

E. SCHNEIDER.

GUN CARRIAGE FOR TRANSPORT ON RAILWAY TRUCKS FOR FIRING FROM THE RAILWAY.

APPLICATION FILED SEPT. 6, 1917.

1,326,788.

Patented Dec. 30, 1919.

6 SHEETS—SHEET 1.

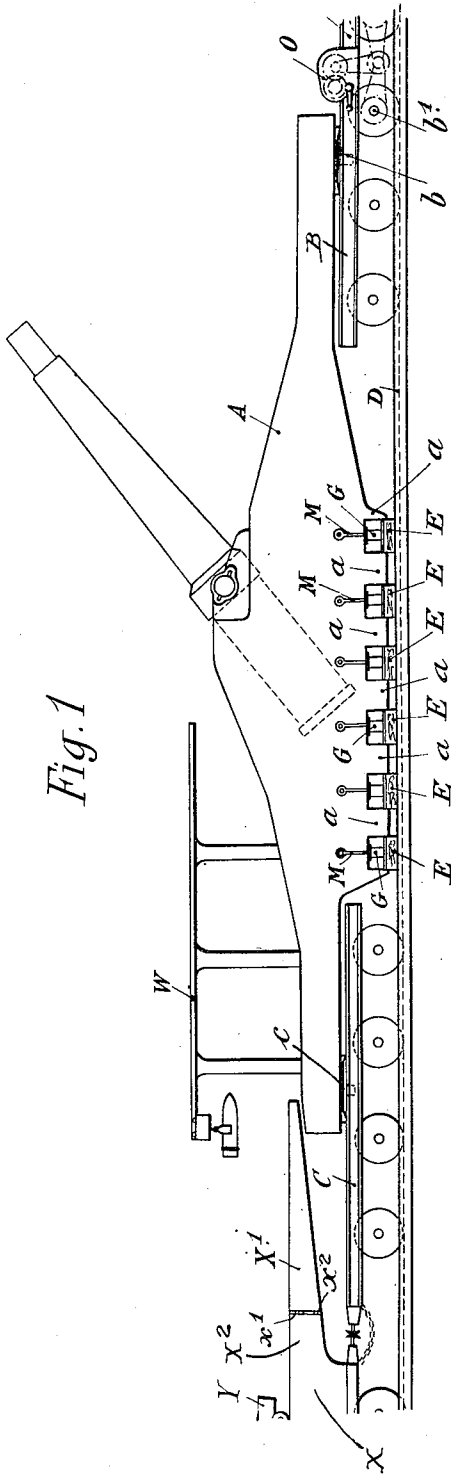


Fig. 1

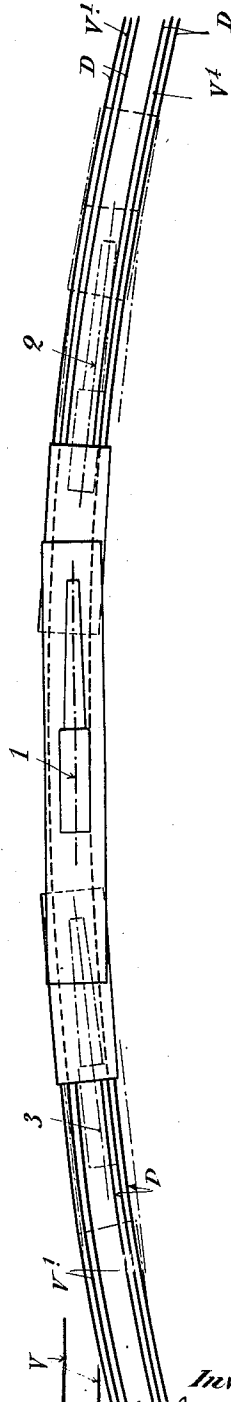


Fig. 2.

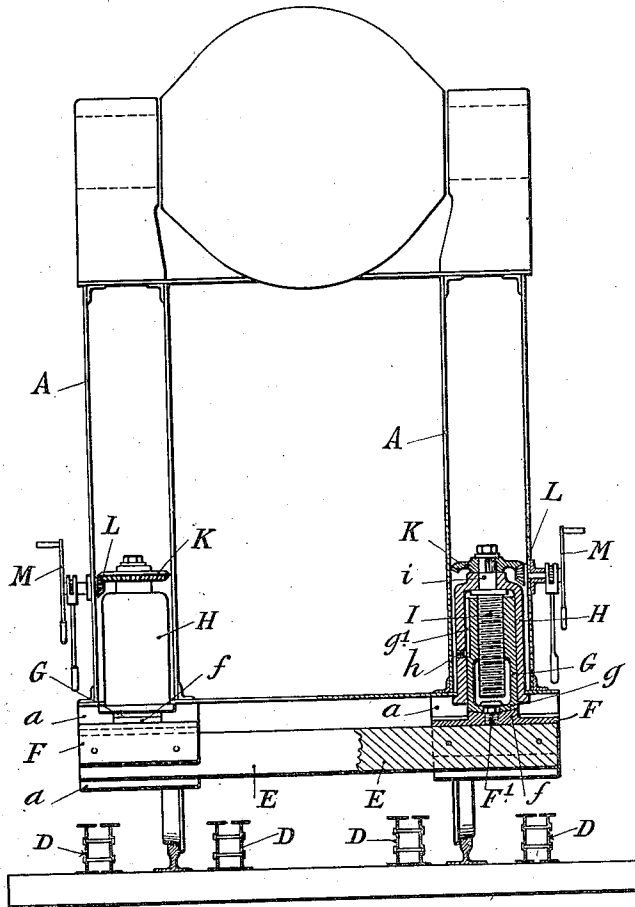
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Fig. 3.



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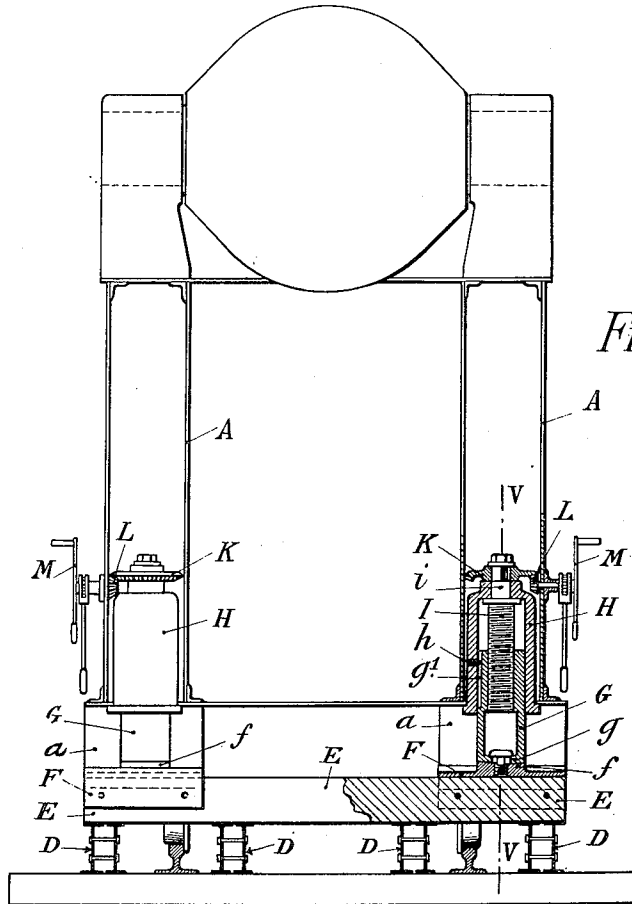


Fig. 4.

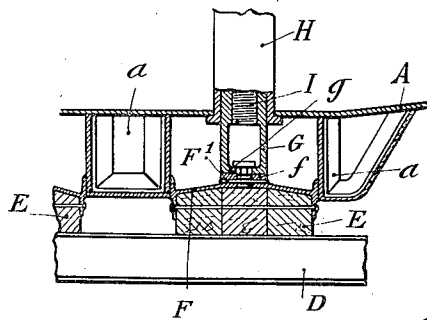


Fig. 5.

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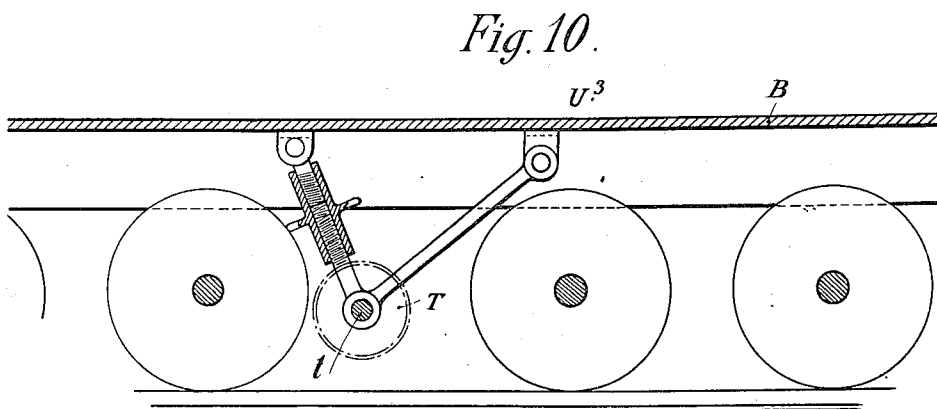
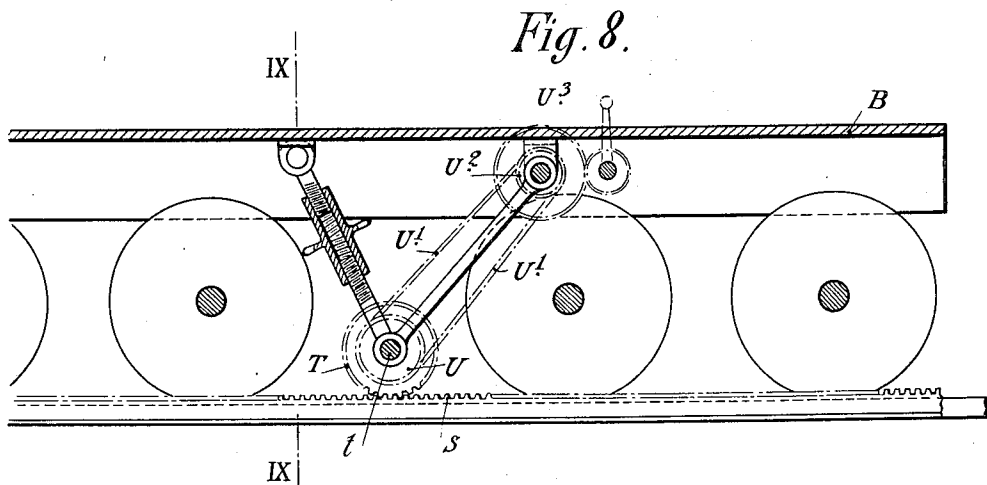
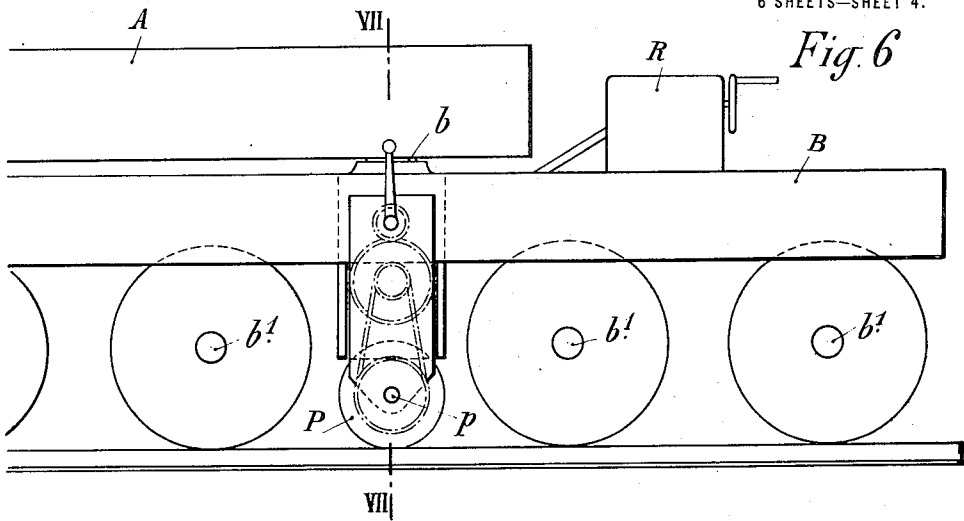
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Fig. 7.

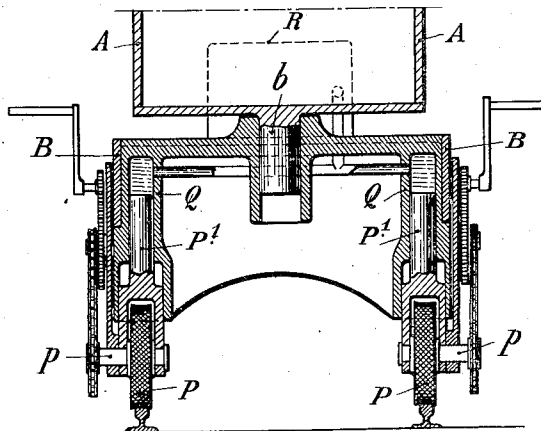
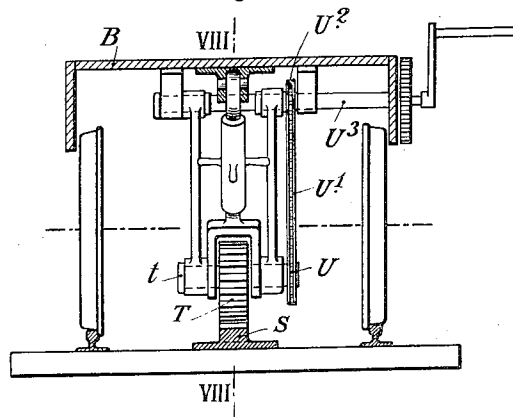


Fig. 9.



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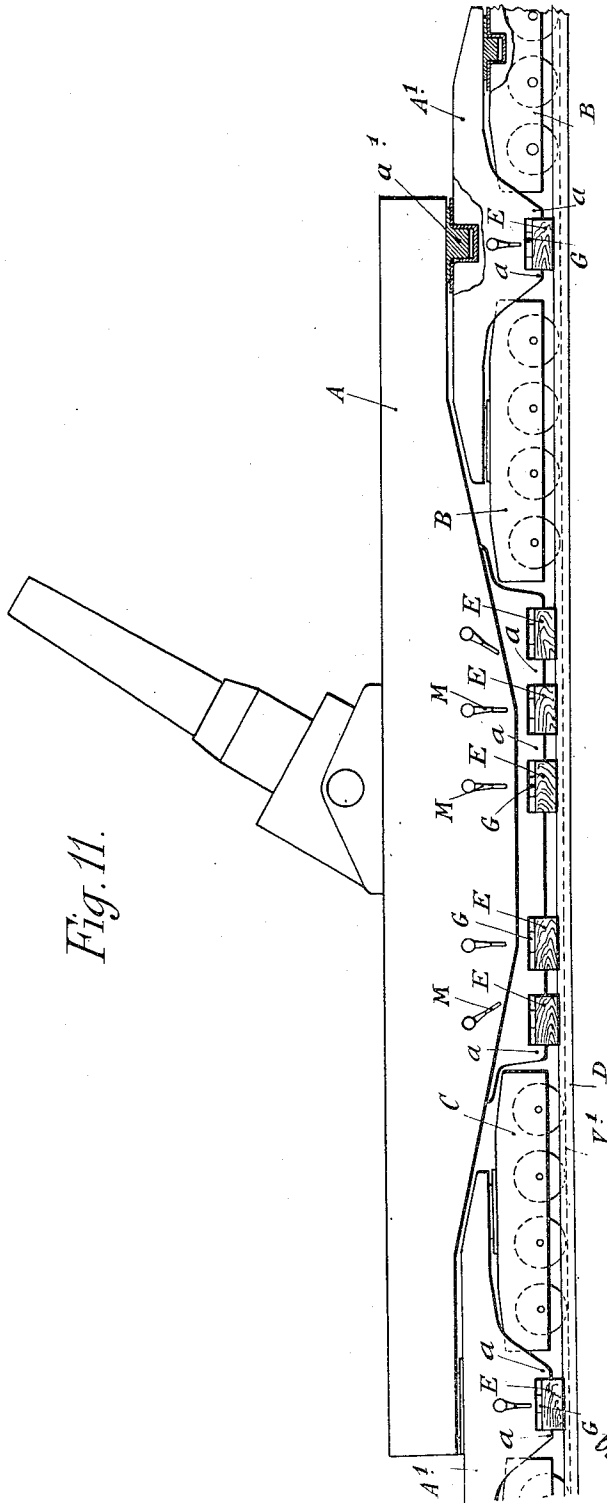


Fig. 11.

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UNITED STATES PATENT OFFICE.

EUGÈNE SCHNEIDER, OF LE CREUZOT, FRANCE, ASSIGNOR TO SCHNEIDER & CIE., OF PARIS, FRANCE, A LIMITED JOINT-STOCK COMPANY OF FRANCE.

GUN-CARRIAGE FOR TRANSPORT ON RAILWAY-TRUCKS FOR FIRING FROM THE RAILWAY.

1,326,788.

Specification of Letters Patent. Patented Dec. 30, 1919.

Application filed September 6, 1917. Serial No. 189,947.

To all whom it may concern:

Be it known that I, EUGÈNE SCHNEIDER, a citizen of the French Republic, and a resident of Le Creuzot, Saône-et-Loire, France, have invented a new and useful Improvement in Gun-Carriages for Transport on Railway-Trucks for Firing from the Railway, which invention is fully set forth in the following specification.

The invention has for its object to provide an improved gun carriage for transport on trucks for firing from the railway.

This invention is characterized more particularly by devices which allow of diminishing the effects of the recoil due to the firing of the gun, by transferring to the railway a considerable portion of the effects due to the firing. To this end this invention comprises special means for transferring such effects and also a corresponding special arrangement of the railway at the firing place, and also means for effecting a rapid running out again of the gun into the firing position.

The devices for transmitting the effects of the firing consist essentially of a series of movable members permanently mounted on the gun carriage and adapted to be brought into and out of contact with the railway by a rapid and simple operation, said members being constructed in such a manner as to allow of the gun carriage, while being supported by the track, sliding along the track in consequence of the recoil. In practice, and in accordance with the invention, the firing of the gun, together with the use of the said members, takes place on a railway prepared for this purpose, and comprising, on either side, track rails of standard gage and auxiliary supporting beams super-elevated in relation to the rails. This track, prepared in this manner, preferably forms a branch connected to the ordinary track, and its length and curvature are such as to allow of directing the fire of the gun from any desired point of the said track without the necessity of providing the gun with the usual training mechanism.

Several embodiments of this invention are illustrated by way of example in the accompanying drawings wherein:—

Figure 1 is a diagrammatic general view in longitudinal elevation of a gun carriage supported on railway trucks adapted for fir-

ing from the railway in accordance with this invention.

Fig. 2 is a corresponding diagrammatic plan showing the gun carriage located for firing on a track prepared for the purpose, consisting of a branch connected to the ordinary railway which has served to bring the gun carriage to the spot.

Figs. 3, 4 and 5 illustrate on a larger scale the details of the parts for supporting the gun carriage while allowing it to slide along the firing track. In these figures:—

Fig. 3 is an end elevation of the gun carriage partly in vertical cross section in a plane passing through the axes of two connected supporting members, said members being shown raised in position for transport or for running the carriage out again into the firing position.

Fig. 4 is a view similar to Fig. 3, showing the supporting members in their operative position for firing the gun.

Fig. 5 is a partial longitudinal vertical section of the gun carriage on the line V—V of Fig. 4.

Figs. 6 and 7 are respectively a side elevation and a vertical cross section on the line VII—VII of Fig. 6 of a particular constructional example of one of the supporting trucks of the gun carriage in the form of a motor truck for running the gun out again into the firing position.

Figs. 8, 9 and 10 illustrate another constructional example of a tractor mechanism for running the gun out again into the firing position. In these figures:—

Fig. 8 is a vertical longitudinal section on the line VIII—VIII of Fig. 9.

Fig. 9 is a vertical cross section on the line IX—IX of Fig. 8, and

Fig. 10 is a longitudinal vertical section similar to Fig. 8, showing the parts of the tractor mechanism in position for transport.

Fig. 11 is a diagrammatic side elevation partly in vertical section of a special constructional form of a gun carriage according to this invention.

The improved gun carriage may comprise in the known manner, as shown diagrammatically in Figs. 1 and 2, a girder-like structure A resting at each end on a truck B, C by means of a pivot *b*, *c*. This girder-like gun carriage A carries permanently

connected to it, in accordance with the present invention, a series of movable members capable of being brought into and out of contact with the rail track, or preferably as regards practical working, into and out of contact with a track section constructed specially for the purpose and which alone serves as the firing track. This track section constitutes a branch V^1 connected to the main track V (Fig. 2) and it comprises, in the form shown, on each side of the track on which the truck wheels run, special tracks or beams D (Figs. 2 to 5) which form slide-ways for the aforesaid supporting members when these are brought into contact with it.

In the practical examples shown in the drawings, each of the raisable supporting members consists of a hydraulically or otherwise actuated screw-jack, one of whose elements, the screw or the nut for instance, is fixed on the girder-like gun carriage, while the other element of the screw-jack may be moved vertically by the usual mechanism whose essential elements are likewise carried permanently by the girder-like carriage.

The raisable elements of the screw-jacks are preferably, as shown in detail in Figs. 3, 4 and 5, connected together by cross pieces E that constitute the supporting members proper.

In such a case each screw-jack comprises a bed-plate F by means of which it is fixed to its supporting cross piece E . This attachment instead of being rigid is preferably effected by means of a spherical joint $f-g$ between the bed-plate F and a sleeve nut G . The sleeve G is guided vertically, by means of a groove g^1 and tenon h , in a screw-jack body H fixed on the gun carriage A . The screw I , which can turn without longitudinal motion in the body H by means of the journal i , is adapted to be actuated by the usual means (pinions K , L , and hand crank shaft M), and according to the sense of its actuation it causes the sleeve nut G to ascend or descend.

The supporting members E are guided transversely with a suitable amount of play between the projections a formed under the girder, and thus they assure that the girder is carried along in the recoil.

For transport, the raisable members are brought into the position shown in Fig. 3. When the gun carriage has been brought on the branch V^1 to the desired point for firing in a determined direction, for instance into the position 1 shown in full lines in Fig. 2, the supporting members are moved so as to bring them into contact with the beams D (Figs. 1, 4 and 5). Owing to the interposition of the spherical joint $f-g$, completed by a knob F^1 fixed to the bed plate F and guided in a slot in the sleeve G , it is not absolutely necessary that there should be per-

fect synchronism between the workings of the two screw-jacks connected together by the cross piece E . Further, the said joints allow of the members E taking up a certain inclined position relatively to the gun carriage A , this inclination being sometimes necessary owing to the difference in level between the beams D .

In firing, the gun as a whole recoils and slides along the beams D which transmit to the track ties the strains transmitted to them by the cross pieces E .

The running out again of the gun into firing position is produced, after having first raised all the supporting members, by moving the gun in the reverse direction. This movement may be effected either by means of a hauling device located at the firing point, or preferably by the use of a motor truck for one of the two supports B , C of the carriage A .

In the example shown in Fig. 1, it is assumed that the front truck B is provided with a motor O driving the two front axles b^1 of the said truck.

In the embodiment shown in Figs. 6 and 7, the purchase on the wheel-engaging track for running the gun out again into firing position, instead of being produced by means of the wheels of the axles b^1 of the truck B , is assumed to be produced by means of rollers P , preferably slightly grooved, whose axles p are carried by pistons P^1 working in cylinders Q which may be supplied with pressure liquid by a pump R .

The axles p on which the rollers P are fixed may be driven by any suitable mechanism which may be actuated by hand or by a motor, such as the motor O (Fig. 1) carried by the truck B .

In the embodiment shown in Figs. 8, 9 and 10, the purchase is obtained on an auxiliary track, such as a rack S with which engages a pinion T fixed on an axle t that is kept normally raised by any suitable means. On the axle of this pinion there is fixed one of the elements of gearing $U-U^1-U^2-U^3$, which is actuated by hand or by a motor such as O (Fig. 1).

By means of any one of the motive mechanisms hereinbefore described, it is possible not only to run out again into the firing position the gun which has slid back by its recoil along the branch V^1 , but also to change the direction of the firing at will by moving the gun along the said branch for instance to the points indicated at 2 or 3 in front of or at the rear of the point 1.

Fig. 11 illustrates a gun carriage for a gun of very large caliber embodying the improvements of the present invention. This improved gun carriage is characterized by the feature that the raisable supporting elements E are located on a girder-like structure A forming the support proper, and on

two auxiliary girder-like structures A^1 each supporting the main girder-like structure through the medium of a pivot a^1 . These auxiliary girder-like structures are in turn supported each by two vertical pivots respectively on two front trucks B and two rear trucks C.

This invention also comprises for use, in combination with the sliding parts hereinbefore described, a transferring truck such as shown diagrammatically in Fig. 1, which is designed for transporting munitions from a suitably distant station up to a point underneath the usual fixed transferring apparatus W which is permanently mounted on the gun carriage.

This transferring truck is characterized more particularly by the feature that it comprises at each end of the body X, a beak-like portion X^1 and X^2 respectively, adapted to fold down on hinges a^1 , a^2 respectively. These front and rear beak-like portions carry rolling track elements for a carriage Y intended to remain permanently on the truck X.

The hinged or jointed beak-like portions allow, as will be readily understood, of the formation of a rolling track of considerable length for one and the same vehicle, while their property of folding allows of reducing the length of the said vehicle to standard proportions for transport.

What I claim is:—

1. A railroad gun carriage provided with trucks for running on a railroad track, a gun mounted on said carriage to be fired therefrom, and a plurality of track-engaging members movably mounted on said carriage and movable into position to transmit forces of the gun recoil to a track by sliding contact therewith and to relieve the truck wheels and axles of said forces.

2. A railroad gun carriage provided with trucks for running on a railroad track, a gun mounted on said carriage to be fired therefrom, slideways extending longitudinally of the railroad track, and a plurality of members movably mounted on said carriage and movable into engagement with said slideways to transmit forces of the gun recoil to said slideways by sliding contact therewith and to relieve the truck wheels and axles of said forces.

3. A railroad gun carriage provided with trucks for running on a railroad track, a gun mounted on said carriage to be fired therefrom, a track-engaging member movably mounted on said carriage, and means for moving said member into and out of engagement with a track to transmit forces of the gun recoil to said track by sliding contact therewith and to relieve the truck wheels and axles of said forces.

4. A railroad gun carriage provided with trucks for running on a railroad track, a gun

mounted on said carriage to be fired therefrom, jacks on opposite sides of said carriage, and a transverse movable cross piece connecting opposed jacks and movable thereby into and out of engagement with a track to transmit forces of the gun recoil to said track by sliding contact therewith and to relieve the truck wheels and axles of said forces.

5. A railroad gun carriage provided with trucks for running on a railroad track, a gun mounted on said carriage to be fired therefrom, jacks on opposite sides of said carriage, a movable cross piece connecting opposed jacks and movable thereby into and out of engagement with a track to transmit forces of the gun recoil to said track by sliding contact therewith and to relieve the truck wheels and axles of said forces, and spherical joints between each said jack and its cross piece.

6. A railroad gun carriage provided with trucks for running on a railroad track, a gun mounted on said carriage to be fired therefrom, movable track-engaging members mounted on said carriage and extending transversely of the track, means for moving said members into and out of engagement with a track to transmit forces of the gun recoil to said track by sliding contact therewith and to relieve the truck wheels and axles of said forces, and guides on the carriage within which said members move and through which movement of said carriage is transmitted to said members.

7. A railroad gun carriage provided with trucks for running on a railroad track, a gun mounted on said carriage to be fired therefrom, movable track-engaging members mounted on said carriage, means for moving said members into and out of engagement with a track to transmit forces of the gun recoil to said track by sliding contact therewith and to relieve the truck wheels and axles of said forces, and means on one of said trucks for running the carriage into firing position.

8. A railroad gun carriage provided with trucks for running on a railroad track, a gun mounted on said carriage to be fired therefrom, movable track-engaging members mounted on said carriage, means for moving said members into and out of engagement with a track to transmit forces of the gun recoil to said track by sliding contact therewith and to relieve the truck wheels and axles of said forces, motive means on one of said trucks, and tractive means operated thereby and movable into and out of track-engagement for running the carriage into firing position.

9. A railroad gun carriage provided with trucks for running on a railroad track, a gun mounted on said carriage to be fired therefrom, fore and aft supporting struc-

- tures interposed between said carriage and said trucks, movable track-engaging members mounted on said carriage and said supporting structures, and means for moving said members into and out of engagement with a track to transmit forces of the gun recoil to said track by sliding contact therewith and to relieve the truck wheels and axles of said forces.
- 10 10. In a railroad gun carriage for a large caliber gun firing from the railroad track, the combination with the gun carriage proper, of a plurality of trucks for supporting the same, of which one is constructed as a tractor for bringing the gun carriage into the trained position of the gun, and for running out the gun again into firing position after recoil, a combined recoil and propelling device carried by said tractor, and means for pressing said device against the railroad track for the purpose of distributing strains thereto during the firing of the gun and afterward for assisting in starting the carriage on its tracks.
- In testimony whereof I have signed this specification.

EUGÈNE SCHNEIDER.