

(No Model.)

2 Sheets—Sheet 1.

H. BRANDENBURG.
ELECTRIC RAILWAY.

No. 559,356.

Patented May 5, 1896.

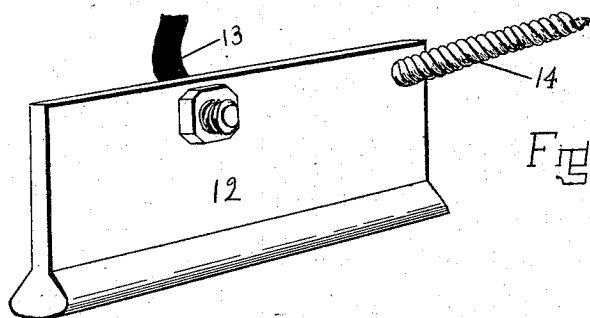


Fig 2

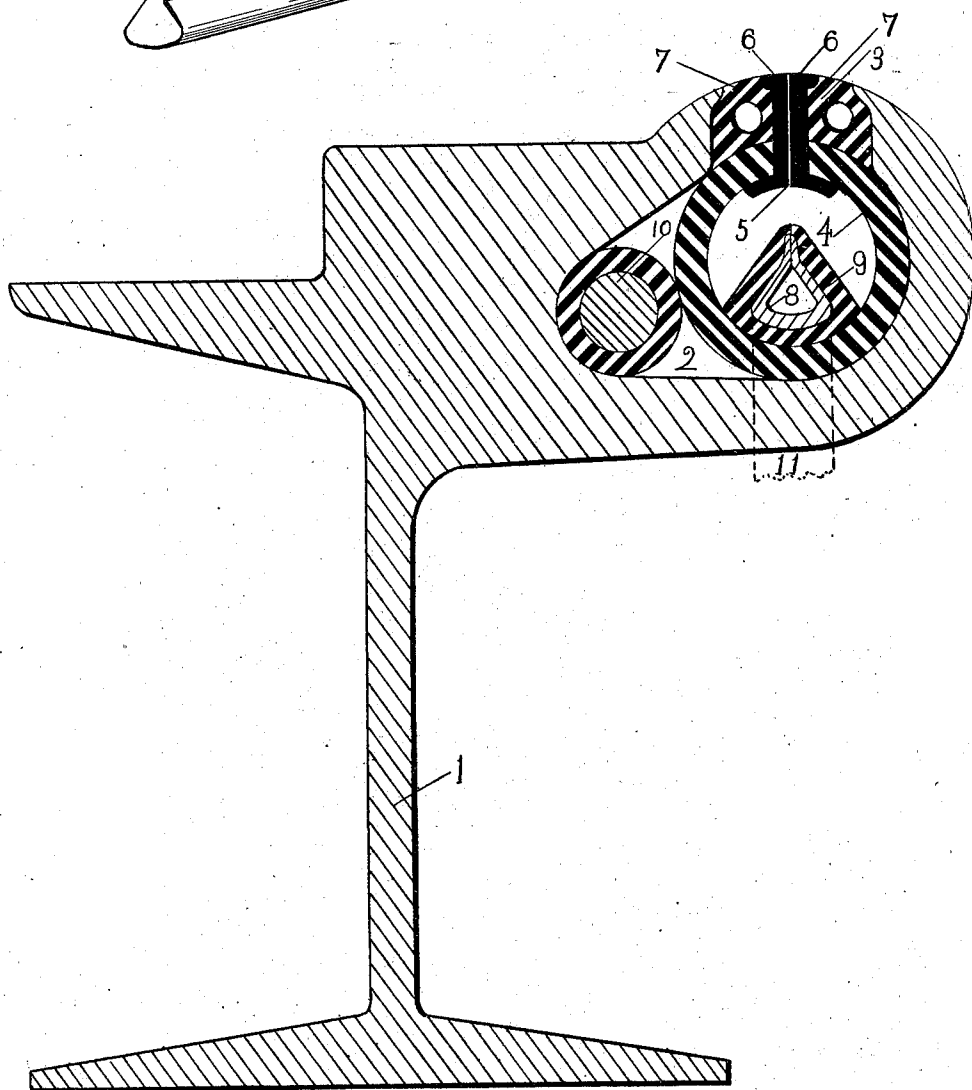


Fig 1

Witnesses
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Daniel M. Simmons

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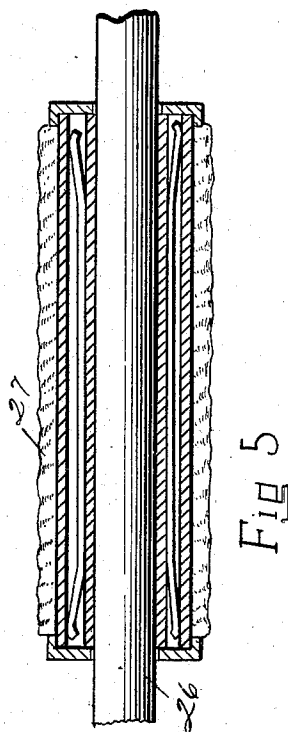
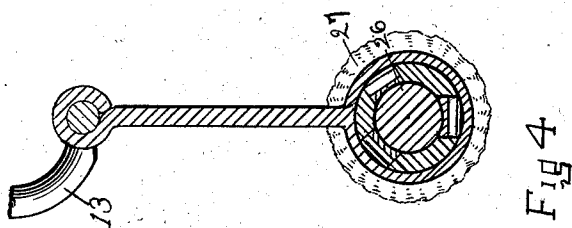
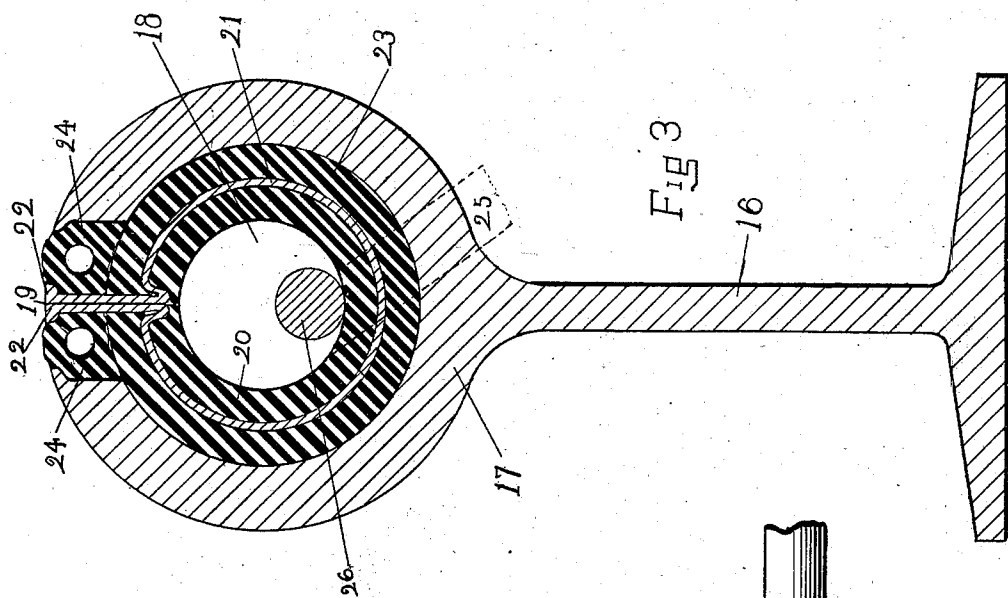
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2 Sheets—Sheet 2.

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ELECTRIC RAILWAY.

No. 559,356.

Patented May 5, 1896.



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Henry Brandenburg

UNITED STATES PATENT OFFICE.

HENRY BRANDENBURG, OF CHICAGO, ILLINOIS.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 559,356, dated May 5, 1896.

Application filed March 11, 1895. Serial No. 541,385. (No model.)

To all whom it may concern:

Be it known that I, HENRY BRANDENBURG, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Electric Railways, of which the following is a specification.

My invention relates to conveying the electricity near the railway-surface underneath or nearby the cars, using a strong open-slotted metal tube, which may be formed in a railway-rail or made and connected to any other strong support.

The object of my invention is to employ the simplest means possible to accomplish the necessary requirements, reducing the cost of construction and maintenance to the lowest point.

To attain the object of my invention I make direct contact with the electric conductor, obviating the transmission of it through sectional conductors operated by the various methods of mechanical devices, and by well-developed arrangement of insulation secure and protect the conductor from undue waste or leakage, rendering it danger-proof.

I do not limit my invention to the precise forms or details, but they may be greatly modified without departing from the spirit of my invention.

That those skilled in mechanics may properly construct and operate my invention I herewith submit a specification of its structure and mechanism, referring by numbers to the drawings.

Figure 1 is a form of rail where I desire to employ a girder-rail as the medium for the carriage of the conductor. Fig. 2 is the trolley I use in connection with the hollow conductor shown in Fig. 1. Fig. 3 is a distinct girder-conductor envelop that may be set alongside of a rail or in the center between tracks. Fig. 4 is the trolley-blade used with a solid wire conductor, as shown in Fig. 3. Fig. 5 is a section longitudinally of the trolley, Fig. 4, to show the spring-pressed contacts.

In detail my invention is thus briefly described:

For the rail-form, Fig. 1, I construct a girder-rail 1, Fig. 1, of proper metal, and at the outer edge I form a chamber or cavity 2, with a slot 3. Within the chamber 2 I place a tube of flexible insulating material 4, slotted at the top

5, the slot to have jaws or lips of hard insulation 6, extending up to or above the surface of the rail 1. Between the lips and the rail I place tubes of flexible and compressible material 7. Within the cavity of the tube 4 I place a hollow electric conductor 8, of peculiar form, enveloped in insulation 9. I may place back in the recess of the cavity an insulated feed-wire 10, having frequent connections with the conductor 8. The cavity of the tube 4 is drained at intervals through insulated tubes 11, shown by dotted lines and connecting to any common form of drain beneath.

A trolley-blade 12, Fig. 2, formed at the bottom to fit the cavity of the conductor transmits in its transit the electric current from the conductor to a motor on a car or vehicle via the wire conductor 13, Figs. 2 and 4, which is insulated. It is towed by the car through means of a cable 14, Fig. 2.

A modified form is shown in Fig. 3, in order that it may be placed between the rails of a track. Here the standard consists of a foot 15, a stem or web 16, and two arms or flanges 17, which envelop a cavity or chamber 18, slotted at the top 19 and containing the working appliances, which may be shown in Fig. 1, but are preferably as in Fig. 3, where a flexible insulated tube 20, slotted at the top, is enveloped by a spring-metal tube 21, having lips rising to the surface 22. This spring is in turn surrounded by a flexible insulation-tube 23, while between the lips 22 and the flanges 17 lie flexible insulation-tubes of elastic and compressible substance. It is drained similar to Fig. 1 by the dotted drain-pipes 25. A round conductor 26 lies uninsulated in the bottom of the tube 18. The form of trolley used in this modification is shown in Fig. 5 as a lateral section showing spring and swab system and in Fig. 4 as an end view, being a plate of metal with a tube at the bottom surrounding the conductor 26. It also shows manner of attaching motor-wire to both forms of trolley. It is operated by the trolley opening the lips of the tubes and contacting with the conductor, whereby a current is carried from the conductor via the trolley and trolley-wire to or from the motor, as the case may be.

To clean the cavity of the tubes 4, Fig. 1,

and 20, Fig. 3, I attach to the trolley 12, Fig. 4, a brush or swab of any suitable flexible material that will at the same time answer for a brush or cleaner and a guide for the trolley-blade. This is shown at 27, Fig. 4.

To provide for inequalities in the conductor-wires, I insert within the tube of the trolley concave-faced contact-bars secured to flat springs bearing against the inside of the tube, as shown in Fig. 4.

In a contemporaneous application, Serial No. 541,386, I have claimed a slotted conductor surrounded by slotted insulation and inclosed in a slotted metallic sheath, and this construction I do not claim herein.

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

1. The herein-described rail for electric railways formed integral in cross-section having the tread-surface for the wheel and the longitudinal chamber or cavity formed in the body thereof with a relatively narrow longitudinal slot or opening leading to said chamber; substantially as described.

2. A rail for electric railways formed integral in cross-section and consisting of the foot-flange, vertically-extending web and the top or body portion forming the tread-surface for the wheel having an internal longitudinally-extending chamber or compartment with a relatively narrow longitudinal slot or opening leading into said chamber; substantially as described.

3. In an electric railway, the combination with the trolley-conductor, of the tubular insulation loosely surrounding said conductor and having a slot for the admission of the trolley, of a resilient metallic sheath inclosing said insulation and having its edges coincident with the edges of the slot in the insulation whereby a trolley may be inserted and the insulation is kept normally closed against admission of extraneous matter by the resiliency of the metallic sheath; substantially as described.

4. In an electric railway, the combination with the trolley-conductor, of a slotted insulation loosely surrounding the same, the resilient metallic sheath closely surrounding said insulation and having its edges coincident with the edges of the slot in the insulation for the admission of a trolley whereby the slot is closed by the resiliency of said metallic sheath and an external insulation surrounding said resilient sheath; substantially as described.

5. In an electric railway, the combination with the trolley-conductor, of the slotted insulation loosely surrounding the same, a resilient metallic sheath closely surrounding said insulation with its edges coincident with the edges of the slot for the admission of the trolley, an external elastic insulation and an unyielding metallic inclosure for the whole having a longitudinal slot or opening; substantially as described.

6. In an electric railway the combination with the trolley-conductor, of the slotted insulation loosely surrounding said conductor, the resilient sheath closely inclosing said insulation and having its edges arranged in proximity parallel to each other and forming a closed slot coincident with the slot in the insulation but capable of being opened by separation of the resilient sides of the sheath for the admission of a trolley; substantially as described.

7. In an electric railway, the combination with the rail having a longitudinal chamber formed in the body thereof with the longitudinal slot opening into said chamber, slotted insulation confined within the chamber and slot, a resilient metallic sheath lining said slotted insulation, slotted insulation located within the metallic sheath and a trolley-conductor supported within the last-mentioned insulation; substantially as described.

HENRY BRANDENBURG.

Witnesses:

WM. A. YOUMANS,
H. DE GREY.