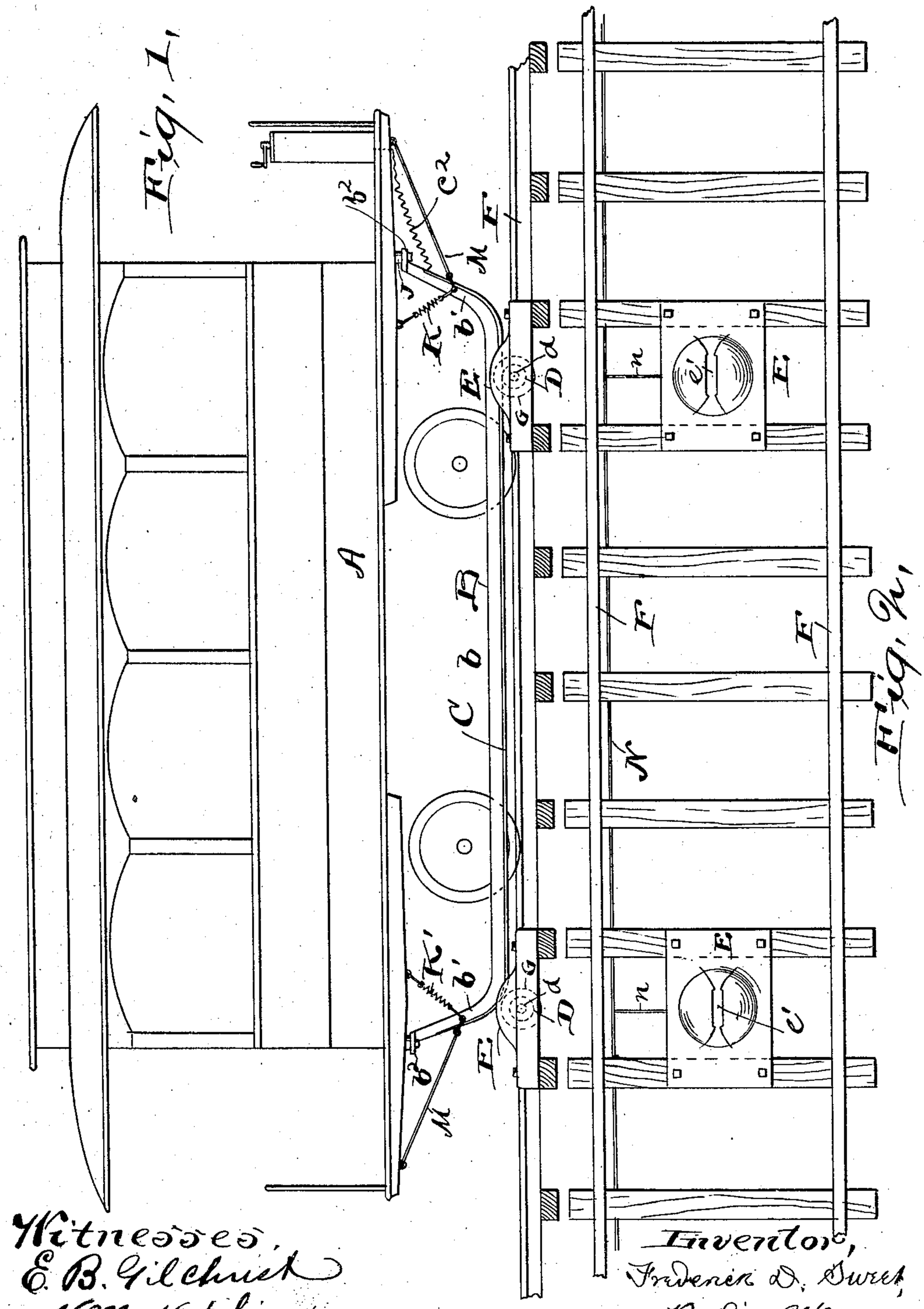
(No Model.) 2 Sheets—Sheet 1.

F. D. SWEET.

ELECTRIC RAILWAY.

No. 604,911. Patented May 31, 1898.

Fig. 1.



Witnesses,
E. B. Gilchrist
A. M. Hutchison.

Inventor,
Frederick D. Sweet,
By his Attorneys,
Thurston & Bates.

(No Model.) 2 Sheets—Sheet 2.

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No. 604,911. Patented May 31, 1898.

Fig. 3.

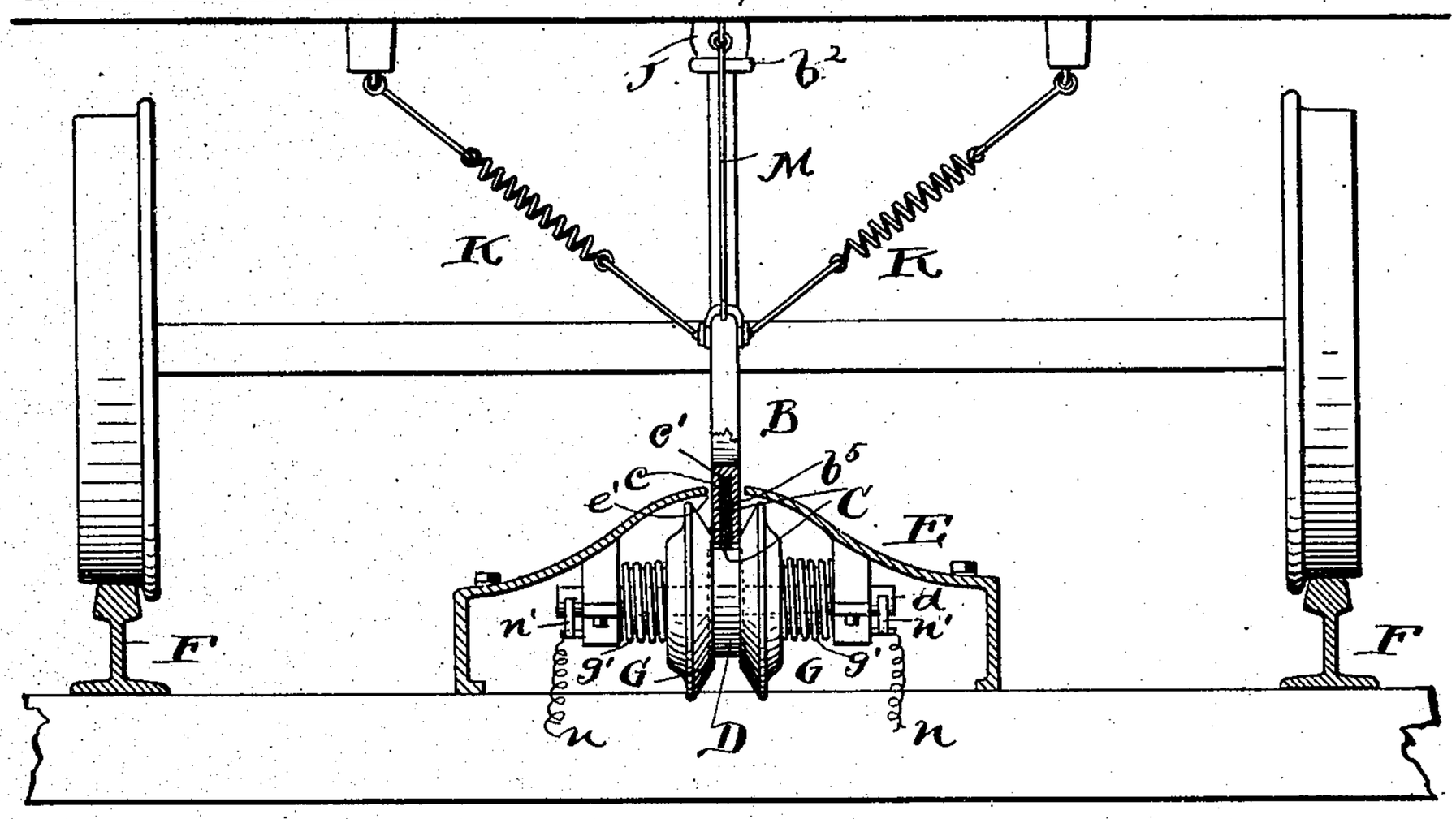


Fig. 4.

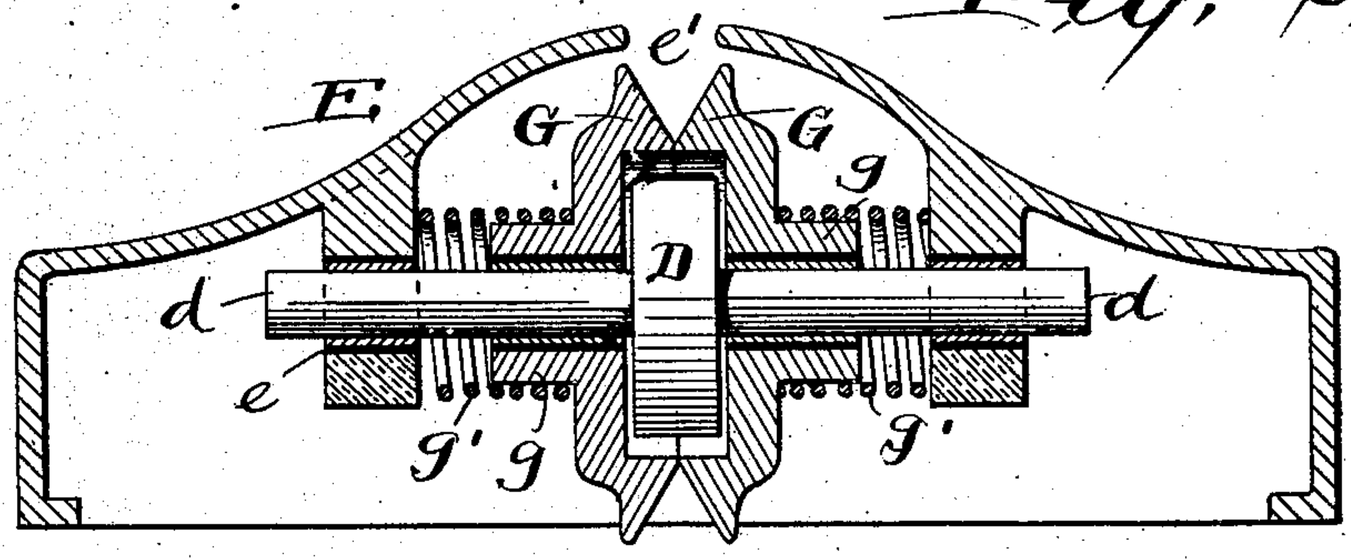
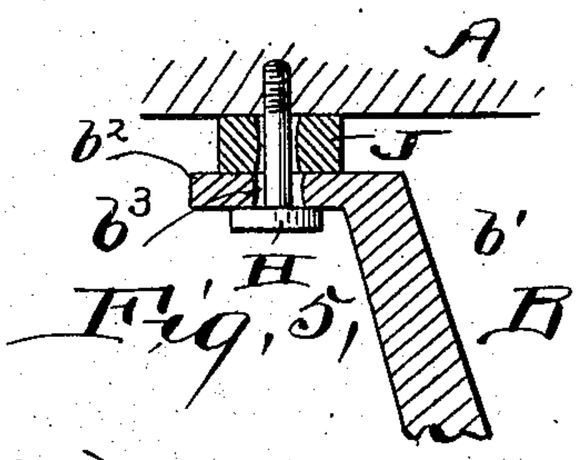


Fig. 5.



Witnesses,
E. B. Gilchrist
A. M. Hutchison.

Inventor,
Frederick D. Sweet,
By his Attorneys,
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UNITED STATES PATENT OFFICE.

FREDERICK D. SWEET, OF ELYRIA, OHIO.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 604,911, dated May 31, 1898.

Application filed November 4, 1897. Serial No. 657,448. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK D. SWEET, a citizen of the United States, residing at Elyria, in the county of Lorain and State of Ohio, have invented a certain new and useful Improvement in Electric Railways, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The invention relates to a combination of devices whereby the electric current generated at a central station is conducted to a traveling motor-car.

In my apparatus the continuous conductor is dispensed with and in its place a series of contact-rollers placed at suitable intervals engage consecutively with a runner carried by the car, which runner is longer than the distance between two consecutive rollers.

The invention consists in the construction and combination of parts hereinafter described, and definitely pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a car and the means for supplying the motor on the car with current. Fig. 2 is a plan view of the road-bed, showing the stationary current-supplying devices. Fig. 3 is an end view of a car and road-bed, the latter being sectioned to show the current-supplying devices. Fig. 4 is a transverse vertical section through the current-supplying devices; and Fig. 5 is a sectional view through one end of the runner, showing the manner of connecting the same with the car.

Referring to the parts by letters, A represents the car, carrying a motor and adapted to travel on the tracks F.

B represents a runner which extends longitudinally beneath the car, to which it is flexibly suspended by means to be presently described, which allow it to swing laterally. This runner between its ends is substantially horizontal; but the ends b' are bent or curved upward and afford means for securing the runner to the car. The horizontal part b of this runner should be as long as practical and should be longer than the distance between two adjacent contact-rollers, which are mounted between the tracks, substantially as hereinafter described. The extreme ends b^2 of this runner are turned into horizontal position, and bolts H pass loosely through holes b^3 in said horizontal ends, the bolts being fastened to the car body or frame and the heads of the bolts being beneath the said horizontal ends b^2. Between said horizontal ends b^2 and the car-body yielding spring-cushions J are placed, which cushions are preferably made of rubber. The construction shown is a convenient and operative means for suspending the runner in such manner that it is permitted to swing laterally from its point of support and is also permitted to move upward slightly at its ends in opposition to said spring-cushions. Secured to both sides of the runner and at both ends thereof are contractile coil-springs K K′, whose function is to hold the runner in a substantially vertical position and to return it to such position when it has been moved therefrom. Guy rods or wires M are also connected to the ends of the runner and extend, respectively, forward and backward, their outer ends being connected with the car-body. These guy wires or rods prevent the runner from being moved any considerable distance backward or forward with respect to the car. The lower horizontal edge of this runner is faced with a metal strip C, made of copper or other good electrical conductor. Preferably this copper strip has a rib c, which enters a vertical longitudinal groove b^3 in the runner, substantially as shown in Fig. 3. This strip is insulated from the runner, the insulation being indicated by c'. This contact-strip is electrically connected with the motor mechanism by the wire c^2.

Fixed at suitable intervals between the track are contact devices for engagement with the runner. These contact devices are rollers D, made of good conducting metal and secured to the shaft d, made of like material. These shafts are mounted in suitable bearings in hollow boxes E, which are secured between the tracks and to the ties. The bearings of these shafts should be insulated, the insulation being indicated in the drawings by e. The upper or contact face of these rollers should be at such elevation that they will be engaged by the runner as the car moves forward and move it upward slightly in opposition to the spring-cushions J, thus insuring intimate contact between the runner and

rollers. The distance between these rollers must be less than the length of the horizontal part of the runner. The tops of the boxes are crowned, substantially as shown, and slots *e'* are formed through their tops to permit the entrance of the runner.

In each box are two guide-disks G G, having recesses in their proximate ends. These disks lie on opposite sides of the contact-roller, their hubs *g* loosely embracing, but being insulated from, the shaft of said roller, and they are capable of longitudinal movement thereon. These disks are forced toward each other by the springs *g'*, and under normal conditions the roller is entirely closed in the recesses in said disks. The meeting faces of these disks are beveled outward, substantially as shown, making a V-shaped opening between them by which the entrance of the runner between them is insured.

In the operation of the described mechanism the bent-forward end of the runner enters the slot *e'* in the box E and then enters between the two disks G G, which are thereby forced apart, and the metal face C of the runner engages with the contact-roller, being forced down upon said roller by the spring-cushions. In every case this engagement of the runner takes place before the rear end of the runner has passed out of contact with the last contact-roller.

An insulated feeding-wire N parallels the track, and each of the contact-rollers is connected with this feed-wire by a feeder *n* and springs or brushes *n'*, to which the feeder is connected and which bear against the shaft *d*.

Having described my invention, I claim—

1. In an electric railway, in combination, a motor-car, a runner flexibly suspended beneath the car and extending longitudinally thereof, the centering-springs K and K', the guy-wires M, and a series of insulated contact devices secured in the road-bed, in position to be engaged by said runner, said contact devices being connected with the source of the electric current, and the distance between them being less than the length of the runner, substantially as specified.

2. In an electric railway, in combination, a motor-car, a runner having a horizontal middle part and ends which are bent upward and then outward into substantially horizontal position, bolts secured beneath the car and passing loosely through holes in the horizontal ends of the runner, springs pressing said runner ends downward, and a series of contact devices connected with the source of electrical current and secured at intervals in the road-bed in a position to be engaged by the horizontal part of said runner, the distance between said contact devices being less than the horizontal length of the runner, substantially as specified.

3. In an electric railway, a box secured in the road-bed and having a slotted top, a contact-roller mounted in said box but insulated therefrom, two disks lying on opposite sides of said roller and movable in the direction of its axis, said disks having recesses in their proximate faces which are adapted to embrace said roller, the disks having beveled adjacent ends, springs acting to force said disks toward each other, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK D. SWEET.

Witnesses:
IRVING H. GRISWOLD,
JOHN A. BERRY.