(No Model.)

S. MILLER.

ELECTRIC RAILWAY SYSTEM.

No. 343,719. Patented June 15, 1886.

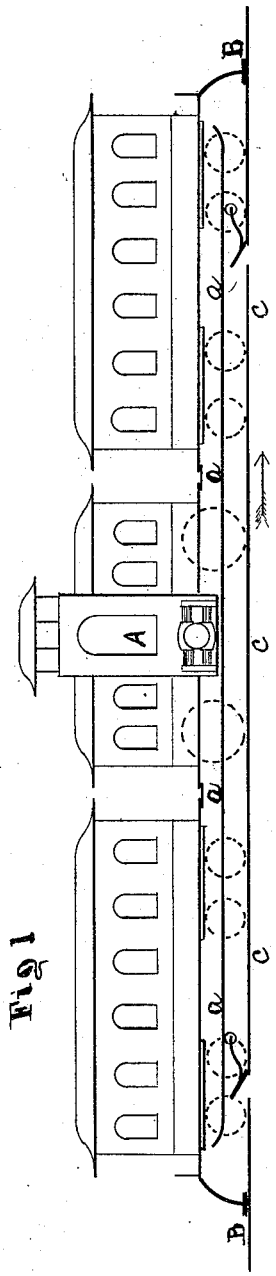

Fig 1

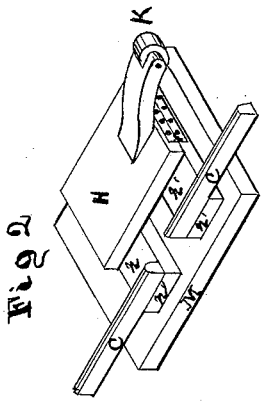

Fig 2

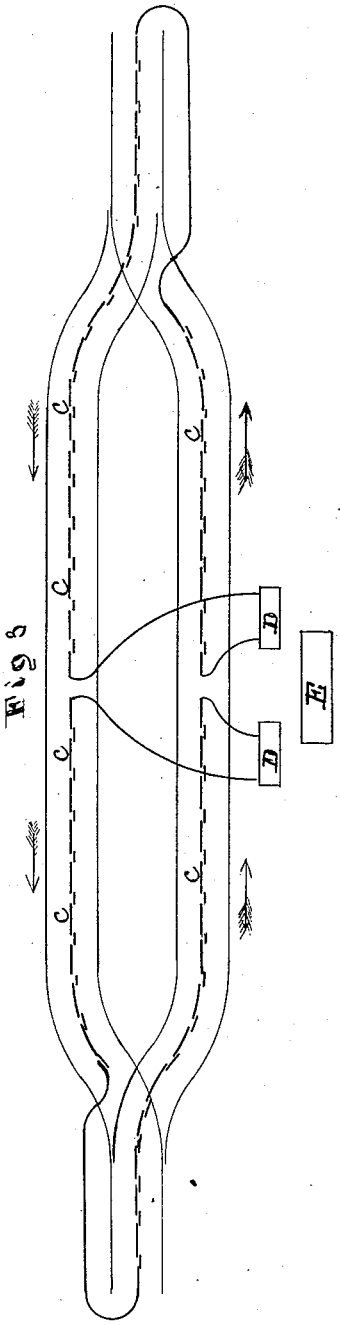

Fig 3

Witnesses
Charles Tucker
Vincent Wightman

Inventor
Samuel Miller

UNITED STATES PATENT OFFICE.

SAMUEL MILLER, OF MOHAWK, NEW YORK.

ELECTRIC-RAILWAY SYSTEM.

SPECIFICATION forming part of Letters Patent No. 343,719, dated June 15, 1886.

Application filed March 5, 1885. Serial No. 157,792. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL MILLER, a citizen of the United States, residing at Mohawk, in the county of Herkimer and State of New York, have invented a new and useful Improvement in Electric-Railway Systems, whereby the electric current may be conducted from the conducting-rail through the coils of the motor, and thence to the same conducting-rail again while the motor is moving along, of which the following is a specification.

I attain this important result by mechanism fully illustrated in the accompanying drawings, in which Figure 1 is a perspective view showing the operation of the essential parts in a railway system. Fig. 2 is a detailed view of the automatic coupling which unites the conducting-rail sections, and Fig. 3 a diagram showing the ground plan of my electric-railway system.

Similar letters refer to similar parts.

In Fig. 1, A is the motor-room, located centrally of the train, with a lookout-cupola commanding a view in both directions; B B, the conducting-brushes, which, with their connecting-wires, pass the current through the motor; *c c c*, the central conducting-rail, which is divided into sections and coupled by the device shown in Fig. 2, in which M is an insulating-block, on whose upper surface are laid the rectangular plates *n n'*, on which the ends of the rail-sections *c c* rest. H is another metal plate resting on *n n'* and hinged to the plate *n'*, as shown. An arm or lever, K, in whose upper end is mounted a roller, rises diagonally from the top surface of the plate H, to which it is rigidly secured.

In Fig. 3 the solid lines represent a double-track railway with its terminal switches, *c c c* being the central conducting-rail, D D the dynamos, and E the stationary engine for generating the electric current.

The operation of my invention is as follows: As the resting position of the plate H is lying horizontally on plates *n n'*, with the arm K elevated, as the train moves along, the fender *a a a*, which is slightly turned up at the ends, comes in contact with and bears down the lever K of the coupler, thus raising the plate H off from *n* and breaking the circuit under the train. The fender *a a a*, riding on the roller of K, prevents the plate H dropping (as it will of its own weight) to its resting position and restoring the connection till the train passes over it. This has the effect of switching the current, by means of the conducting-brushes B B and their connections, from the rail *c c c*, through the motor A, and thence to the rail *c c c* again, thus continuing the circuit. In this way as many trains may be run on a single circuit as the current will bear. By making the distance between the brushes B B a little greater than the length of the rail-sections *c c c* and fender *a a a*, all sparking at the couplers will be prevented, as one of these will always be held open while another is being opened or closed.

It is evident that this switching system may be made the length of one or several cars, as desired. I place my motor A in the central apartment of the central car, leaving the end apartments for passengers, the driving-wheels and their connections with the motor being concealed by the side seats. The switches for controlling the motor are in the lookout-cupola. This constitutes a train which can be run equally well in either direction, and, as shown by the arrangement of electric circuits and terminal track-switches in Fig. 3, could be switched automatically from one track to the other, the arrows indicating the direction of trains.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a system of electrical railways, an automatic coupling for a sectional main conductor forming part of an electrical circuit conveying currents of electricity, consisting of a hinged conducting-plate normally resting by its gravity upon the terminals of said sectional conductor, and an arm extending therefrom and operated by the passing vehicle.

2. In a system of electrical railways, an automatic coupling for a sectional main conductor forming part of an electrical circuit conveying currents of electricity, consisting of a hinged conducting-plate normally resting upon conducting-plates suitably insulated from each other and forming the terminals of said circuit, and a fender on a vehicle for operating said hinged plate, to break said circuit

and force the current through the motor on the train.

3. In a system of electrical railways, an automatic coupling for a sectional main conductor forming part of an electrical circuit conveying currents of electricity, consisting of a hinged conducting-plate having an arm extending therefrom and carrying a roller.

4. In a system of electrical railways, a fender or circuit-controller-operating device located upon and extending the entire length of the train, and a circuit-controller for a sectional main-line conductor forming part of an electrical circuit operated thereby.

5. In a system of electrical railways, a fender or circuit-controller-operating device located upon and extending the entire length of the train, and a circuit-controller for a sectional main-line conductor forming part of an electrical circuit operated thereby, and brushes located on each end of the train, for conducting the electric current through the motor on said train.

6. In a system of electrical railways, a fender or circuit-controller-operating device located upon and extending the entire length of the train, and a circuit-controller for a sectional main-line conductor forming part of an electrical circuit operated thereby, and brushes located on each end of the train, for conducting the electric current through the motor on said train a greater distance apart than the length of the main-line sections and the fender, whereby sparking at said circuit-controllers is prevented, as set forth.

7. A gravity circuit-closer normally completing the circuit of a sectional main-line conductor in a system of electrical railways, and a device located on the train for operating the same to break the circuit during the passage of the train and allowing the same to resume its normal position and close the circuit after the train has passed, substantially as set forth, and a motor and suitable connections therefor on said train.

8. A gravity circuit-closer normally completing the circuit of a sectional main-line conductor in a system of electrical railways, and a device located on the train for operating the same to break the circuit during the passage of the train and allowing the same to resume its normal position and close the circuit after the train has passed, and brushes in contact with said main-line conductor, moving with the train, bridging said breaks for conveying the current to the motor.

SAMUEL MILLER.

Witnesses:
CHARLES TUCKER,
VINCENT WIGHTMAN.