E. SCHNEIDER.

COMBINED FIELD GUN AND SELF PROPELLING VEHICLE.

APPLICATION FILED JULY 21, 1920.

1,379,128.

Patented May 24, 1921.

3 SHEETS—SHEET 1.

Fig. 1.

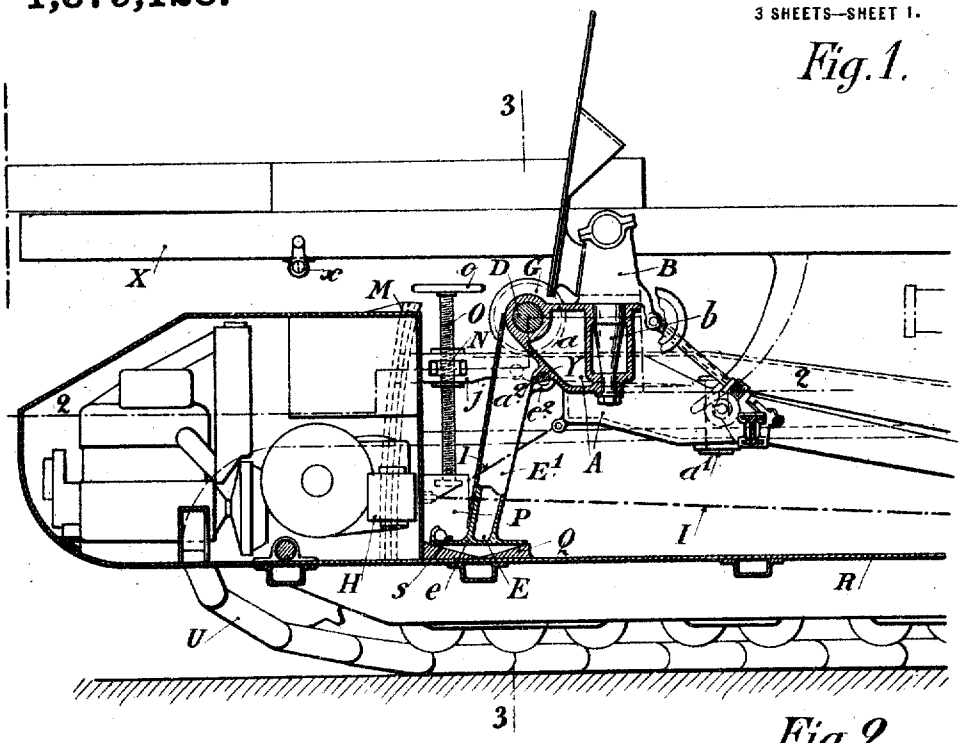
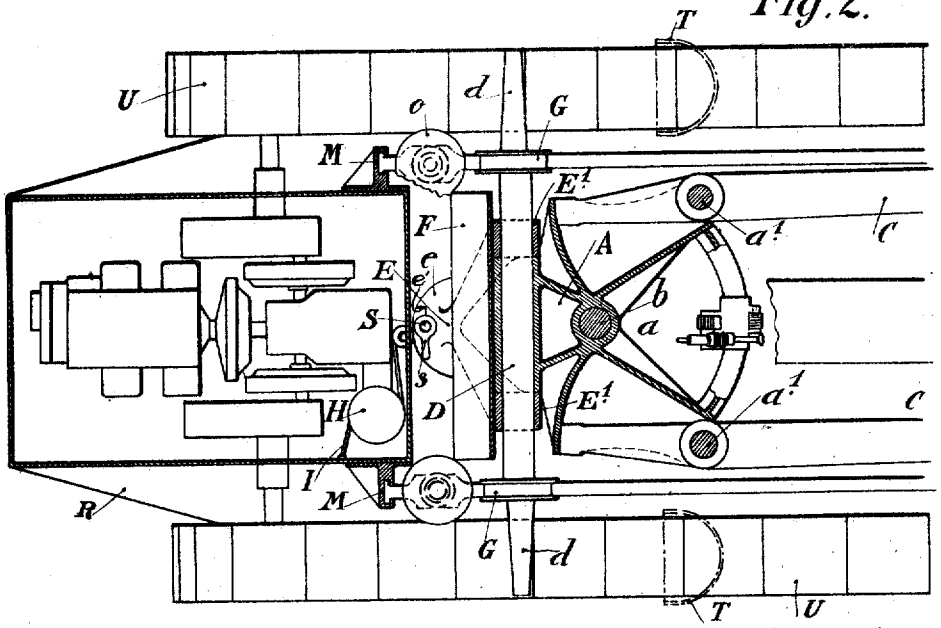


Fig. 2.



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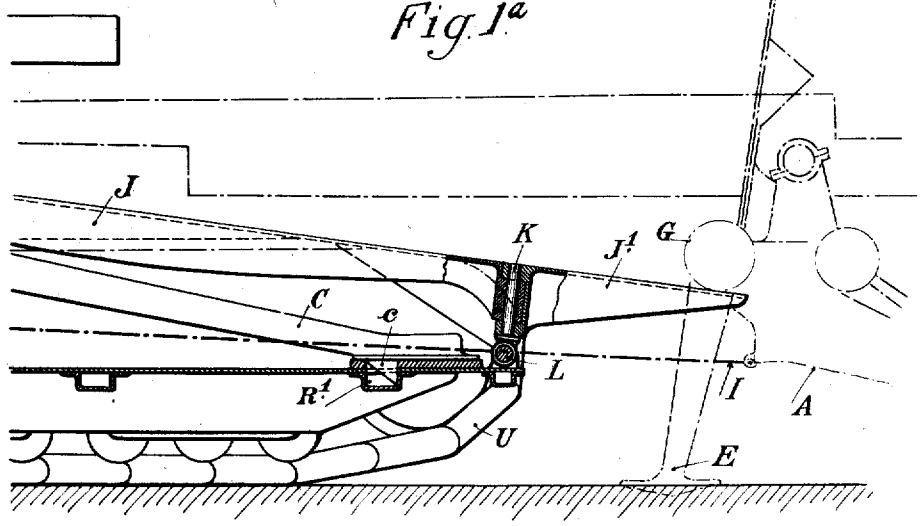
3 SHEETS—SHEET 2.

Fig. 1a



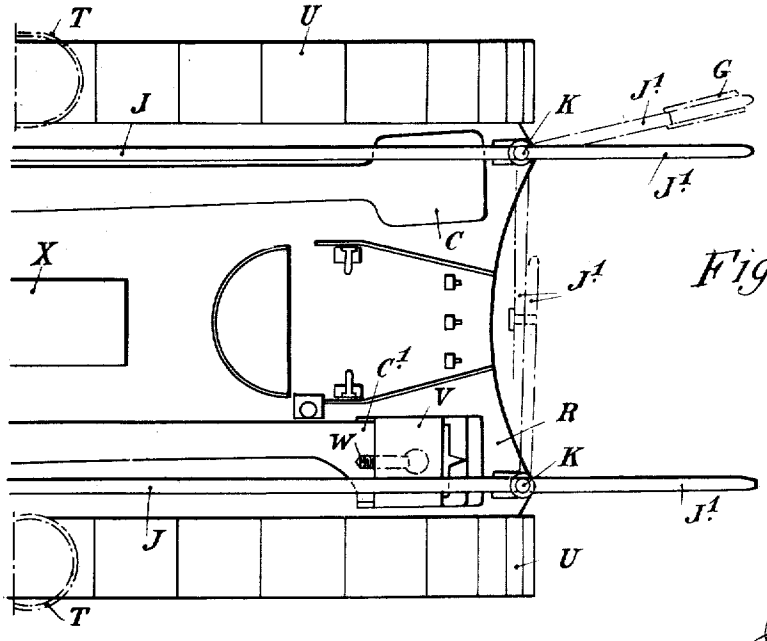


Fig. 2a

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3 SHEETS—SHEET 3.

Fig. 3.

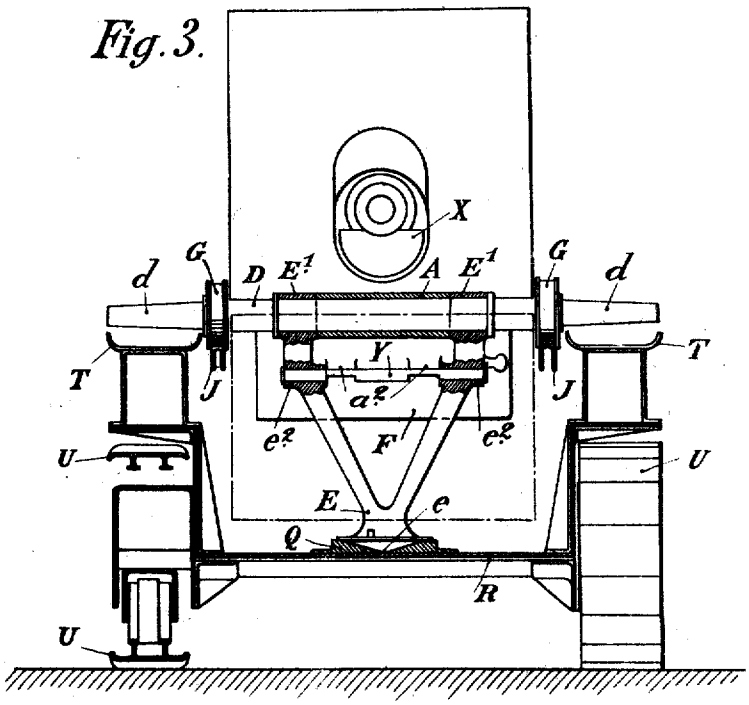


Fig. 4.

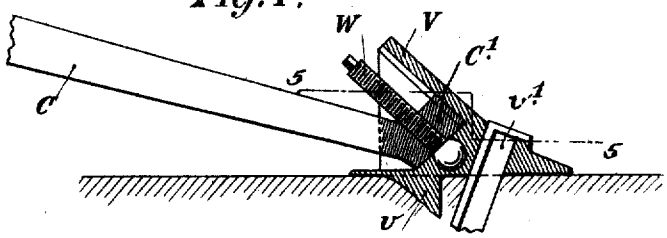
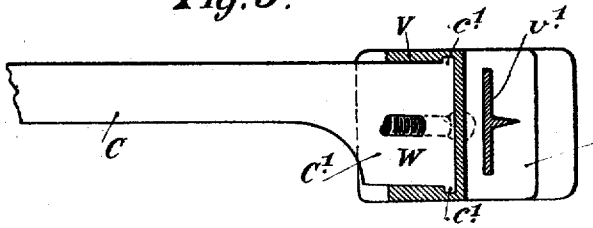


Fig. 5.



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UNITED STATES PATENT OFFICE.

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

COMBINED FIELD-GUN AND SELF-PROPELLING VEHICLE.

1,379,128. Specification of Letters Patent. Patented May 24, 1921.

Application filed July 21, 1920. Serial No. 397,952.

To all whom it may concern:

Be it known that I, EUGÈNE SCHNEIDER, a citizen of the Republic of France, residing in Paris, France, have invented new and useful Improvements in Combined Field-Guns and Self-Propelling Vehicles, which invention is fully set forth in the following specification.

This invention has for its object to provide a combined field gun and self-propelling transport vehicle which is preferably of the endless chain type. The actual vehicle is combined in such a manner with the gun that the latter is able to be easily and rapidly placed upon the former for transport, and be mounted suitably thereon to enable firing to take place while the gun is on the vehicle; the arrangement being such that the same gun is also capable of being brought into battery position on the ground irrespectively of the conformation of the latter.

The gun and its pedestal are mounted on a tripod comprising a saddle to which the three supporting legs are articulated, and which serves as a footstep bearing for the pivot of the gun pedestal. The characteristic feature of the gun consists in this, that the said saddle forms a bearing for an axle carrying rollers by means of which latter the whole combination of gun, pedestal and tripod can be rolled on an articulated track arranged on the endless chain transport vehicle. This track is combined with screw-jacks taking their bearing upon the chassis which is further so constructed that the lower ends of the tripod can be attached to it.

A practical constructional form of the invention is illustrated by way of example in the accompanying drawings in which:—

Complementary Figures 1 and 1^a are a vertical longitudinal section along the axis of the transport vehicle showing in full lines the gun mounted on the said vehicle. The same figures indicate in dot and dash lines the gun in position for firing from the ground, the transport vehicle then occupying relatively to the gun the necessary position to enable the gun to be brought by the operation of a windlass into the position shown in full lines.

Complementary Figs. 2 and 2^a are a corresponding plan partly in horizontal section on the line 2—2 of Fig. 1.

Fig. 3 is a vertical cross section on the line 3—3 of Fig. 1.

Fig. 4 is a vertical longitudinal section, and

Fig. 5 is a horizontal section on the line 5—5 of Fig. 4, of the details of an extension device forming a spade for the foot of one of the two rear or trail legs of the tripod.

As shown, the gun comprises a saddle A forming a footstep *a* for the pivot pin *b* of a pedestal B. To this saddle A there are jointed by means of vertical axle pins a^1 the two rear trail legs C of the tripod. The saddle A constitutes, besides, a bearing for an axle D on which are pivoted the prongs E^1 of the forked front leg E of the tripod to which is fixed a shield F. The axle D which may, if desired, terminate at its ends in journals *d* for receiving wheels, carries two rollers G for lifting the gun by means of rails jointed to the chassis of the vehicle. These rollers, rotatable on the axle D, roll on the same rails when the gun is shifted for the purpose of placing it on to the chassis of the vehicle, for instance by a pull of a capstan H acting upon the cable I attached to the saddle A.

The transport vehicle which may be a self-propelling endless-chain vehicle of any known type, is characterized by two rails, each of which is composed of two sections J, J^1 connected together by a hinge whose axle K, at right angles to the rail, is jointed to the chassis of the vehicle by means of a horizontal axle pin L. The sections J^1 can, by rotation around the axle K, be shifted laterally relatively to the sections J, whereas the rails J, J^1 as a whole can receive varying inclination by rotation around the axle pin L. The front ends of the sections J are, in view of the variations in the inclination, guided in circular guides M having their centers situated on the axis of the axle pin L. In the vicinity of the front end of each rail section J there is provided a block *j* in which is fixed a nut N constituting one of the elements of a jack, the screw O of which, provided with a hand wheel *o* rotates at its lower end in a footstep bearing P carried by the chassis of the vehicle.

The gun being assumed to be resting on the ground by means of its tripod in the position indicated in dot and dash lines in Fig. 1^a, then if it be desired to lift it on to the vehicle for the purpose of transport, the transport vehicle is brought into a position such that the rail sections J^1 will come ap-

proximately under the rollers G. The position of the said sections J^1 is adjusted by rotating them around the axle pins K so as to bring them vertically in line on a level with the said rollers, and the cable I is attached to the saddle A. Then on operating the screwjacks O—N, the front ends of the rails are lowered, thereby raising their rear ends by rotation around the axle pins L. The rollers G are thus raised. When this raising movement is sufficient to lift suitably the lower end or foot of the leg E out of contact with the ground, the said leg is lifted by hand so as to avoid that during the hauling of the gun, it shall come into contact with the parts (driver's seat, steering lever, pedals, etc.) situated at the rear of the chassis.

By actuating the capstan H, the rollers G are thus brought on to the rail sections J in the longitudinal extension of which the sections J^1 place themselves automatically. Finally the gun will occupy the position shown in full lines in Figs. 1 and 2.

The gun is held in place on the chassis by the engagement of the ends or feet of the legs of the tripod in corresponding lodgments. The shoe *e* terminating the leg E, engages in a base plate Q formed on or attached to the chassis R of the transport vehicle. This shoe *e* may be notched in front at e^1 so as to engage the shank of a bolt S. A nut *s* working on the same shank thus allows of locking the said shoe in position. The feet of the rear trail legs C engage by means of their spades *c* in lodgments that may be constituted by a channel strut R^1 of the chassis R.

The transport vehicle may comprise, for the gun crew, seats T formed on brackets projecting over the endless chain U.

The gun can be fired while fixed on the chassis of the vehicle serving as a platform. It can also be placed in battery position on any ground, the vehicle serving during that time for bringing up ammunition.

In order to facilitate the placing of the gun into battery position on rough ground, the foot of one of the rear trail legs of the tripod may be provided with an anchoring device serving at the same time as an extension member.

As shown in detail in Figs. 4 and 5, this trail leg is provided at its rear end with a heel C^1 projecting above its upper face and serving as a guide for a shoe V furnished with a fixed spade *v* having a lodgment for the engagement of a sliding spade or stake v^1. The heel C^1 forms a nut for a screw W engaged with its spherical rear end in a spherical joint socket in the shoe V. By actuating the screw W in the requisite direction, the shoe V is caused to slide along the guide ribs c^1 of the heel C^1, and the leg is lengthened by the desired amount in order to render possible the anchoring of the foot of said leg upon the ground after having first anchored the foot of the other leg which is not provided with an extension member.

For traveling, the sections J^1 of the rails can be folded one upon the other in the position indicated in dot and dash lines in Fig. 2, and they can be locked in that position by wedging or any other suitable means.

In case it be desired to transport the gun by means of wheels mounted on the journals *d*, the front leg E may be raised and hooked on to the cradle X by means of a gapped axle working in a block *x* carried by the said cradle. In the firing position the leg E is locked to the saddle A by means of a gapped axle pin Y working in a block formed partly by a projection a^2 of the saddle A and partly by projections e^2 of the fork prongs E^1.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. The combination of a transport vehicle, a saddle carrying a gun, means detachably supporting the saddle on the chassis of the vehicle, rails extending longitudinally of the chassis and movably mounted thereon, and means for raising the forward ends of the rails to engage the saddle to lift the same from the chassis, said rails forming ways for the movement thereon of the lifted saddle and its load to the rear of the vehicle.

2. The combination of a transport vehicle, a saddle carrying a gun, means detachably supporting the saddle on the chassis of the vehicle, rails extending longitudinally of the chassis and pivotally mounted thereon, and means for angularly displacing the rails relatively to the chassis to lift the saddle from the chassis, said rails forming ways for the movement thereon of the lifted saddle and its load to the rear of the vehicle.

3. The combination of a transport vehicle, a saddle carrying a gun, means for detachably supporting the saddle either on the chassis or on the ground, rails extending longitudinally of the chassis and pivotally mounted thereon, and means for angularly displacing the rails relatively to the chassis to lift the saddle either from the chassis or from the ground, said rails forming ways for the movement in either direction thereon of the lifted saddle and its load.

4. The combination of a transport vehicle, a saddle carrying a gun, means for detachably supporting the saddle either on the chassis or on the ground, rails extending longitudinally of the chassis and pivotally mounted thereon, displaceable extensions on the outer ends of the rails to engage the saddle when supported on the

ground, and means for angularly displacing the rails relatively to the chassis to lift the saddle either from the chassis or from the ground, said rails and their extensions forming ways for the movement in either direction thereon of the lifted saddle and its load.

5. The combination of a transport vehicle, a saddle carrying a gun, means detachably supporting the saddle on the chassis of the vehicle, an element fixed to the saddle and projecting at its ends from the opposite sides of the saddle, rails pivoted to the rear end of the chassis of the vehicle and extending forward beneath the projecting ends of said element, and means for raising the front ends of the rails to engage the ends of said element to lift the saddle to detach the latter from the chassis of the vehicle, said rails forming ways for the movement thereon of the lifted saddle and its load to the rear of the vehicle.

6. The combination of a transport vehicle, a saddle carrying a gun, means detachably supporting the saddle on the chassis of the vehicle, an axle fixed to the saddle and projecting at its ends from opposite sides of the saddle, rollers journaled on the ends of the axle, rails pivoted to the rear end of the chassis of the vehicle and extending forward beneath the rollers, and means for raising the front ends of the rails to engage the rollers and to lift the saddle to detach the same from the chassis of the vehicle, said rails forming ways for the travel of the rollers to carry the lifted saddle and its load to the rear of the vehicle.

7. The combination of a transport vehicle, a saddle carrying a gun, means detachably supporting the saddle on the chassis of the vehicle, an axle fixed to the saddle and projecting at its ends from opposite sides of the saddle, rollers journaled on the ends of the axle, rails pivoted to the rear end of the chassis of the vehicle and extending forward beneath the rollers, guides on the front end of the chassis of the vehicle to guide the front ends of the rails in their movements, and screw-jacks for raising the front ends of the rails to engage the rollers and to lift the saddle to detach the same from the chassis of the vehicle, said rails forming ways for the travel of the rollers to carry the lifted saddle and its load to the rear of the vehicle.

8. The combination of a transport vehicle, a saddle carrying a gun, means detachably supporting the saddle on the chassis of the vehicle, an element fixed to the saddle and projecting at its ends from the opposite sides of the saddle, rails pivoted to the rear end of the chassis of the vehicle and extending forward beneath the projecting ends of said element, guides on the front end of the chassis of the vehicle to guide the front ends of the rails in their movements, and means for raising the front ends of the rails to engage the ends of said element to lift the saddle to detach the same from the chassis of the vehicle, said rails forming ways for the movement thereon of the lifted saddle and its load to the rear of the vehicle.

9. The combination of a transport vehicle, a saddle carrying a gun, means detachably supporting the saddle on the chassis of the vehicle, an element fixed to the saddle and projecting at its ends from opposite sides of the saddle, main rail-sections pivoted to the rear end of the chassis of the vehicle and extending forward beneath the projecting ends of said element, rail sections hinged to the rear ends of the main rail-sections to form extensions thereof adapted to be folded back out of the way, and means for raising the front ends of the main rail-sections to engage the ends of said element to lift the saddle to detach the latter from the chassis of the vehicle, said main rail-sections and the sections hinged thereto forming ways for the movement thereon of the lifted saddle and its load to the rear of the vehicle.

10. The combination of a transport vehicle, a saddle carrying a gun, legs connected with the saddle and provided with feet detachably engaging the chassis of the vehicle, the combined saddle and legs forming the support for the gun on the vehicle during firing and transport, an element fixed to the saddle and projecting at its ends from the opposite sides of the saddle, rails pivoted to the rear end of the chassis of the vehicle and extending forward beneath the projecting ends of said element, and means for raising the front ends of the rails to engage said element to lift the saddle and legs to disengage the feet of the latter from the chassis of the vehicle, said rails forming ways for the movement thereon of the lifted saddle and its load to the rear of the vehicle.

11. The combination of a transport vehicle, a saddle carrying a gun, a leg pivoted on an axle extending through the forward part of the saddle to permit vertical angular adjustment of said leg, said axle extending at its ends beyond the sides of the saddle, trail legs connected with the rear part of the saddle, said legs having feet detachably engaging the chassis of the vehicle, the combined saddle and legs attached thereto forming the support for the gun on the vehicle during firing and transport, rails pivoted to the rear end of the chassis of the vehicle and extending forward beneath the projecting ends of the axle, and means for raising the front ends of the rails to engage the axle to lift the saddle and legs to disengage the feet of the latter from

the chassis of the vehicle, said rails forming ways for the movement of the lifted saddle and its load to the rear of the vehicle.

12. The combination of a gun, a support for the gun comprising a saddle carrying the gun and legs articulated to the saddle having feet to engage a holding surface, a transport vehicle having a platform provided with steps adapted to receive the feet of the legs, rails pivoted to the rear end of the chassis of the vehicle and extending to the forward part of the vehicle, means for raising and lowering the front ends of the rails, said rails having rear extensions extending beyond their pivoted points to engage the saddle when the gun is in battery position on the ground so that the lowering of the front ends of the rails will lift the saddle and its load, and means for moving the saddle forward on the rails so that subsequent lowering of the front ends of the rails and the adjustment of the articulated legs will engage the feet of said legs with the steps of the vehicle platform.

13. The combination of a gun, a support for the gun comprising a saddle carrying the gun, a leg pivoted to the forward part of the saddle, trail legs pivoted to the rear part of the saddle with one of said trail legs provided with an extension shoe, a transport vehicle having a platform provided with steps to receive the feet of said legs, rails pivoted to the rear end of the chassis of the vehicle, means for raising and lowering the front ends of the rails, said rails having rear extensions beyond the pivotal points of the rails to engage the saddle when the gun is in battery position on the ground so that the lowering of the front ends of the rails will lift the saddle and its load, and means for moving the saddle forward on the rails to position the legs adjusted through their articulations so that the feet of said legs will engage the steps of the platform on subsequent lowering of the front ends of the rails.

In testimony whereof I have signed this specification.

EUGÈNE SCHNEIDER.

Witnesses:

ANDRÉ MOSTICKER,

CLEMENTS EDWARDS.