

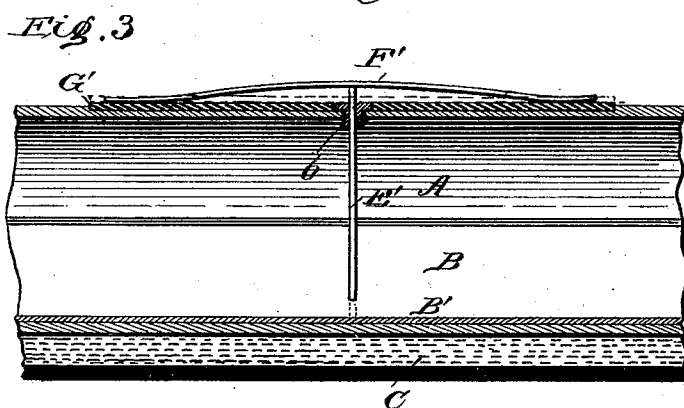
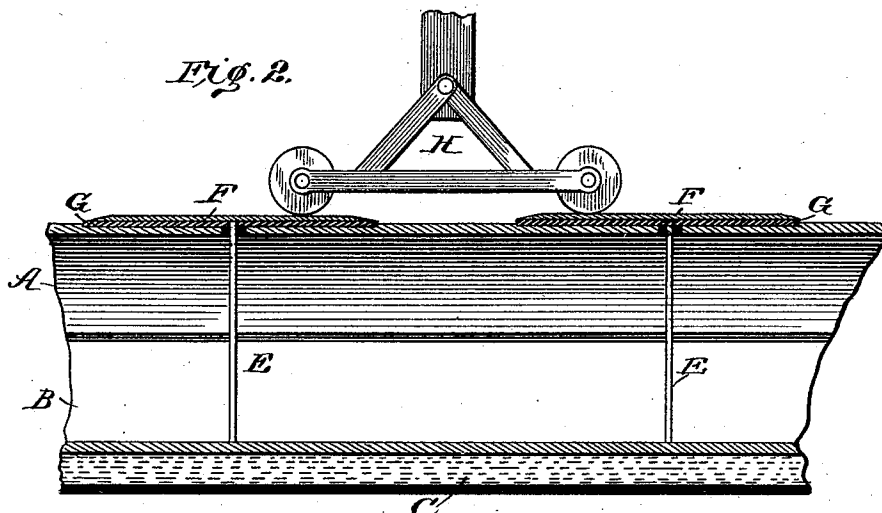
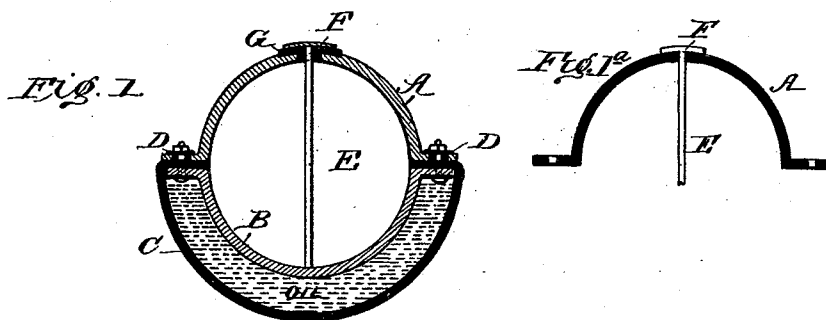
(No Model.)

A. J. MARTIN.

CLOSED CONDUIT FOR ELECTRIC RAILWAYS.

No. 497,585.

Patented May 16, 1893.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ARCHIBALD J. MARTIN, OF PHILADELPHIA, PENNSYLVANIA.

## CLOSED CONDUIT FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 497,585, dated May 16, 1893.

Application filed September 13, 1892. Serial No. 445,820. (No model.)

*To all whom it may concern:*

Be it known that I, ARCHIBALD J. MARTIN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Electric Railways, of which the following is a specification.

My invention is in the nature of an improved electric railway comprehending an electric conductor designed mainly to run in a conduit under ground, and it consists in the peculiar construction and arrangement of the devices for transmitting the current from the conductor to the trolley as will be hereinafter fully described.

Figure 1 is a vertical transverse section of the conductor and its attached parts. Fig. 1<sup>a</sup> is a detail of a modification. Fig. 2 is a vertical longitudinal section showing the trolley applied, and Fig. 3 is a vertical longitudinal section of a modification.

In the drawings A and B represent the two semi-cylindrical sections of a longitudinally divided tube of about three inches internal diameter. The lower one B of these tube sections is made of metal and forms the electric conductor, and the upper section A may be made of metal insulated from the lower section, as shown in Fig. 1 or may be made entirely of some insulating material if desired as in Fig. 1<sup>a</sup>.

C is an outer jacket for the lower half of the tube. This jacket is made of any suitable material which is liquid proof and also a non-conductor of electricity. The edges of this jacket are secured between the flanges of the tube sections by means of insulated bolts D, and said edges serve to separate the upper tube section from the lower one thus electrically insulating the latter. From the bottom of the tube section B at suitable intervals there rises metal stems E which pass through insulating bushings in the top section of the tube and are electrically connected to metal track slips F resting outside the tube upon insulating base strips G of any suitable non-conductor of electricity. These track slips F are designed to transmit the current from the main conductor B and stems E, to the trolley, shown at H. The spaces between these slips F must be less than the distance between the extreme ends of the trolley, so

that the latter will pass on to another slip before leaving the first. Between the jacket C and the bottom section B of the tube is an insulating bed of oil or other non-conductor which perfectly seals this conductor section from all loss of current from dampness or other deposits which are liable to produce electrical leakage. Within the tube between the sections A and B there may also be a body of oil or a current of warm dry air or other non-conductor to still further preserve the insulation of the conductor section. Now as the car with the trolley H attached passes along, the trolley rests and rolls upon the track slips F and receiving therefrom the current transmits it to the motor on the car.

Instead of a wheeled trolley a brush or sliding trolley may be used.

As a modification of my invention I may, see Fig. 3, make the track slips in the form of bowed flat springs F' which rest upon insulating bases G' on the top of the tube, and have stems E' of metal that slide through insulated stuffing boxes b. These stems are arranged to be brought into contact with a conductor in the bottom of the tube by the depression of the track spring F' from the wheels of the trolley, so as to take the current only at the point where the trolley is pressing, and to leave the connection broken at all other points. The conductor upon which the stems make contact may be either a special conductor B' within the tube, as in Fig. 3, or it may be the lower half of the tube itself as shown in Fig. 1.

The conductor and its attachments as described are designed to be placed under ground in a conduit, but it is obvious that they may be placed in any other location.

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

1. In an electrical railway, a tube made in longitudinal sections having its conducting section insulated from the other section, and having conducting stems passing from the conducting section through the other section, and provided with metal track slips on the outside of the tube substantially as shown and described.

2. In an electrical railway, a tube made in longitudinal sections and having its conduct-

ing section insulated from the other section;  
in combination with an inclosing jacket for the  
conducting section having its edges caught  
and retained between the sections of the tube,  
5 and a filling of non-conducting material placed  
between the jacket and conducting section  
substantially as shown and described.

3. The tube A B made in longitudinal sec-  
tions, combined with depressible track slips  
10 F' having insulated stems E' passing through  
the section bearing the track slip and adapted  
to make connection with the conductor in the  
lower half of the tube substantially as shown  
and described.

4. The combination of the tube sections A 15  
and B connected by a longitudinal joint, the  
insulating jacket C having its edges caught  
in said joint and surrounding the lower sec-  
tion of the tube, and conducting stems pass- 20  
ing through the upper tube section and pro-  
vided with insulated track slips, the said stem  
being arranged to connect with the conduct-  
ing section of the tube substantially as shown  
and described.

ARCHIBALD J. MARTIN.

Witnesses:

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