

(No Model.)

2 Sheets—Sheet 1

C. W. CARLL & J. W. PHILLIPS.

CONDUIT AND TROLLEY FOR ELECTRIC RAILWAY SYSTEMS.

No. 472,982.

Patented Apr. 19, 1892.

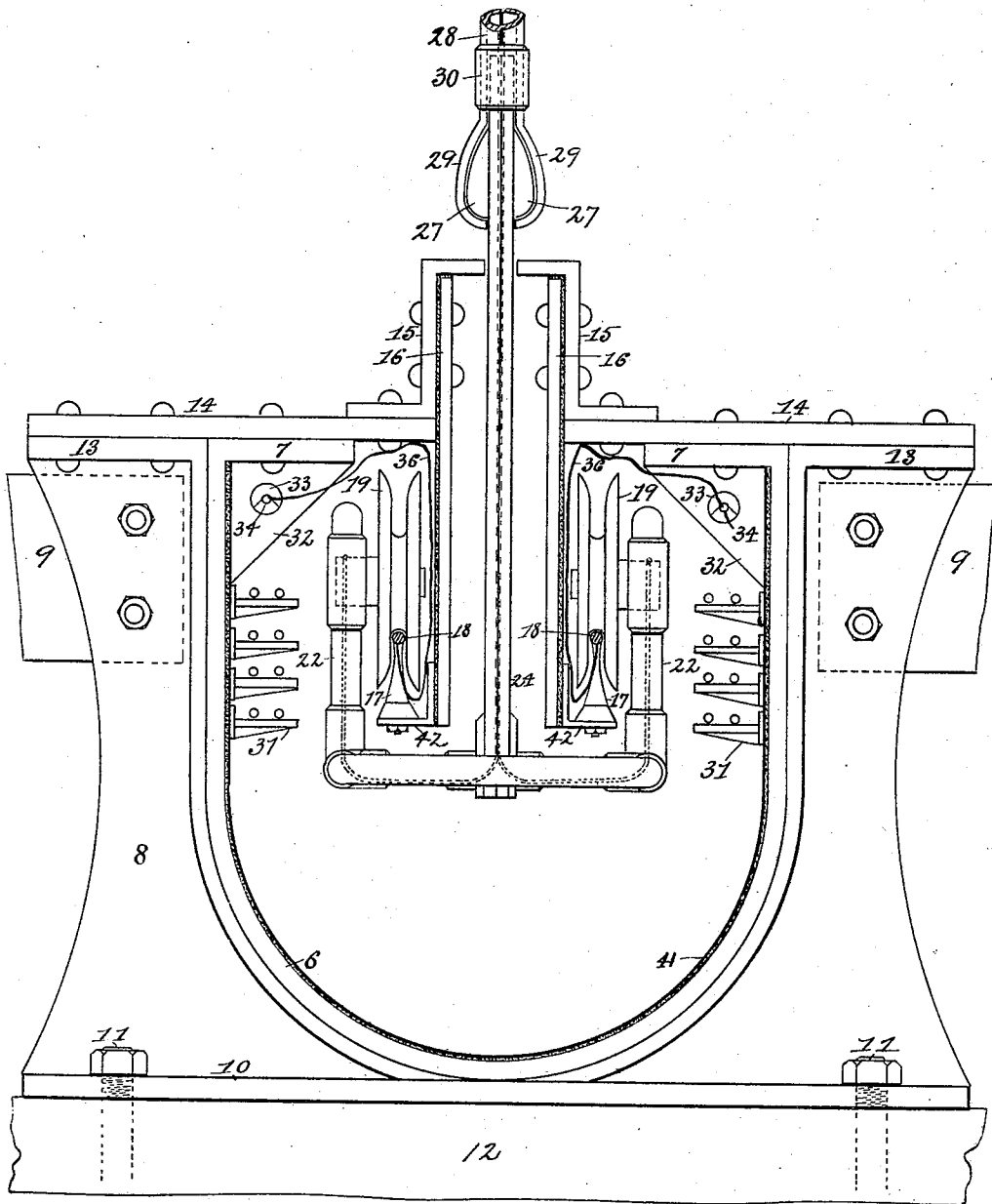


Fig. 1.

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Fig. 2.

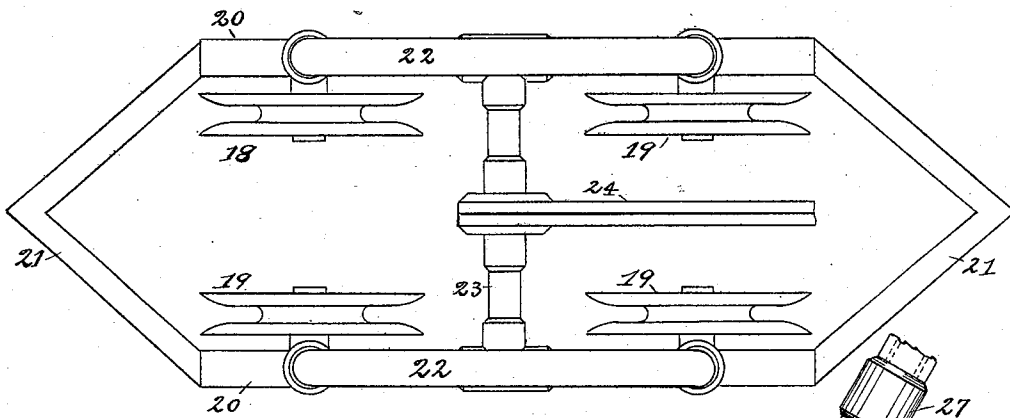
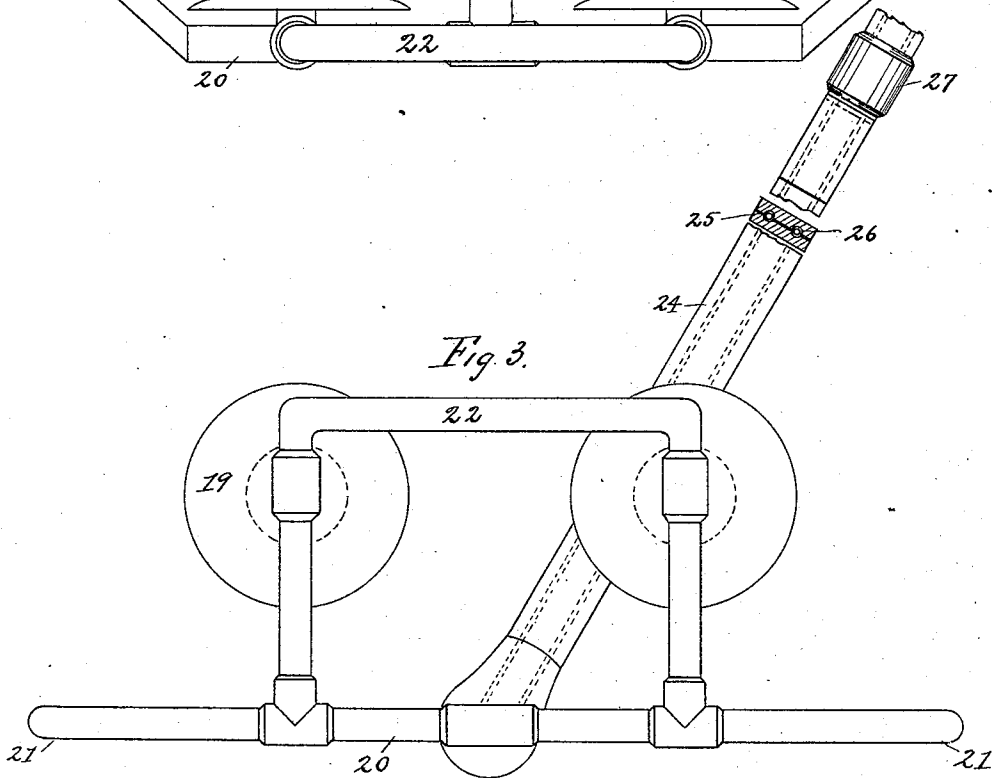


Fig. 3.



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# UNITED STATES PATENT OFFICE.

CHARLES W. CARLL AND JAMES W. PHILLIPS, OF TRENTON, NEW JERSEY.

CONDUIT AND TROLLEY FOR ELECTRIC-RAILWAY SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 472,982, dated April 19, 1892.

Application filed February 19, 1891. Serial No. 382,128. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES W. CARLL and JAMES W. PHILLIPS, citizens of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Electric Railways; and we do hereby 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.

Our invention relates to certain new and useful improvements in electric railways, and more particularly to the construction and arrangement of parts of the underground conduit within which the trolley which supplies current to the car-motors travels, and to the construction of the trolley-carriage itself and the means for connecting and supporting the same from the car.

In the accompanying drawings, illustrative of our invention, Figure 1 represents a cross-sectional view of an electric-railway conduit embodying our improvements, the trolley-carriage being shown in end elevation. Fig. 2 represents a plan view of the trolley-carriage, the supporting-bar being shown as partially broken away. Fig. 3 represents a side elevation of the trolley-carriage, together with a sectional representation of the supporting-bar.

Similar numerals of reference indicate similar parts throughout the several views.

Referring to the drawings, 6 indicates the main body portion of the electric-railway conduit, and consists of a longitudinal metallic trough provided at its top with inwardly-projecting flanges 7. The trough-like body 6 is supported or sustained within chairs or seats shaped to conform to its exterior surface, one of these chairs or seats being shown in Fig. 1 and marked 8. It is provided with strengthening-ribs connected by means of the braces 9 to the stringers supporting the traction-wheel rails, and also with a flange 10, connected by bolts 11 to cross ties or sleepers, as 12, firmly embedded in the ground. The chairs or seats 8 are also provided with flanges 13, these flanges, together with the flanges 7 of the main body portion of the conduit, serving as means of attachment for the covering-plates 14, which are bolted or riveted to said flanges, as shown. Z-bars 15 are riveted to the cov-

ering-plates and are separated from each other at their upper parts, so as to form a continuous longitudinal slot or opening. From these Z-bars depend the continuous plates 16, provided upon their outer faces with continuous flanges and brackets 42, which flanges support brackets 17, which brackets support the main conductors 18. These main conductors are connected directly to the generator or generators supplying current from the distant station and serve as trackways for the contact-wheels 19 of the trolley-carriage, the distance between the said conductors and the top of the conduit being so chosen as to leave sufficient space for the said trolley-wheels. The trolley-wheels are mounted within a frame or carriage consisting of a base made up of the sides 20, pointed front and rear portions 21, and U-shaped uprights 22, together with the cross connection 23. All of these parts are preferably made of piping or tubing, for the reason that such construction permits of their being readily assembled or connected together by tube-joints, and also for the reason that the insulated conductors from the trolley-wheels to the car can be inclosed within such tubing, so as to be secure from injury and protected against access of moisture. The said conductors, which are indicated by dotted lines in Figs. 1 and 3, are electrically connected with the trolley-wheels and pass thence by means of the cross connection 23 to the hanger-bar 24. As indicated more clearly in Figs. 2 and 3, the hanger-bar 24 consists of two homologous halves, forming channels 25 26 for the reception of the conductors or leading-in wires. At its lower portion the hanger-bar is connected to the cross-piece 23 by a swinging joint, which permits said hanger-bar to be swung from the position shown in Fig. 3 to a position on the other side of the central line of such figure, according to the direction in which the trolley-carriage is to move. At its upper portion the hanger-bar is provided with lugs or rounded projections 27, which serve as the means for coupling it to the car. To this end a connection 28 from the car is provided with spring-arms 29, adapted to engage it with the lugs 27 and to be held in place normally by means of the hollow screw-nut 30, the spring-arms, however, having sufficient

resiliency to part and become disengaged from the hanger-bar should the trolley-carriage for any reason be caught or cramped and brought to a standstill while the car is in motion.

5 Provision is thus made against injuring either the trolley-carriage, its connection with the car, or the conduit itself on the occurrence of any such accident. It will be understood, of course, that the leading-in wires are to have a  
10 spring connection with the car-motor in any usual manner, so as to separate themselves from the car should the trolley-carriage be detached.

The walls of the conduit may conveniently  
15 serve as means of attachment for brackets 31 for carrying telephone-wires, telegraph-wires, or the like. In the upper corners of the conduit are located brackets 32, containing insulators 33, through which pass the "extra-  
20 supply cables" 34. These extra-supply cables are connected directly to a generator or generators, and carry, when in use, an extra current of electricity, to be used in cases where, owing to the great length of the track or very  
25 heavy loads, the current is not sufficiently strong on the trolley-track conductors, in which case they supply additional currents to said trolley-track conductors. They are connected to the latter at proper intervals by  
30 cross-wires 36, as shown in Fig. 1.

The inner side of the trough-like body, Fig. 1, is coated with proper insulating material, (indicated at 41,) and insulating material is also placed between the plates 16 and the  
35 continuous flanges 42, and it is also carried up between plates 16 and Z-bars 15 to secure perfect insulation. The upper portions of the brackets 17 are constructed of proper insulating material to prevent electrical contact between the trolley-wires 18 and the plates 16.  
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What we claim is—

1. A conduit for electric railways, consisting of a main body portion having re-entering flanges, as 7, at its upper portion, chairs,

as 8, for supporting and sustaining said main 45 body portion, said chairs being provided with a basal flange, as 10, and outwardly-projecting top flanges, as 13, ties or sleepers, as 12, to which the basal flange is connected, cross-  
braces, as 9, for connecting the chair to the 50 track-stringers, and a covering-plate secured to the flanges 7 and 13, said covering-plate being provided with angle-pieces, as 15, separated to form the conduit-slot, substantially as described. 55

2. A conduit for electric railways, provided with downwardly-extending plates, as 16, brackets attached to the outer sides of said plates, and trolley-track wires supported upon said brackets, substantially as described. 60

3. A trolley-carriage for electric railways, consisting of a frame comprising sections of tubing connected together and containing the wires leading from the trolley-wheel, and a hanger having channels to receive said wires 65 from the tubing-frame, substantially as described.

4. A trolley-carriage for electric railways, consisting of a frame comprising sections of tubing connected together and containing the 70 wires leading from the trolley-wheel, and a hanger having channels to receive said wires from the tubing-frame, said hanger being jointed or swiveled to the frame, substantially as described. 75

5. A trolley-carriage for electric railways, consisting of the tube-sections 20, having the cross-tube connection 23, pointed ends 21, U-shaped sides 22, and a hanger jointed or swiveled to the cross connection 23, substantially 80 as described.

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

CHARLES W. CARLL.  
JAMES W. PHILLIPS.

Witnesses:

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