

No. 707,640.

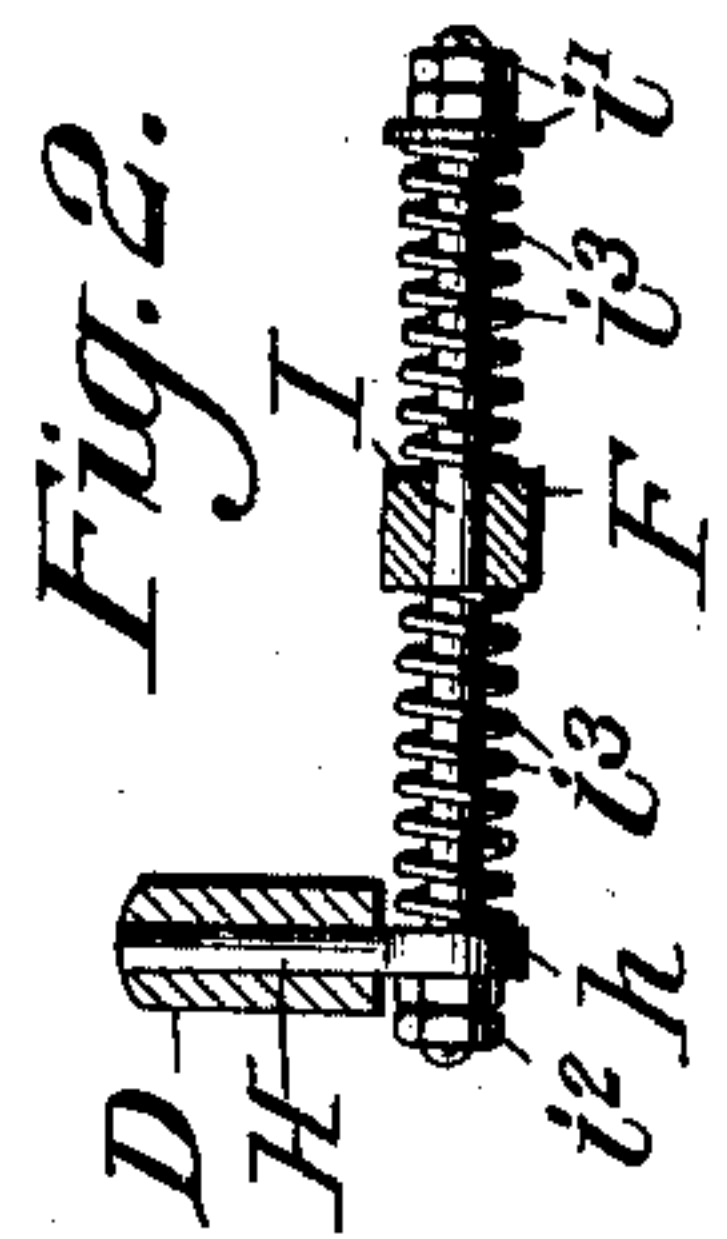
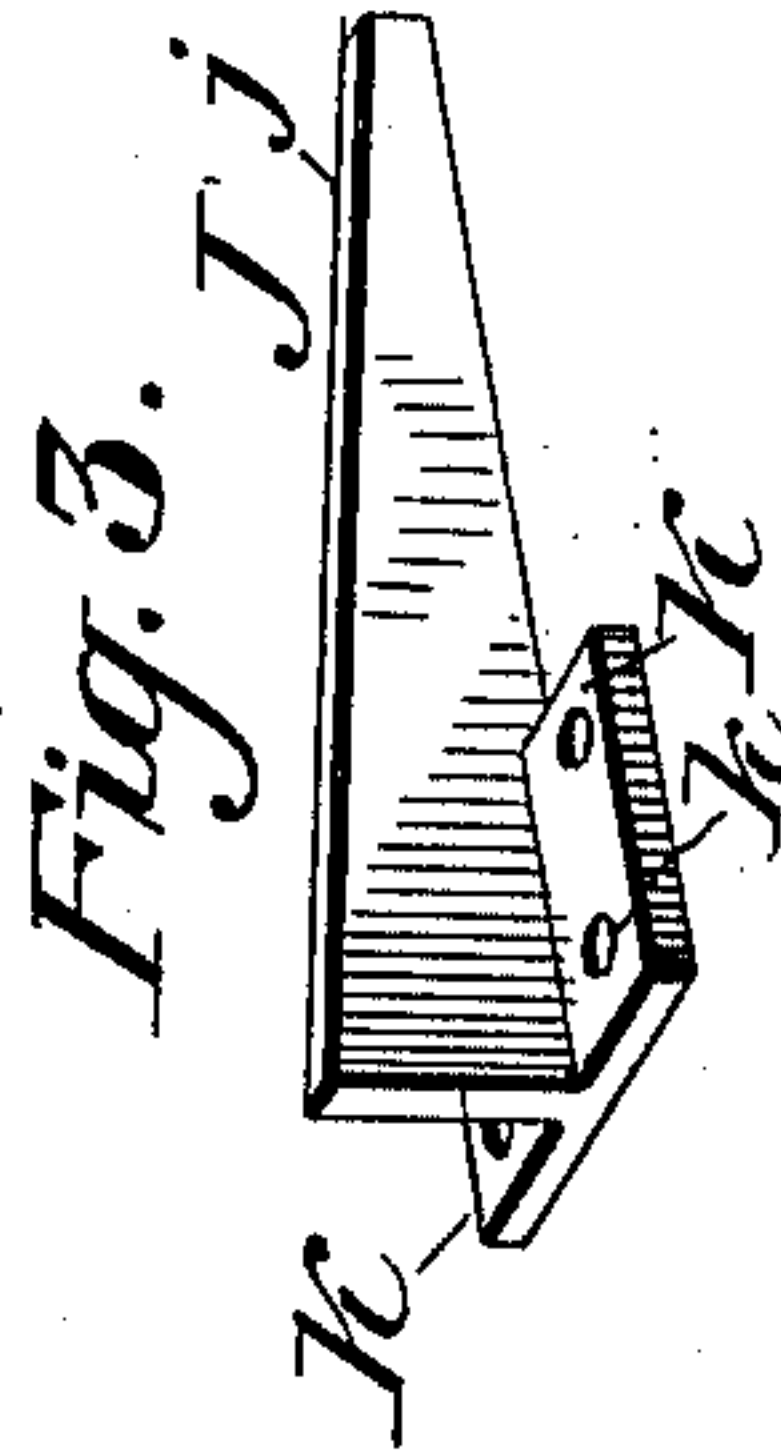
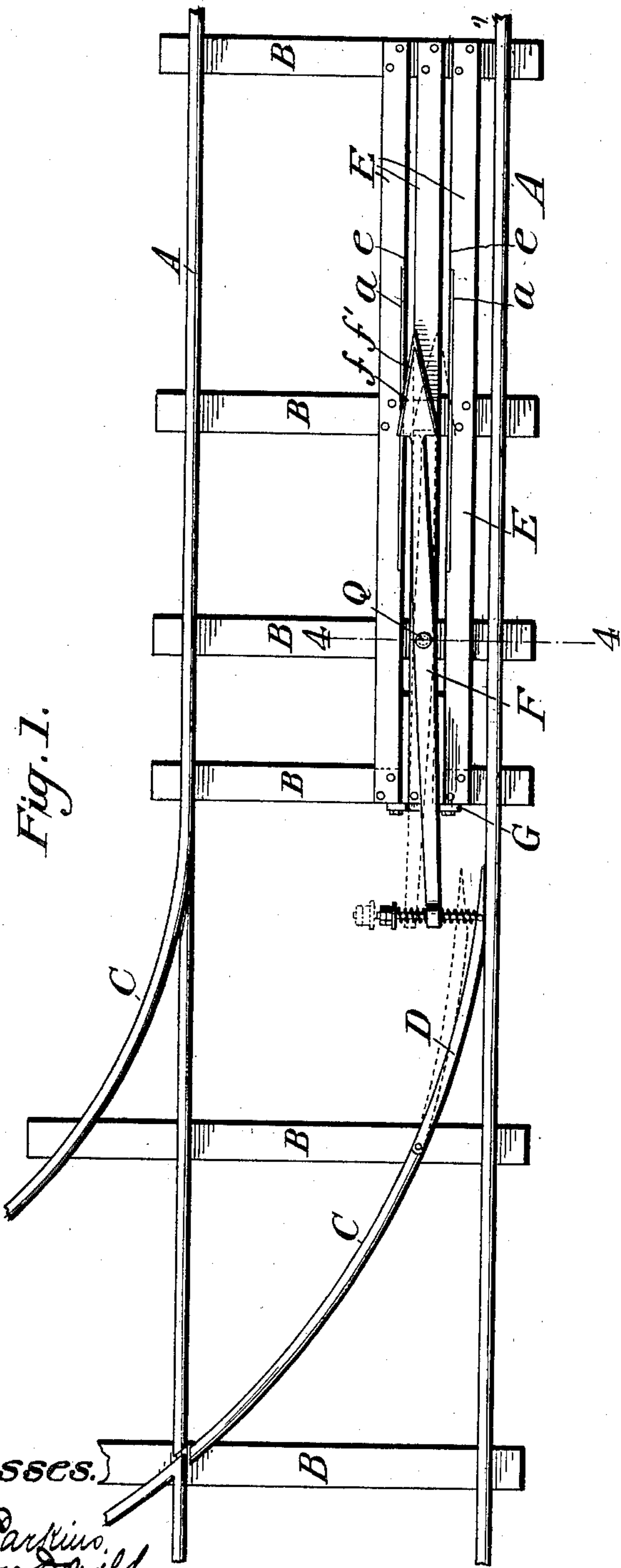
Patented Aug. 26, 1902.

A. B. ROBINSON.
TRAMWAY SWITCH.

(Application filed Oct. 1, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
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Inventor:
A. B. Robinson.
By his Attorneys,

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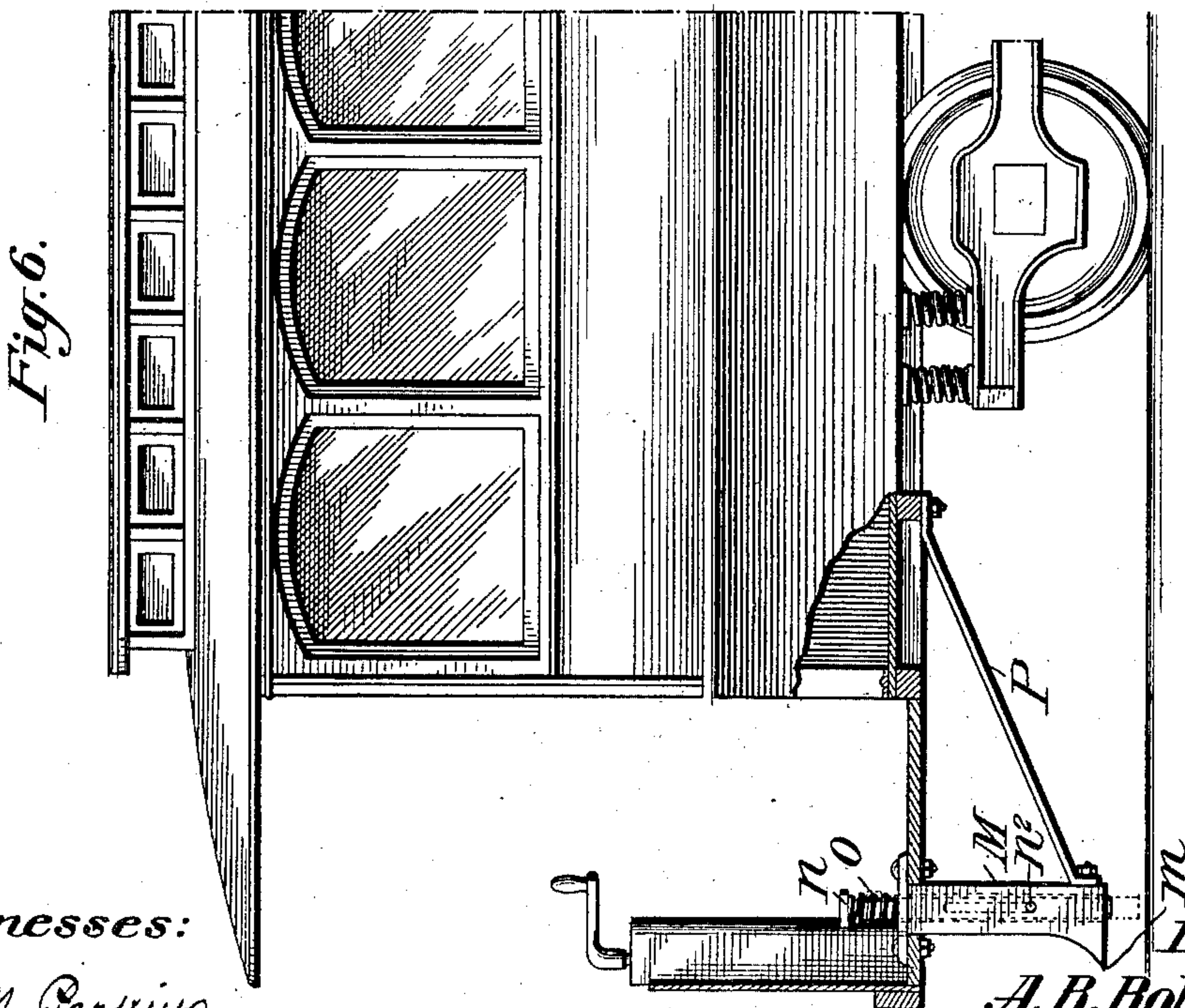
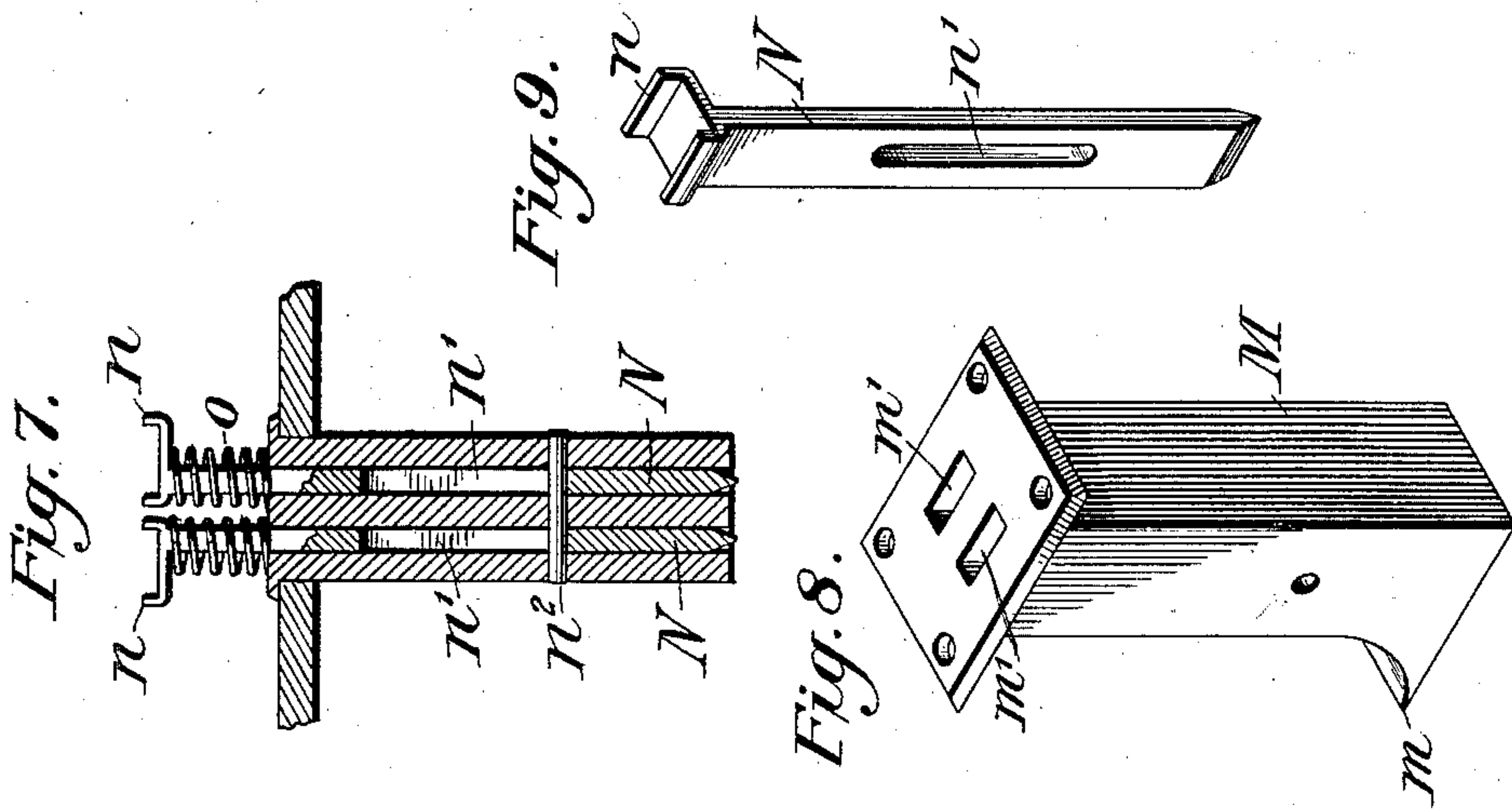
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

ARTHUR B. ROBINSON, OF DICKINSON, NORTH DAKOTA.

TRAMWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 707,640, dated August 26, 1902.

Application filed October 1, 1901. Serial No. 77,250. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR B. ROBINSON, a citizen of the United States, residing at Dickinson, in the county of Stark and State of North Dakota, have invented certain new and useful Improvements in Tramway-Switches, of which the following is a specification.

My invention relates to that class of tramway-switches in which the switch is operated by mechanism actuated by devices carried by the car and under the control of the motorman.

The object of my invention is to provide simple and reliable means for operating the switch, so constructed as to avoid sudden or undue strain on the switch or on the devices carried by the car which actuate the switch-operating mechanism and to provide means for notifying the motorman to release the actuating devices after the switch has been shifted.

In carrying out my invention I provide a pivoted section of rail at the switch or crossing and connect its outer end with a pivoted lever having at one end a point or head adapted to be engaged by devices carried by the car and by means of which it may be turned in one direction or the other. A yielding connection is made between the lever and the pivoted rail, whereby undue strain on the mechanism is avoided. On the car I provide two vertically-moving rods guided in a casing and normally held elevated by springs. By depressing one or the other of said rods the switch may be properly operated. In order to notify the motorman that the switch has been shifted and to remind him to release the actuating-rod, I provide an inclined plate, against which the rod strikes and by which it is caused to move upwardly, thus notifying the motorman to remove his foot from the rod.

The details of the construction of the mechanism will be herein fully explained.

In the accompanying drawings, Figure 1 is a plan view of a tramway with my improvements applied. Figs. 2 to 5, inclusive, are on an enlarged scale. Fig. 2 is a detailed view in section of the devices for connecting the pivoted lever with the end of the pivoted rail-section. Fig. 3 is a perspective view of

the plate used to notify the motorman that the switch has been operated. Fig. 4 shows a transverse section on the line 4 4 of Fig. 1, but on an enlarged scale. Fig. 5 is a perspective view, on an enlarged scale, of the switch-operating lever. Fig. 6 is a view of one end of a street-car with my improvements applied. Figs. 7, 8, and 9 are on an enlarged scale. Fig. 7 shows a vertical central section through the device carried by the car for actuating the switch-operating lever. Fig. 8 is a perspective view of the casing for the vertically-moving rods. Fig. 9 is a perspective view of one of said rods.

The main rails A are secured to cross-ties B in the usual manner, and the branch rails C are similarly supported. One of the branch rails has a pivoted section D. On the cross-ties in advance of the branch rails are secured three rails or plates E, having two slots *e* between them. A switch-operating lever F is pivoted to the middle rail E, and at one end it is connected with the outer end of the pivoted rail-section D, while at its opposite end it is provided with a head *f*, preferably spear-shaped or having inclined edges. These edges are shown as provided with hard metal wearing-strips *f'*. A guide G is secured to one of the cross-ties just in advance of the pivoted rail-section D and is for the purpose of guiding or limiting the movement of the pivoted lever F. Wearing-plates *a* are secured to the rails E at that portion of the slots *e* adjacent to the spear-head *f*. The connection between the pivoted lever F and the front end of the rail-section D is made by yielding devices which, while stiff enough to properly shift the rail-section, are sufficiently yielding to prevent any undue strain or sudden jar to the mechanism. The connection is preferably made as follows: An eyebolt H is secured to the rail-section D so as to depend therefrom, as shown in Fig. 2. A rod I is passed through the eye *h* and also through the end of the lever F and extends to the same extent from opposite sides of said lever. The opposite ends of the rod I are screw-threaded. One end has a washer *i* and lock-nuts *i'*, while the other has lock-nuts *i''*. Springs *i'''* are interposed between the lever F, the washer *i'*, and the eyebolt *h*. When the front end of the lever is shifted in either

direction, the rail-section D will be correspondingly shifted; but should the lever or rail-section be subjected to sudden strain the springs \mathfrak{z}^3 will yield momentarily to relieve the shock.

Near the rear end of the guide-slots e are arranged plates J, having inclined edges j . These plates preferably have laterally-projecting lugs K, provided with bolt-holes k , which adapts them to be readily secured to the rail-bedding or the cross-ties B. The inclined surfaces j are so arranged that the rods carried by the car for operating the lever F will first strike the lower ends of the inclined surfaces and will then ride up these surfaces in a manner hereinafter described.

Any suitable devices may be employed for pivotally connecting the lever F with the central guide-rail E. I preferably employ the devices Q. (Shown in Fig. 4.)

To the front end of the car is secured a casing M, having a plow-shaped lower end m , adapted to engage with and remove any obstructions on the track. This casing is provided with vertical guides m' for vertically moving rods N. These rods at their upper ends have heads or foot-sockets n , and between these heads and the top of the casing M are interposed springs O, which tend to hold the rods elevated, so that their lower ends will not project below the lower end of the casing M, but which are sufficiently yielding to allow the rods to be depressed by the motorman. Preferably the rods are slotted at n' , and through these slots extends a pin n^2 . By this means the rods are guided; but other means for properly guiding the rods might be used. The casing M is preferably braced by a rod P; but this is not essential. When one of the rods N is depressed, it will engage with the head f of the operating-lever F and will cause the pivoted rail-section D to be shifted, the depressed end of the rod N moving in one of the slots e . As soon as the depressed rod is passed by the end of the lever F and has moved a short distance in the slot e it will strike the inclined surface j of one of the plates J. This will cause the depressed rod

to rise. This will be felt by the motorman, who will then be notified to remove his foot.

The mechanism which I employ is simple in construction and reliable in operation and can be applied at small expense.

By the use of my improvements a special attendant, now often employed, is done away with, and the progress of the car is not delayed to such an extent as is now often the case where the motorman is compelled to operate the switch by hand.

I claim as my invention—

1. The combination of the main rails, branch rails having a pivoted rail-section, straight parallel rails or plates having parallel guide-slots between them, the operating-lever having an enlarged spear-shaped head at one end arranged between the guide-slots; yielding connections between the opposite ends of said lever and the pivoted rail-section, and plates having upwardly-inclined surfaces placed between the head of the lever and the end thereof which is connected with the pivoted rail-section.

2. The combination of the main rails, the branch rails, one of which has a pivoted rail-section, a pivoted operating-lever arranged between the main rails, in position to be operated from the car, a spear-shaped head on the operating-lever, a yielding connection between the operating-lever and the pivoted rail-section, a casing attached to the car, and having a plow-shaped lower end, vertically-moving rods N, arranged in guides m' of the casing, footpieces on the upper ends of the rods, springs interposed between the footpieces and the top of the casing, a pin extending through slots in the vertically-moving rods, and a brace P attached to the lower end of the casing and the car-body, for the purpose specified.

In testimony whereof I have hereunto subscribed my name.

ARTHUR B. ROBINSON.

Witnesses:

A. I. CAMPBELL,
J. H. FIELD.