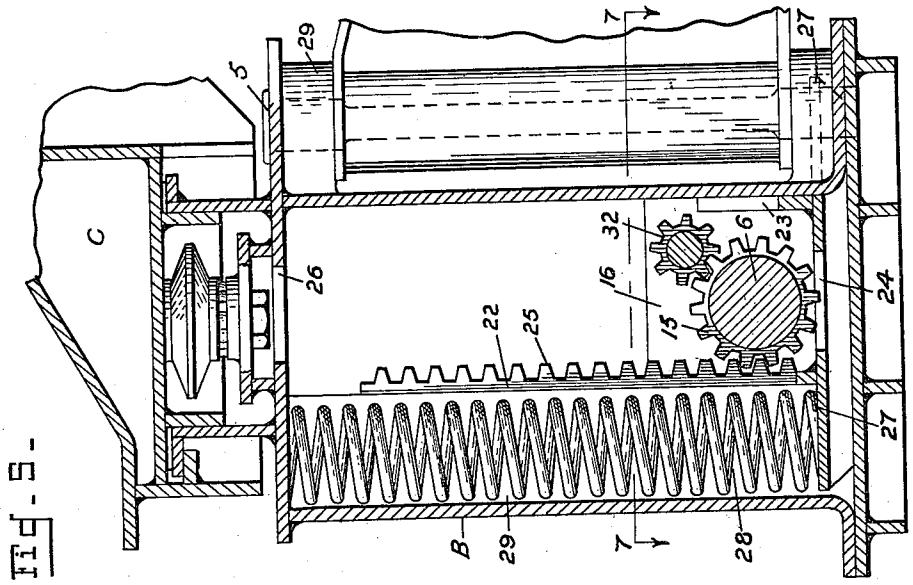


Fig. 5.

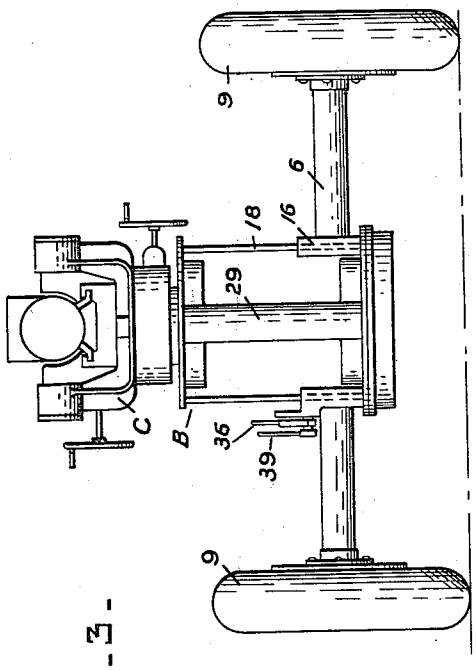


Fig. 3.

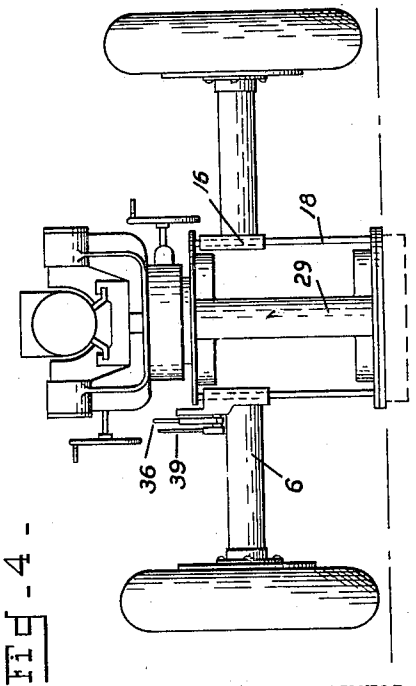


Fig. 4.

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GUN CARRIAGE

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Fig. 6.

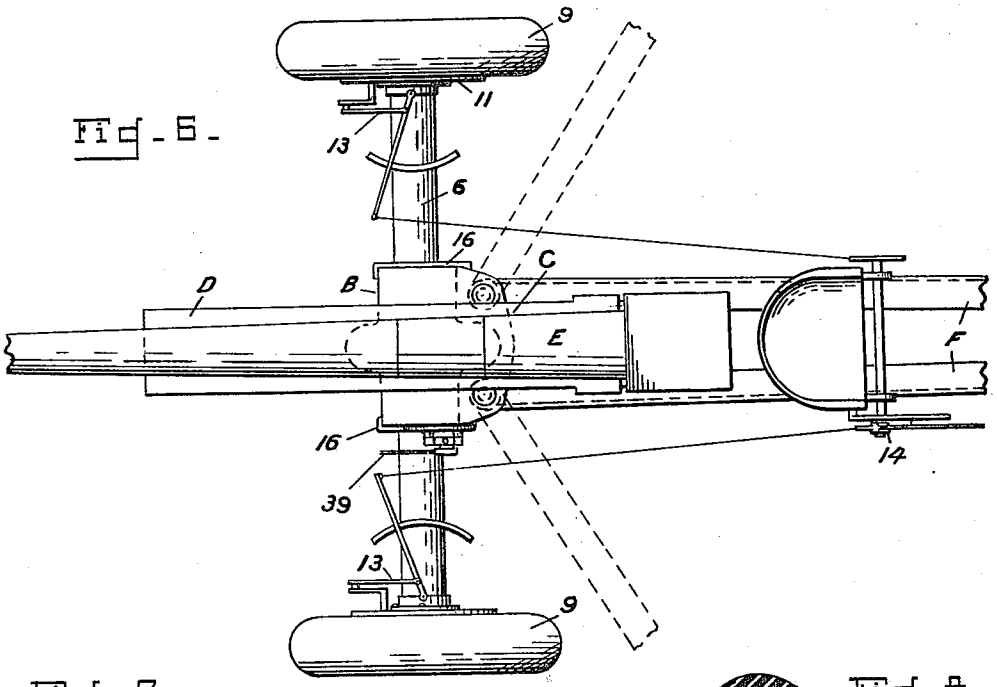


Fig. 7.

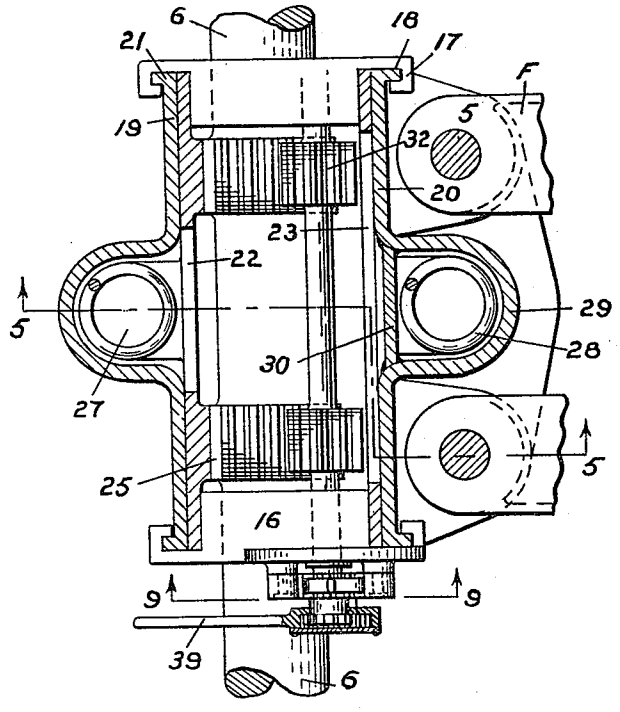
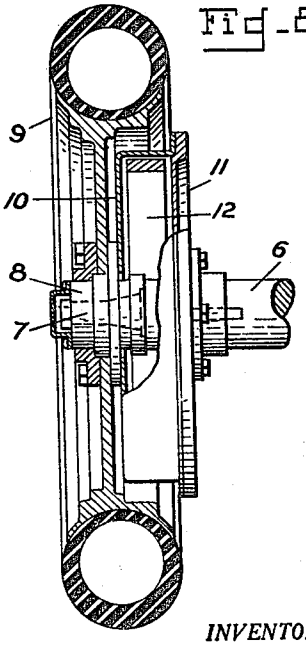


Fig. 8.



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Patented Jan. 17, 1933

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UNITED STATES PATENT OFFICE

ELMER C. GOEBERT, OF THE UNITED STATES ARMY, PHILADELPHIA, PENNSYLVANIA

GUN CARRIAGE

Application filed January 11, 1932. Serial No. 585,928.

(GRANTED UNDER THE ACT OF MARCH 3, 1883, AS AMENDED APRIL 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

The subject of this invention is a gun carriage.

The principal object of the present invention is to provide a gun carriage in which the pedestal may be readily lowered to an emplaced position on the ground and elevated therefrom to a travelling position.

A further object is to accomplish the foregoing movements through rotation of the wheels of the carriage and in the event of failure of the wheels due to lack of traction the elevation and depression may be performed through the means normally employed to hold the pedestal against movement.

With the foregoing and other objects in view, the invention resides in the novel arrangement and combination of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

A practical embodiment of the invention is illustrated in the accompanying drawings, wherein:

Fig. 1 is a view in side elevation, with the near wheel removed, of the improved gun carrriage shown in the travelling position.

Fig. 2 is a similar view of the carriage in the emplaced position.

Figs. 3 and 4 are views in front elevation corresponding respectively to the positions shown in Figs. 1 and 2.

Fig. 5 is a sectional view on the line 5—5 of Fig. 7.

Fig. 6 is a plan view.

Fig. 7 is a sectional view on the line 7—7 of Fig. 5.

Fig. 8 is a sectional view through one of the wheels.

Fig. 9 is a sectional view on the line 9—9 of Fig. 7.

The gun carriage comprises a wheeled axle unit A on which is mounted a pedestal B that rotatably supports a top carriage C. A cradle D trunnioned in the top carriage C carries a reciprocable gun barrel E. A pair of trail members F—F each secured to the base by means of a vertical pivot pin 5.

Referring to Fig. 8 the axle unit A includes an axle 6 whose spindles 7—7 are each mounted in a bearing 8 of the wheels 9. A brake drum 10 is secured to each wheel and a cover 11 for the drum is splined on the axle. A brake band 12 carried by the cover and actuated by the linkage 13 (Fig. 6) serves to internally engage the drum 10 and thereby couple the axle and the wheel. An actuating mechanism 14 applies to the linkage 13 for both wheels.

A pair of spaced gear wheels 15—15 are fixed to the central portion of the axle. A block 16 is journaled on the axle on the outside of each of the gear wheels and is formed on each side with a vertical flange 17 providing a groove 18. The vertical side of the front plate 19 and back plate 20 of the pedestal are provided with tongues 21 fitting in the grooves 18 and enabling the pedestal to be guided in vertical movement relative to the blocks 16 on the axle.

Within the pedestal and vertically movable relative thereto is a rack member consisting of a front plate 22, a back plate 23, and a connecting base plate 24 disposed underneath the axle. The side portions of the plates 22 and 23 fit between the plates 19 and 20 and the blocks 16 and are laterally confined by the flanges 17 of the blocks. On the inside of the front plate 22 are a pair of spaced racks 25—25 each meshing with one of the gear wheels 15 on the axle. The upper ends of the racks terminate short of the top plate 26 of the pedestal.

The base plate 24 of the rack member has a pair of extensions 27—27 projecting beyond the front and back plates 22—23 and adapted to seat a helical spring 28 disposed within a partially cylindrical portion 29 on the front end on the back plate of the pedestal. The springs engage the top plate 26 and yieldingly support the pedestal. The portion 29 on the back plate has a stiffening mem-

ber 30 to prevent distortion through action of the trail members.

A shaft 31 journaled in the spaced blocks 16 carries a pair of pinions 32—32 meshing with the gear wheels 15—15. On one end of the shaft there is a ratchet wheel 33 which is engageable by a pair of pawls 34—34 pivotally mounted on the adjoining block 16. The pawls are connected by a helical spring 35 and are held thereby in engagement with the ratchet wheel to prevent rotation of the shaft in opposite directions.

A lever 36 also pivoted on the block 16 between the pawls is formed with a pair of opposed arms 37—37 which upon rotation of the lever are adapted to selectively cam one of the pawls from engagement with the ratchet wheel.

On one end of the shaft 31 there is a ratchet wheel 38, for application of a ratchet wrench 39.

In the travelling position, Figs. 1 and 3, the pedestal is yieldingly supported on the springs 28 and the rack member is locked to the axle 6 through the pinions 32 on the shaft 31 which is held against rotation by the pawls 34. The axle is disconnected from the wheels so that it does not rotate therewith.

The operation of emplacing the pedestal by lowering it to the ground as seen in Figs. 2 and 4 consist in connecting the axle to the wheels by applying the brake band 12 and then disconnecting one of the pawls 34 to allow for rotation of the shaft 31. The gun carriage is then moved and, as the wheels turn, the axle will be rotated and the gear wheels 15 in engagement with the racks 25 will provide a controlled lowering of the rack member and the spring supported pedestal B until the pedestal rests on the ground in position for firing. A reversal of the foregoing procedure restores the pedestal to the elevated or travelling position.

When there is insufficient traction for the wheels to hold the load during elevating, the wheels are disconnected from the axle and the ratchet wrench 39 is acted on to rotate the shaft 31, which, through its pinions 32 rotates the axle and consequently elevates the rack member and the pedestal carried thereby. The rack member may be locked against movement in any position by merely engaging both of the pawls 34 with the ratchet wheel 33 on the shaft 31.

I claim:

1. In a gun mount, an axle, wheels on the axle, means for connecting the wheels and axle for unitary rotation, guide blocks journaled on the axle, gear wheels fast on the axle between the guide blocks, a pedestal slidably mounted in the guide blocks, a rack member slidably mounted between the pedestal and guide blocks, racks on the rack member meshing with the gear wheels on the axle, springs carried by the rack member and supporting the pedestal, a shaft journaled in the guide blocks, pinions on said shaft meshing with the gear wheels on the axle, a ratchet wheel on the shaft, and pawls engageable with the ratchet wheel.

2. In a gun mount, an axle, wheels on the axle, means for connecting the wheels and axle for unitary rotation, guide blocks journaled on the axle, gear wheels fast on the axle between the guide blocks, a pedestal slidably mounted in the guide blocks, a rack member slidably mounted between the pedestal and guide blocks, racks on the rack member meshing with the gear wheels on the axle, springs carried by the rack member and supporting the pedestal, a shaft journaled in the guide blocks, pinions on said shaft meshing with the gear wheels on the axle, and means for locking the shaft against rotation.

3. In a gun mount, an axle, wheels on the axle, means for connecting the wheels and axle for unitary rotation, guide blocks journaled on the axle, gear wheels fast on the axle between the guide blocks, a pedestal slidably mounted in the guide blocks, a rack member slidably mounted between the pedestal and guide blocks, racks on the rack member meshing with the gear wheels on the axle, springs carried by the rack member and supporting the pedestal, and means for locking the axle against rotation.

4. In a gun mount, an axle, wheels on the axle, means for connecting the wheels and axle for unitary rotation, guide blocks journaled on the axle, gear wheels fast on the axle between the guide blocks, a support slidably mounted in the guide blocks, racks on the support meshing with the gear wheels on the axle, means for rotating the axle independently of movement of the wheels, and means acting through said preceding means for locking the axle against rotation.

5. In a gun mount, an axle, wheels on the axle, means for connecting the wheels and axle for unitary rotation, guide blocks journaled on the axle, gear wheels fast on the axle, a support slidably mounted in the guide blocks, racks on the support meshing with the gear wheels on the axle, means for rotating the axle independently of movement of the wheels, and means acting through said preceding means for locking the axle against rotation.

6. In a gun mount, an axle, wheels on the axle, means for connecting the wheels and axle for unitary rotation, guide blocks journaled on the axle, gear wheels fast on the axle, a support slidably mounted in the guide blocks, racks on the support meshing with the gear wheels on the axle, and means for rotating the axle independently of movement of the wheels.

7. In a gun mount, wheels, an axle rotatable in the wheels, means for connecting the wheels and axle for unitary rotation, a guide

on the axle, gear wheels fast on the axle, a support slidable on the guide, racks on the support meshing with the gear wheels on the axle, and means for locking the axle against rotation.

8. In a gun mount, wheels, an axle rotatable in the wheels, a gun support, an elevating and depressing connection between the axle and gun support, means for holding the axle against rotation, and means for connecting the axle and wheels whereby the axle is rotatable by the wheels.

9. In a gun mount, an axle, a member movable vertically relative to the axle, a resilient suspension means carried by said member, and a gun pedestal carried by the suspension means.

ELMER C. GOEBERT.