

No. 620,549.

Patented Feb. 28, 1899.

J. F. MUNSIE.
ELECTRIC RAILWAY.
(Application filed Feb. 25, 1898.)

(No Model.)

2 Sheets—Sheet 1.

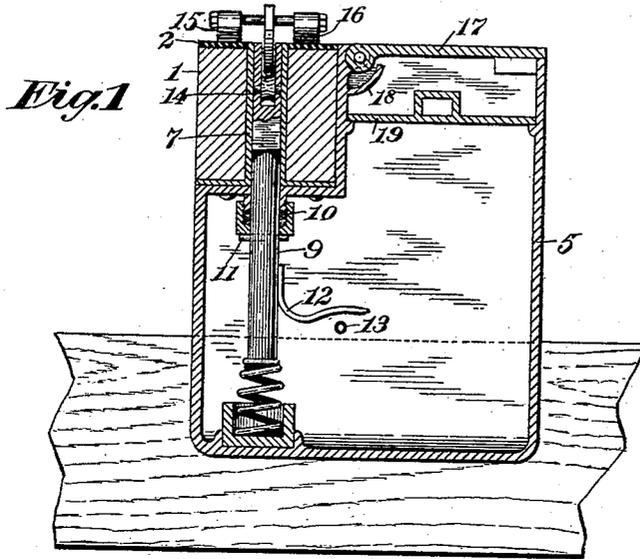
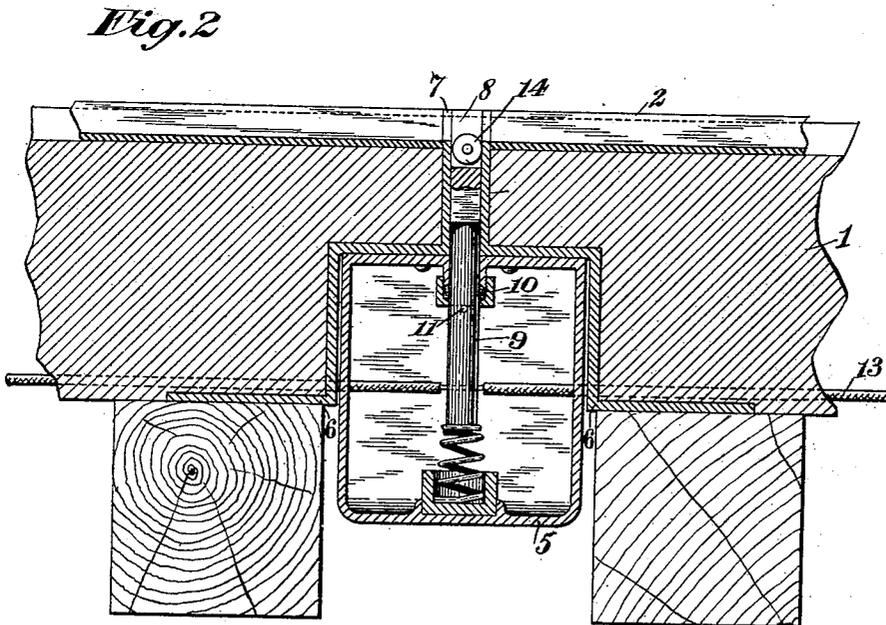
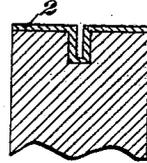


Fig. 3



WITNESSES:

Geo. B. Rowley.
Elizabeth Cuning.

INVENTOR

James F. Munsie.

BY *Arthur Head*

ATTORNEY

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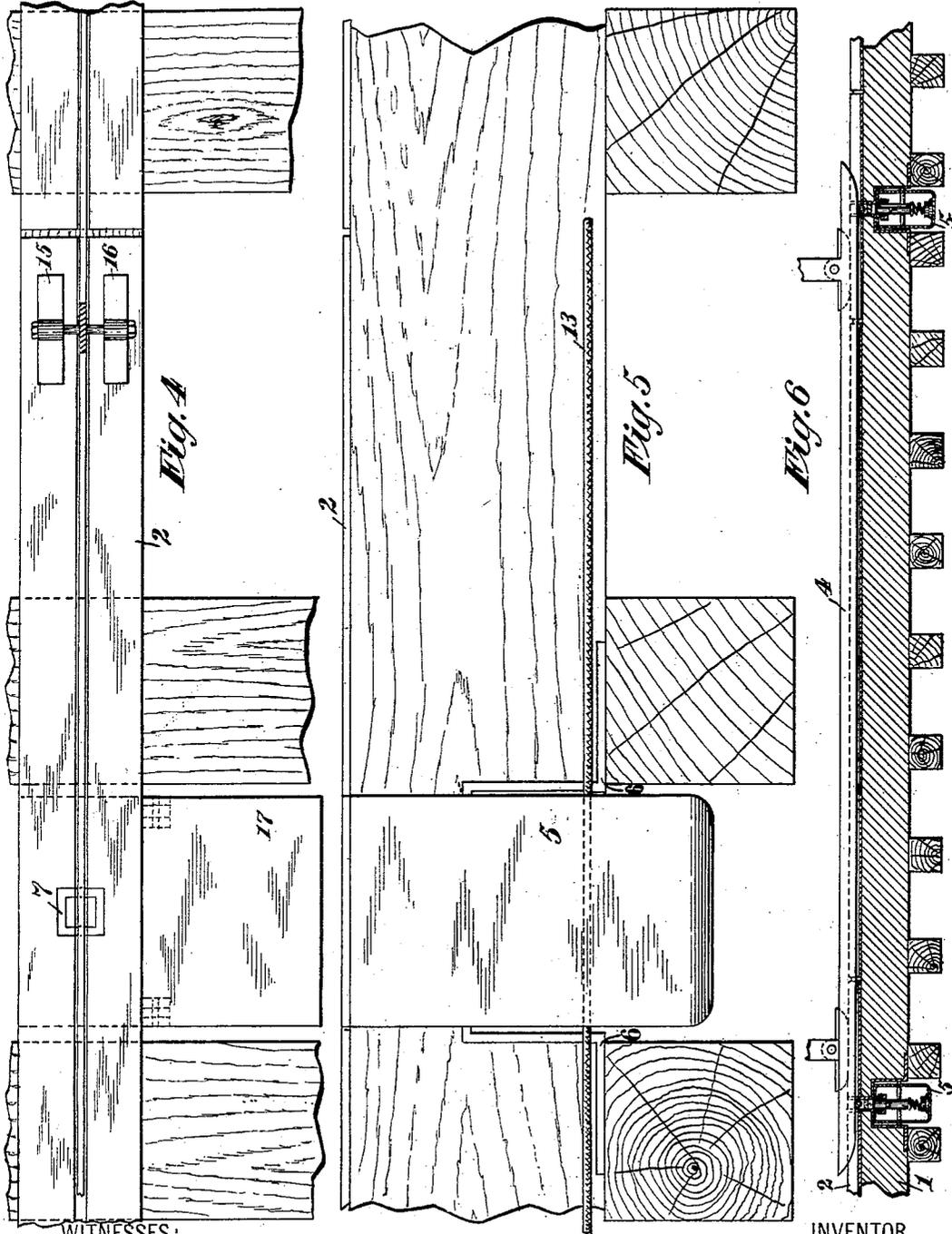
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2 Sheets—Sheet 2.

(No Model.)



WITNESSES:

Geo. B. Rowley.
Elizabeth E. Cunningham.

INVENTOR

James F. Munsie.

BY *Robert H. ...*

ATTORNEY

UNITED STATES PATENT OFFICE.

JAMES F. MUNSIE, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
THOMAS L. COLES.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 620,549, dated February 28, 1899.

Application filed February 25, 1898. Serial No. 671,552. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. MUNSIE, a citizen of the United States, and a resident of New York, (Brooklyn,) county of Kings, and State of New York, have invented certain new and useful Improvements in Electric Railways, of which the following is a specification.

My invention relates to electric railways, and particularly to that type of railway system in which current is supplied to the car or other moving vehicle at determinate points or spots where contact is made with said conductor through protected devices arranged along the track with a current-collector carried by the vehicle.

In carrying out the invention I provide along the line of way a grooved conductor laid between the rails and provide at intervals less than the length of the car or than the collector or shoe carried by the car circuit-controlling boxes provided with a circuit-closer mounted in fixed guides and adapted to be depressed by the collector secured to the car and which when actuated closes the circuit within a chamber protected from the weather and from moisture between the underground supply-conductor and the collector on the car.

The features of novelty of my invention refer more particularly to that part of the supply system which comprises the grooved guide bar or rail placed between the track-rails and the circuit-controlling boxes arranged at determinate points along said guide-rail. They will be more particularly herein-after described and will be definitely indicated in the claims appended to this specification.

In the accompanying drawings, which illustrate the invention, Figure 1 is a sectional view transversely of the track of one of the contact-boxes distributed along the line of way. Fig. 2 is a sectional view of one of the boxes on a plane longitudinally of the track. Fig. 3 is a transverse sectional view of the guide-rail and part of the stringer on which it is mounted on a plane between the contact-boxes. Fig. 4 is a plan view of the collector-guide and shoes and of the guide-rail which controls its relation to the grooved rail. Fig. 5 is a side elevation of the stringer and a contact-box mounted thereon, looking in a

direction transverse to the track, the cross-ties being shown in section. Fig. 6 is a longitudinal sectional view on a median plane passing through two contact-boxes, the collector carried by the car being shown in elevation.

Referring to the drawings, 1 represents a stringer mounted on the cross-ties, preferably midway between the rails and extending along the line of the railway-track. On this stringer is mounted a series of grooved rails 2, provided with wide flanges, as indicated in Fig. 3, firmly secured to the stringers 1. At points about sixteen feet apart or other suitable distances to cooperate with a collector 4, (see Fig. 6,) carried by the traveling vehicle or cars, are mounted contact-boxes 5. The boxes are spaced and the rail lengths determined so that the car-collector may bridge two contact devices. The successive grooved rails 2 are insulated from one another, as indicated in Figs. 4, 5, and 6, where an air-gap is shown between successive rails. The contact-boxes 5 are supported by a casting in the form of a hooded yoke, the flanges 6 of which are secured to adjacent cross-ties. From the upper part or hood of these yokes extends a square tube 7, the top of which is slotted, as at 8, to form a continuation of the groove in the middle rail of the supply system. The contact-box 5 is bolted or otherwise secured to the hooded yoke, as indicated in Figs. 2 and 4, and may be suitably packed to exclude the entrance of air or water from beneath. Within the square tube 7 operates a spring-pressed plunger 9, the top of which is squared to form a snug sliding fit with the inside of the tube 7. The lower part of the plunger enters the contact-box, passing through a stuffing-box 10, and is provided with a stop-pin 11 to limit its upward movement. Secured to the plunger is a circuit-closing spring formed of phosphor-bronze or other good conductor, as 12, (see Fig. 1,) which when the plunger is depressed is brought into contact with an insulated supply-conductor 13, led through the walls of the contact-box and laid bare at a point beneath the contact-spring 12 to admit of a closing of the circuit at that point when the plunger is depressed. In the slot in the top of the squared end of the plun-

ger is mounted a roller 14, said roller projecting a short distance above the level of the bottom of the grooved rail 2. The collector-blade 4, mounted on the car, may be of any approved construction. I provide it preferably with wearing-shoes 15 16, two sets of which are secured to each collector and which bear continuously upon the flanges of the grooved rail 2 and serve to preserve a uniform relation of the collector-blade with respect to the grooved rail.

The operation of the system is as follows: The conductor 13 extends throughout the system and is thoroughly insulated at all points except where designed to make contact with the spring in the contact-boxes. As the car proceeds over the line of way the collector-blade 4 is always in contact with at least one contact-box, in which it depresses the grooved roller mounted in the top of the plunger and brings the contact-spring into engagement with the supply-conductor. The collector and the rails upon which it bears are thereby rendered live with current which is taken from all points of contact on the wearing-shoes and rollers, and the motor in the vehicle is thereby supplied with current which may be led back to the supply-generator by the track-rails. Each contact-box is provided with a hinged cover 17, below the hinge of which is an oil-cup 18, in which a layer of oil may be provided to exclude the entrance of moisture. Below this hinged cover is an auxiliary cover 19, and between the two covers I preferably provide a lining of some waterproof material—such, for example, as tallow—to thoroughly exclude water.

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

1. A supply system for electric railways comprising a series of water-tight contact-

boxes mounted along the track and provided with an elastically-yielding vertical plunger extending into the box through a water-tight joint, a circuit-closer within each box adapted to cooperate with an insulated conductor traversing the system and extending from box to box, said plunger being provided with means for preventing it from turning on its axis and with a roller at its top projecting into a grooved guide-rail for a collector carried by the car.

2. A supply system for an electric railway comprising a hooded yoke, a water-tight box supported thereby, a circuit-closing device extending into the box, a grooved collector-guide between successive boxes adapted to lead a current-collector carried by a car into mechanical engagement with the circuit-closing device, and a spring-actuated plunger projecting vertically into the grooved guide and cooperating with the circuit-closing device.

3. An electric-railway system comprising a grooved rail extending along the line of way and provided with flanges, a collector carried by the traveling vehicle adapted to traverse the groove, and wearing-shoes on said collector-rail adapted to engage the flanges.

4. In an electric-railway system a series of grooved rails adapted to cooperate with a collector carried by the traveling vehicle, each rail being in electric connection with a circuit-closer operated by the collector the several grooved rails being insulated from one another.

In testimony whereof I have hereunto subscribed my name this 24th day of February, A. D. 1898.

JAMES F. MUNSIE.

Witnesses:

ROBT. H. READ,
ELIZABETH EWING.