(No Model.) 2 Sheets—Sheet 1.

W. E. MURRAY & D. W. & G. W. HATFIELD.

STREET RAILWAY SWITCH.

No. 522,914. Patented July 10, 1894.

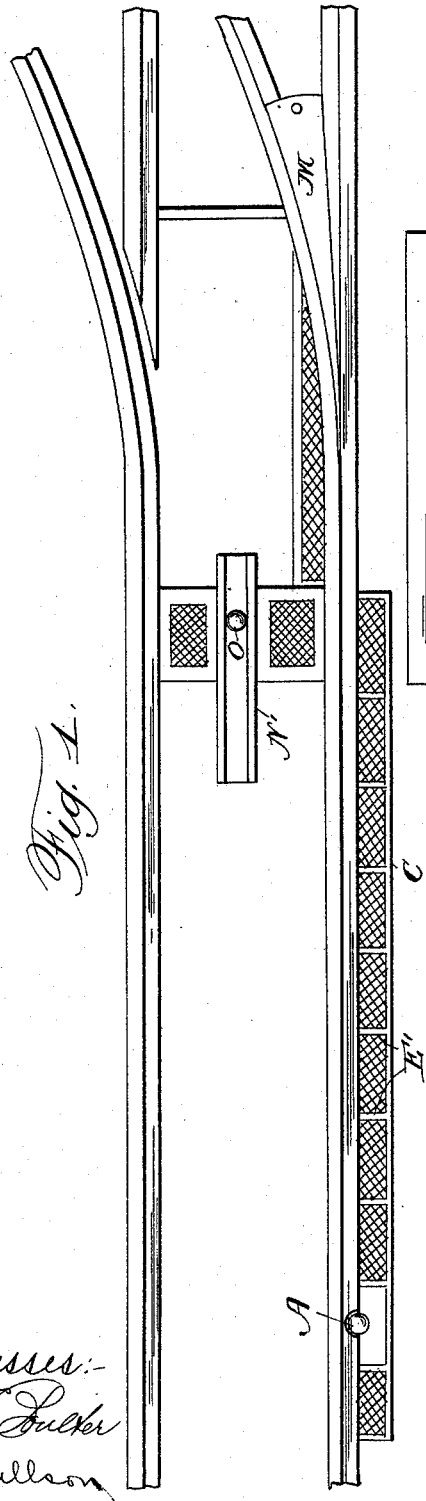

Fig. 1.

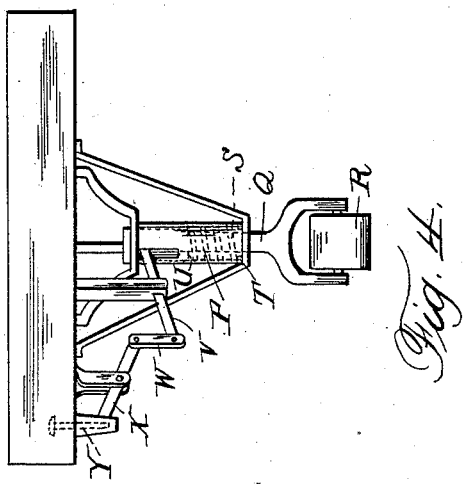

Fig. 4.

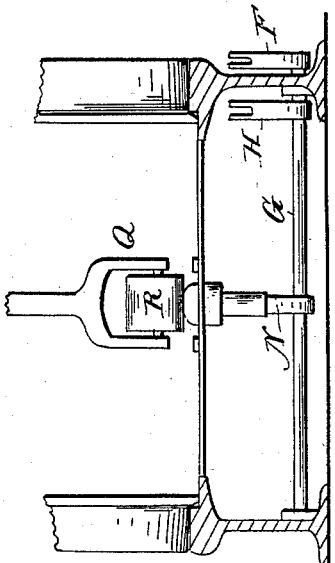

Fig. 3.

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(No Model.) 2 Sheets—Sheet 2.

W. E. MURRAY & D. W. & G. W. HATFIELD.

STREET RAILWAY SWITCH.

No. 522,914. Patented July 10, 1894.

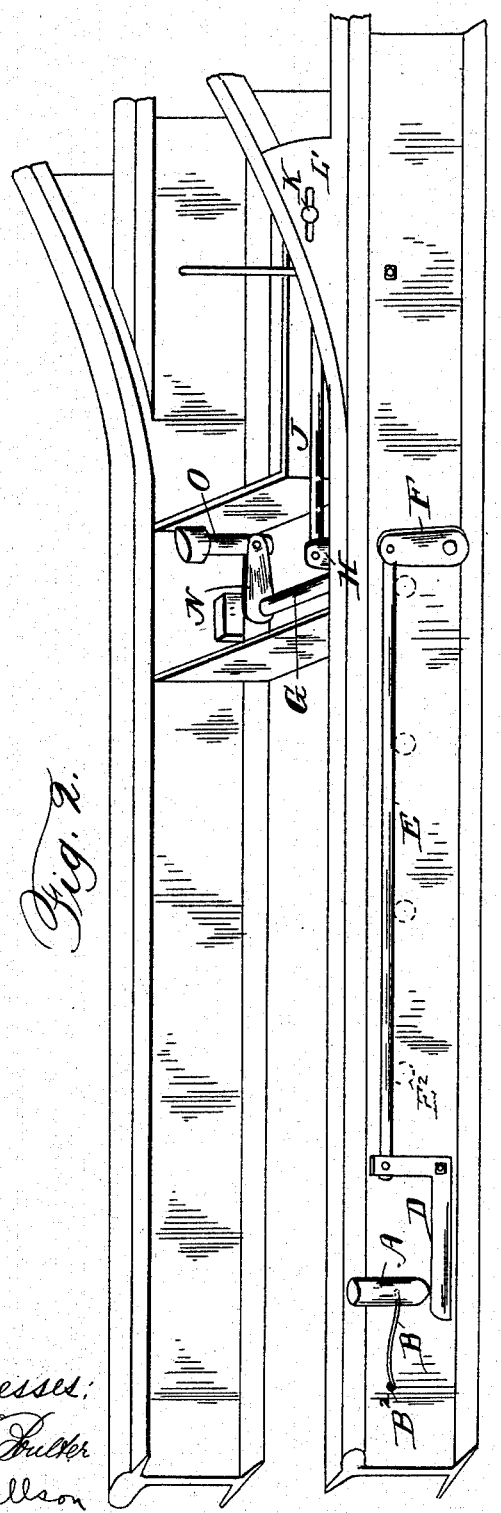

Fig. 2.

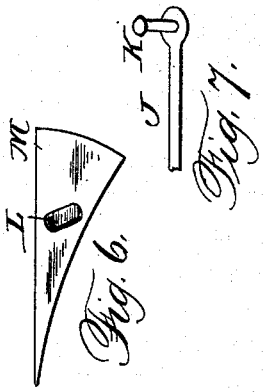

Fig. 6.

Fig. 7.

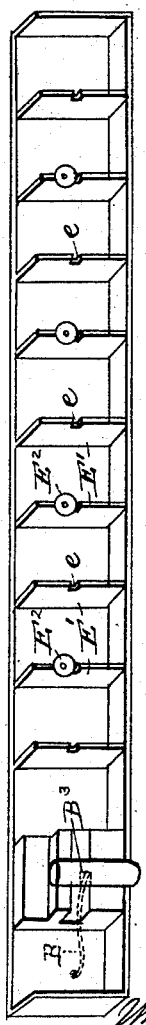

Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM E. MURRAY, DANIEL W. HATFIELD, AND GEORGE W. HATFIELD, OF HARRISBURG, PENNSYLVANIA.

STREET-RAILWAY SWITCH.

SPECIFICATION forming part of Letters Patent No. 522,914, dated July 10, 1894.

Application filed March 30, 1894. Serial No. 505,700. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM E. MURRAY, DANIEL W. HATFIELD, and GEORGE W. HATFIELD, citizens of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Street-Railway Switches; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Our invention has relation to automatic switches for street railway lines and it has for its object to provide devices whereby the switch may be automatically operated by one of the car wheels to cause said switch to be turned or opened to permit the car to continue along the main track and said devices being also adapted to be operated by the foot of the motorman or other person to cause the switch to be closed to permit the car to pass onto the branch line of tracks from the main track when this may be desired.

Other objects of our invention will be apparent from the following description and our invention consists in the construction, arrangement and combination of parts hereinafter fully described, illustrated in the drawings and pointed out in the appended claims.

In the drawings: Figure 1 is a plan view of portions of a main and a branch line of tracks showing our invention in connection therewith. Fig. 2 is a perspective view with parts removed to show the arrangement of the switch devices. Fig. 3 is a sectional elevation of a portion of said devices; Fig. 4 a side view of other parts of said devices; Fig. 5 a perspective view of the inclosing box showing the same reversed in position; Fig. 6 a plan view of the switch rail; Fig. 7 a perspective view of a portion of the operating rod for the switch rail.

In carrying out our invention we provide a vertically-movable bolt or pin A, arranged so as to be operated upon and depressed by the car wheels, said bolt being held normally elevated so as to have its head project above the surface of one of the rails by means of a suitable spring B. The bolt is carried by a boxing C, arranged alongside of the rail adjacent to the switch or branch rails and the spring is bolted to the rail at point B^2, and projects at its other end within a suitable recess B^3 in the bolt A. The lower end of the bolt bears upon one arm of the pivoted bell-crank lever D, to whose other arm is connected one end of a rod or lever E, which is pivotally connected at is other end to a crank arm F rigidly secured upon a rock shaft G having suitable bearings in the rails. The rod E may be guided in its movements by notches *e*, in the partitions E′ of the boxing C, within which notches said rod may be fitted and if desired we may employ rollers E^2 pivoted within the boxing in position to permit the rod to bear thereon.

Between the rails the shaft G is provided with a second crank arm H to which is pivotally connected one end of a rod or lever J whose other end is provided with a pin or stud K which projects through a fixed plate L′ and into a recess L in the movable or pivoted switch rail M. By this arrangement it will be seen that when the car wheels depress the bolt or pin A the shaft G will be rocked so as to draw upon the rod or lever J which thus causes the switch rail M to be moved into an open position so that the car or train of cars will continue along the main line of tracks if this be desired. If however it be desired to switch the car or train of cars onto the branch line of tracks we provide means whereby this may be readily accomplished without necessitating the motorman or conductor getting off the car to operate the switch rail. Upon the rock shaft G between the rails is secured a crank arm N which is pivotally connected to a vertically movable bolt O projecting through a plate N′, which bolt, when the switch is open is adapted to project somewhat above the surface of the road bed.

Carried by the under side of the platform of the forward or motor car is a sleeve P, within which is adapted to vertically reciprocate a rod Q, carrying at its lower end a roller or pulley R, which when in its lowermost position is adapted to strike against the head of bolt O, and thus rock the shaft G to cause

the switch rail to be turned to a closed position thus allowing the car or train of cars to pass around the curve.

The rod Q is held normally in a raised position by a coiled spring S which is confined between the flange T of the sleeve and the enlargement or head U on the rod, and for the purpose of depressing the rod Q to close the switch when this may be desired, we pivotally connect one end of a lever V to the rod the other end of said lever being pivoted to a link W which is pivotally connected to one end of a lever X whose other end is pivoted to a vertically movable rod Y which projects above the platform of the car, in position to be operated by the foot. By depressing the said rod Y the roller R will be lowered into position to act on the bolt O as before explained.

The many advantages inherent to our invention will be readily apparent and we would state that many changes might be made in the construction and arrangement of parts without departing from our invention.

What we claim, and desire to secure by Letters Patent, is—

1. In railway switch devices, the combination with a main and a branch line of tracks, of a movable switch rail, a vertically movable rod or bolt projecting above the rail and adapted to be depressed by a car wheel, a second vertically movable rod or bolt arranged between the track rails, a rock shaft extending transversely of the main track rails, and to which shaft said second rod or bolt has a pivotal connection, a rod having a pivotal connection with said shaft, and with the switch rail, and a lever having a pivotal connection with the shaft and adapted to be operated by the first vertically-movable bolt when the latter is depressed to cause the switch to be opened, and a rod or lever carried by a car and adapted to operate the second vertically movable bolt to cause the switch to be closed, all as and for the purpose specified.

2. In railway switch devices, the combination with a movable switch rail, of a vertically-movable rod or bolt projecting above the track rail and adapted to be depressed by a car wheel, a vertically movable rod or bolt arranged between the track rails, a rock shaft extending transversely of the latter, a crank arm on said shaft to which said second rod or bolt is pivotally connected, a second crank arm on said shaft a rod pivotally connected to the same and to the switch rail, a third crank arm on the said shaft, a rod pivotally connected to the said latter arm, a bent lever pivotally connected to the latter rod and adapted to be operated upon by the first vertically-movable bolt to cause the switch rail to be turned in the manner described, and a rod carried by a car and adapted to depress the second vertically-movable rod to operate the switch rail as specified.

In testimony whereof we have affixed our signatures in presence of two witnesses.

WILLIAM E. MURRAY.
DANIEL W. HATFIELD.
GEORGE W. HATFIELD.

Witnesses:
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DAVID M. MARKLEY.