

(No Model.)

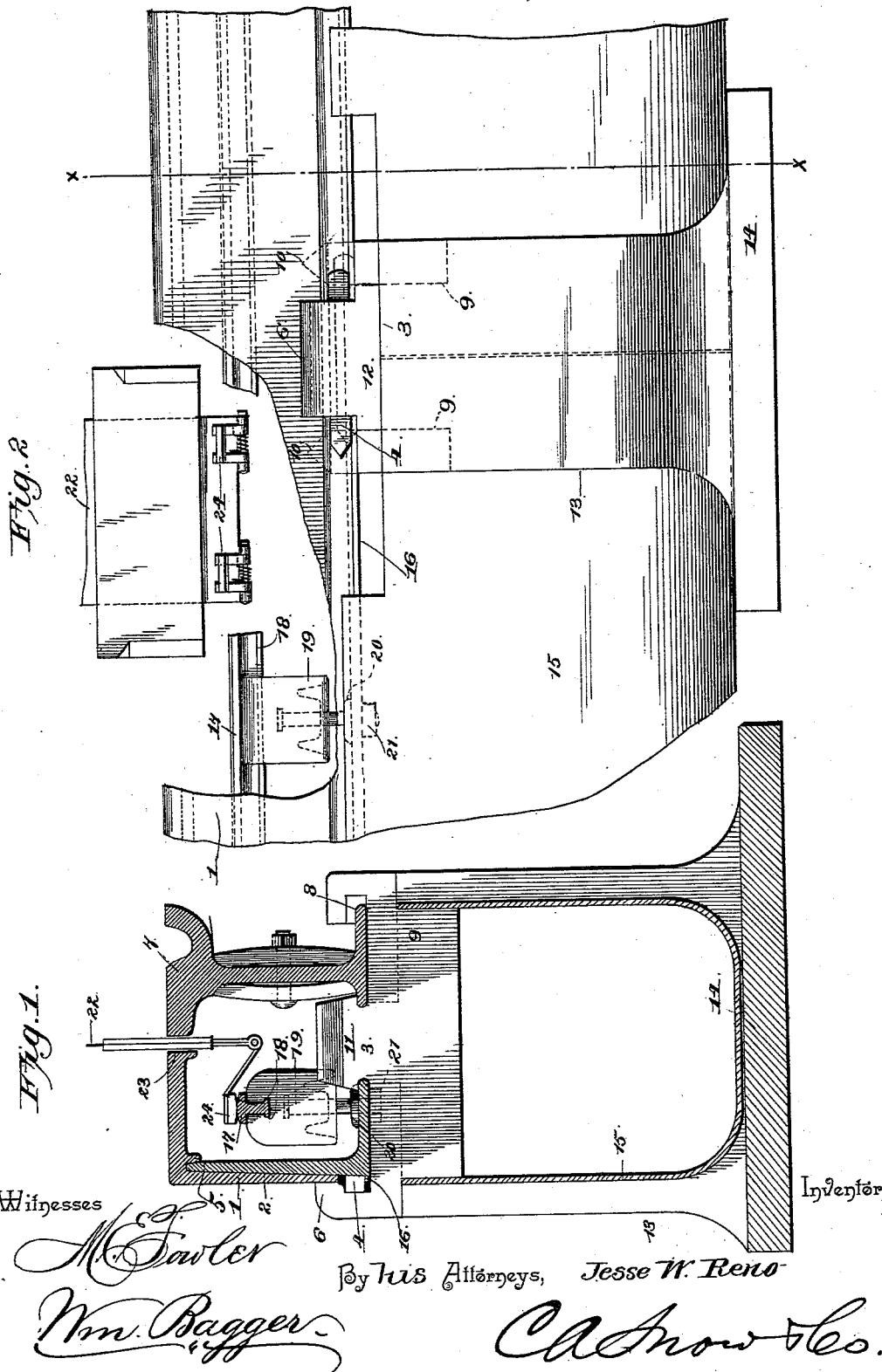
2 Sheets—Sheet 1.

J. W. RENO.

CONDUIT FOR ELECTRIC STREET RAILWAYS.

No. 420,101.

Patented Jan. 28, 1890.



(No Model.)

2 Sheets—Sheet 2.

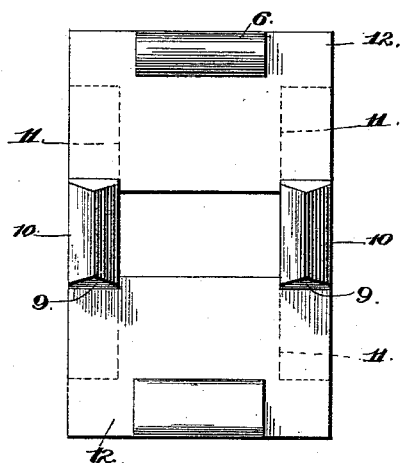
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*Fig. 3.*



Witnesses

*M. Fowler*

*Wm. Bagger*

By his Attorneys,

Inventor

*J. W. Reno*

*C. Snow & Co.*

# UNITED STATES PATENT OFFICE.

JESSE WILFORD RENO, OF BOSTON, MASSACHUSETTS.

## CONDUIT FOR ELECTRIC STREET-RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 420,101, dated January 28, 1890.

Application filed September 12, 1889. Serial No. 323,768. (No model.)

### *To all whom it may concern:*

Be it known that I, JESSE WILFORD RENO, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Conduit for Electric Street-Railways, of which the following is a specification.

This invention relates to conduits for electric street-railways, and is an improvement on the device shown and described in my application for Letters Patent, Serial No. 309,013, allowed on the 21st day of July, 1889. By my present improvement I design to do away with the tendency of material dropping through the slot to collect upon the clamping-chairs and upon the foundation, which, if not provided for, would require frequent attention for the purpose of removing accumulations of debris which might otherwise interfere with the successful operation of the device.

To this end my present invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a transverse sectional view taken on the line *xx* in Fig. 2. Fig. 2 is a side elevation, with parts broken away for the purpose of showing the construction more clearly. Fig. 3 is a plan view of the chair 3 used in connection with the invention.

Like numerals of reference indicate like parts in the figures.

1 designates the cover-plate of the conduit, and 2 is the side casing, which is keyed firmly in place in the chair 3 by means of the wedge 4. The cover-rail is constructed with the flange 5 locking over the inner side of the upper edge of the conduit rail or casing 2, and its lower end enters between the flange 6 of the chair and the conduit-rail 2, so as to be held very securely in position and at the same time in such a manner that it may be easily removed when it shall be desired to gain access to the conduit.

7 designates the girder-rail, which is of the usual type, with the exception of the inner side of its foot-flange, which is made shorter

than the outer side. The girder-rail is keyed in the chair by means of a wedge 8.

The chair 3 comprises a pair of transverse and parallel braces or gratings 9 9, having sharp or beveled upper edges, as shown at 10. These bars or gratings are connected by the center and side connecting-pieces 11 and 12, and are grooved to form seats for the flanges of the girder-rail and casing and for the keys or wedges, by means of which these parts are secured in position.

15 designates the U-shaped foundation, which is provided with the base-flange 14, and the upper edges of which are adapted to support the chair, the transverse braces of which 9 are fitted between the sides of the U-shaped foundation. The U-shaped foundations are connected by the drain-sections 15, each of which is formed of a single piece of sheet metal bent to the desired form, and having its ends adjusted closely together in the adjacent foundations 13. The drain-sections are retained securely in their position by the transverse braces 9 of the clamping-chairs, the ends of which abut against the inner sides of the ends of the drain-sections, as will be clearly seen by reference to Fig. 1 of the drawings. These drain-sections 15 between the foundations bear against the outside foot-flange of the rail 7 on one side and against the key-flange 16 of the casing 2 on the other side, so that when the earth is packed around they form a smooth continuous drain for the conduit.

The conductor 17 is made, preferably, of T shape in cross-section, as will be seen in Fig. 1, its upper or contact surface being made slightly convex, as shown. The lower edge of the conductor is provided with laterally-extending flanges 18 to enable it to be connected with the insulators 19, which are constructed, preferably, of vulcanized fiber and of the shape shown in the drawings, by reference to which it will be seen that they are made hollow or cup-shaped on their under sides for the purpose of excluding moisture and forming a larger and more efficient insulating-surface. The insulators are mounted upon bolts 19, extending through the foot-flanges of the conduit-rails 2, and

having shoulders 20 resting upon or bearing against the upper sides of the said foot-flanges. The lower ends of the bolts 19 are provided with nuts 21, by means of which they are secured firmly in place.

22 designates an insulated copper plate extending through the slot 23 between the adjacent edges of the cover-rail 1 and the girder-rail 7, and carrying at its lower end or edge the hinged contact-shoes 24, adapted to make contact with the continuous conductor 17.

The operation and advantages of this invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed, by those skilled in the art to which it appertains. It will be seen that any dirt or debris which may enter through the slot 23 will be prevented from lodging upon the clamping-chair by the sharp upper edges of the vertical transverse ribs or braces 9, which will cause all foreign matter to drop direct into the continuous drain which forms the bottom of the conduit, and which may be provided at suitable points with outlets, through which accumulated matter may escape. Access to the conduit may readily be had by removing the cover-plate 1. The drain-sections are retained securely in position by the transverse ribs or braces of the clamping-chairs, and the parts being so connected as to form a single continuous conduit will be equally affected by heat and cold and will expand and contract evenly. Bolts may, when desired, be used for connecting the foundations and clamping-chairs; but this is not deemed essential.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a conduit for electric railways, the clamping-chair composed of transverse vertical ribs or braces connected by center and

side pieces which are grooved to form seats for the flanges of the girder-rail and conduit-casing and for the keys or wedges by means of which the parts are connected, substantially as set forth.

2. The combination, with the foundation and the continuous drain, of the clamping-chairs consisting of transverse braces or gratings connected by center and side pieces having grooves to form seats for the conduit-casing and girder-rail, substantially as set forth.

3. The combination, with the U-shaped foundation, of the clamping-chairs consisting of transverse gratings having beveled upper edges and connected at their upper ends by the center and side pieces, grooved to form seats for the conduit-casing and girder-rail, substantially as set forth.

4. The combination, with the U-shaped foundations, of the drain-sections, the clamping-chairs having the transverse braces or gratings adapted to fit in the foundations and to bear against the sides of the drain-sections and secure the latter in position, substantially as and for the purpose set forth.

5. The combination, with the conduit herein described, of the insulators mounted by means of bolts in said conduit, and the T-shaped conductor having a convex contact-surface and provided at its lower end with laterally-extending flanges, by means of which it is connected with or mounted upon the insulators, substantially as and for the purpose herein set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JESSE WILFORD RENO.

Witnesses:

JOHN ELIOT,  
F. E. READ.