

(No Model.)

2 Sheets—Sheet 1.

W. C. GOSS.
ELECTRIC RAILWAY.

No. 471,543.

Patented Mar. 29, 1892.

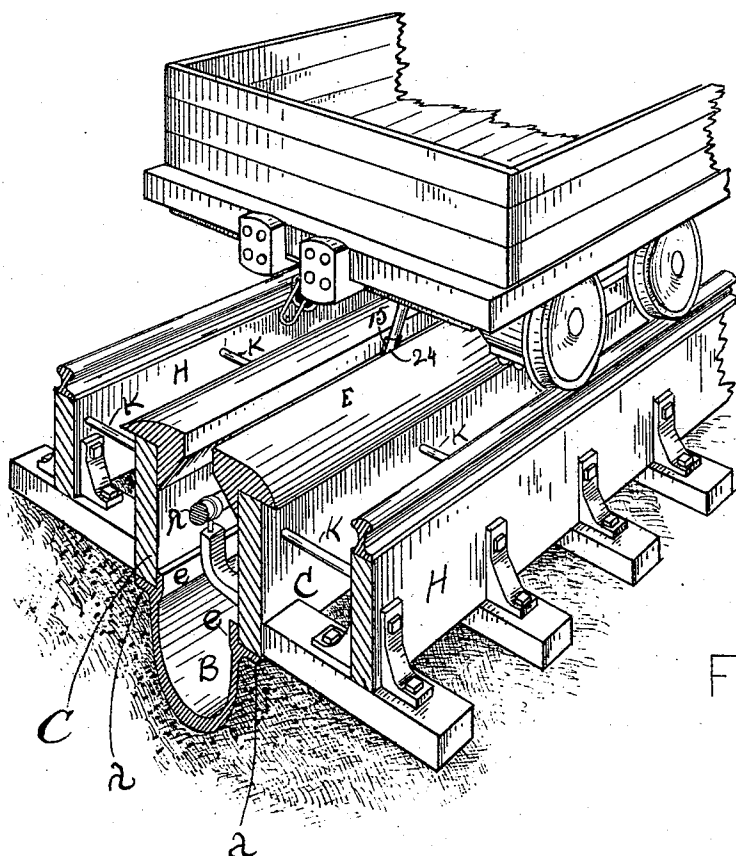


Fig. 1 -

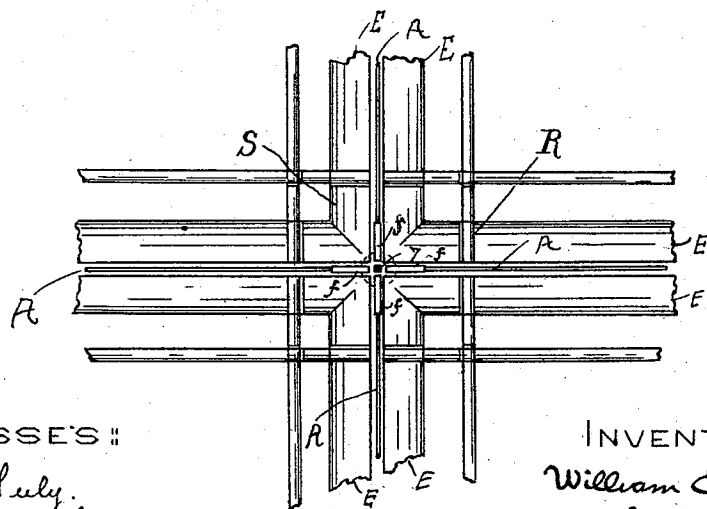


Fig. 2 -

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By C. B. Judd
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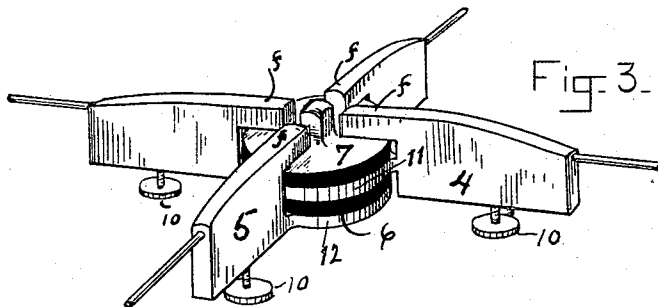


Fig. 3.

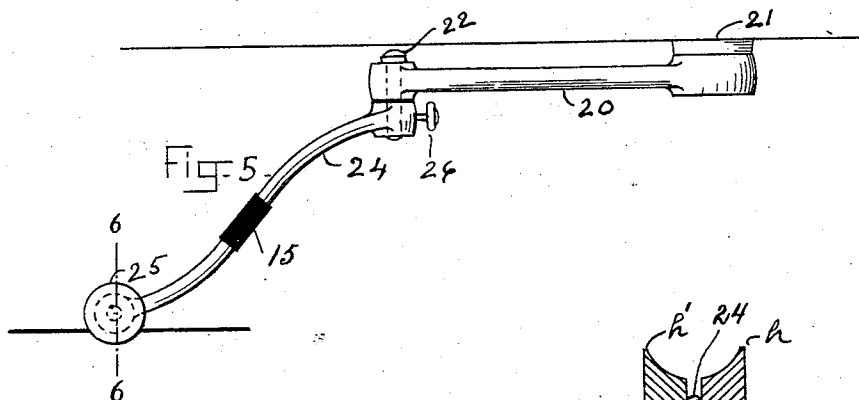


Fig. 5.

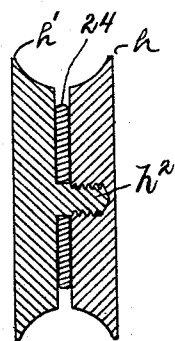


Fig. 6.

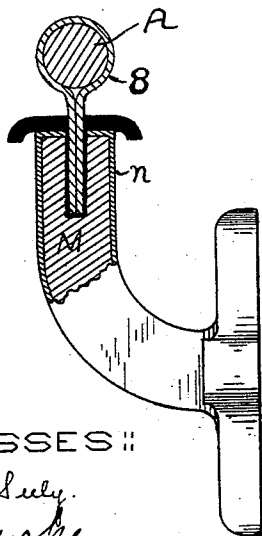


Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM C. GOSS, OF LYNN, MASSACHUSETTS.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 471,543, dated March 29, 1892.

Application filed April 3, 1891. Serial No. 387,467. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. GOSS, of Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Electric Railways, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in electric railways; and it consists, mainly, in improvements relating to the housing, whereby is inclosed the electric supply-conductor and the combination thereof with the rail-beds and supply-conductor.

It also pertains to means whereby two or more supply-conductors are bridged relative to each other and insulated from each other at the point of crossing, as hereinafter more fully described.

In the accompanying drawings, Figure 1 is a perspective view representing a section of electric railway constructed in accordance with and embodying this invention. Fig. 2 is a plan view of a section of two intersecting railways embodying this invention. Fig. 3 is a perspective sectional view representing the mechanism whereby two electric supply-conductors are bridged. Fig. 4 is a sectional view, enlarged, representing the supply-conductor-supporting bracket. Fig. 5 is a side view of the trolley-supporting mechanism. Fig. 6 is a section on line 6 6 of Fig. 5.

The electric supply-conductor A is supported in an inclosing housing, Fig. 1. Said housing is formed of a bottom B, side walls CC, and a cover or cap of two parts EE. The side walls CC are formed of wood and rest upon the bottom B, which to that end has suitable flanges *a* opposed to the lower edge face of the side walls and also with flanges *e* opposed to the inner side faces of the side walls, so as to support the bottom of said side walls against movement inwardly. Said bottom B is preferably composed of iron and is trough-shaped, substantially as shown, to the end that water accumulating from melting ice or other cause may be conducted along the same to exit-ports, which are located at certain intervals. The cap-pieces EE are supported in any suitable or well-known manner—as, for instance, by bolts or screws—on the tops of the side walls CC, and are arranged a distance apart to form a narrow channel for

receiving the arm 24 of an electric trolley. Said pieces EE find support upon the side walls CC and extend over the inner chamber of the housing, thus forming a kind of two-part cap over said chamber of the housing. Said pieces have top faces inclining rearwardly to shed and conduct liquid and other obstructions from entering the chamber of the housing. Said pieces are preferably composed of iron or other similar material to resist wear and tear of vehicles and other road travel. The railway-rails are supported on suitable bed-pieces H, formed of wood or other suitable material, and rest upon sleepers in the usual manner. Said sleepers are set to butt against the side walls CC and prevent movement thereof outwardly, while at suitable intervals brace-bolts K are extended between the rail-supports H and side walls CC at or near the top edges thereof, respectively, to press and hold the same against movement laterally from above. The space between said side walls CC and bed H is filled with stones or other suitable packing in the usual and customary manner. The electric supply-conductor is supported within the chamber of the described inclosing housing by means of insulating-brackets composed of an inner core of metal M, having an outer insulating-coat *n*, whereby it is insulated from electric contact with or through the side walls CC, to which for supporting the conductor it is attached, Fig. 1. It supports within a suitably-formed chamber at its top end, lined with insulating material, a ribbon-stud 8, which surrounds and supports the conductor, as shown.

Fig. 3 represents the means whereby two conductors are bridged to cross each other. To that end said means comprise four parts. Parts 4 and 5 are composed of cast or otherwise-formed conducting materials having sockets for receiving the ends of the supply-conductor, the two ends or main portions of said parts 4 and 5 being connected by the respective integral conducting-disks 11 12. Said parts 4 5 are also provided with trolley-supporting extensions *ff*. The part 6 is composed of hard rubber or other non-conducting material, and being interposed between the disks of parts 4 and 5, as shown, operates to separate and insulate said parts from each other. The

part 7 is likewise composed of rubber or other non-conducting material and is set beneath the trolley-supporting extensions *f*, to the end that there may be no possible electric connection, inductively or otherwise, between the trolley-supporting extensions of the piece 4 and the contiguous metal of the piece 5. Said non-conductor 7 is extended upwardly between the ends of the trolley-supporting extensions *f*, to the end that electric contact between said parts may be avoided, and, further, to the end that the trolley may be supported momentarily on said non-conductor while passing from one to the other of the trolley-extensions *f*.

The parts 4 and 5 are held from movement by reason of their connection with the conductor, and since the parts 6 7 are inserted between said parts 4 5 they will be prevented from slipping out of position.

The ends of the supply-conductor are supported in a suitable socket, to that end formed in the parts 4 5, and are retained therein by means of screws 10. The housing whereby two supply-conductors are inclosed at the point of bridging of said conductors, as described, and the construction of the railway-rails and housing-caps about the conductor bridgments, is fully represented in Fig. 2. By reference to said Fig. 2 of the drawings it will be observed that the intersecting chambers of the supply-conductor housings at the point of intersection are covered by angular cap-pieces, as S, to permit intersection of the trolley-arm groove, to thereby provide passage for the trolley in crossing. Likewise it is noted that the said caps are grooved, as at R, to permit passage for the car-wheels.

In operation it will be understood that the trolley-supporting mechanism hereinafter described is provided with a suitable trolley-wheel or other traveler which contacts with and travels on the supply-conductor and, extending upwardly through the opening between cap-pieces E E, has connection with the car or other vehicle in a suitable manner.

The trolley-arm is provided with a non-conducting sleeve 15, (see Figs. 1 and 5,) whereby it is excluded from electrical contact with cap-pieces E E.

In Fig. 5 is represented a trolley-supporting mechanism which I have devised and use in connection with a vehicle and electric railway of the construction hereinbefore described. Said trolley-supporting mechanism comprises a jointed supporting-arm formed of two members, one of which members 20 is pivotally connected at one end with the vehicle by means of a fulcrum-stud, as 21, and supports in its opposite end, to turn loosely therein, the fulcrum-stud 22, in which is supported the other member 24 of the trolley-arm. In the opposite end of said member is journaled a trolley-wheel 25. Said trolley-wheel 25 is formed in two parts *h h'*, one of said parts *h'* having a screw-threaded tang *h²* to fit a hole in the opposite member *h*. Said

tang constitutes the journal whereby said trolley-wheel is supported in the member 24 of the supporting-arm. (See Fig. 6.) Said trolley-arm, when used in connection with a railway of the construction herein described, is provided with an insulated sleeve 15, Figs. 1 and 5, to provide against electrical connection between said arm and cap-pieces E E of the conductor-supply housing. When used in connection with the conductor supported above the railway-track in the so-called "overhead" system, the said insulated sleeve may be dispensed with.

The fulcrum-stud 22 is inserted within a suitable socket for receiving the same in the end of member 24, and a catch-bolt 26 is provided, whereby the member is detachably held in connection with the stud 22, all this to the end that the said member 24 may be removed and inserted into another similar member and pivot-stud (not shown) at the opposite end of the car whenever the vehicle is moving in an opposite direction.

Having thus described my invention, I claim—

1. In an electric-railway system, a supply-conductor, a slotted inclosing housing comprising a bottom wall having upwardly-extending sides provided with horizontal and vertical flanges, side walls resting thereon, and a series of insulators supported at intervals along said housing in contact with the conductor for supporting the same, substantially as described.

2. The combination, with the supply-conductor of an electric railway, of an inclosing housing therefor composed of the wooden side walls C, the metallic trough-shaped bottom wall B, and cap-plates E, arranged with a space between them, substantially as described.

3. The combination, with the supply-conductor of an electric railway, of an inclosing housing for the same, composed of the bottom B, having upwardly-extending sides, with horizontal and vertical flanges on said sides, separate vertical side walls C, resting thereon, and a two-part cap or cover, substantially as described.

4. In an electric railway, an electric supply-conductor, an inclosing housing therefor formed with the bottom B, having upwardly-extending walls, with horizontal and vertical flanges on said walls, and separate vertical side walls, as C, supported by the flanges, substantially as described.

5. In an electric railway, an electric supply-conductor, an inclosing housing therefor formed with bottom B, having horizontal and vertical flanges *a e*, and separate side walls C C, resting against the flanges, combined with trackways and brace bars or bolts K, substantially as described.

6. In an electric-railway system, a supply-conductor, an inclosing housing therefor, and an insulating-bracket attached to the wall of the housing and comprising a metallic core,

an insulating-covering thereon, and a ribbon-stud, as 8, attached to the bracket and surrounding and supporting the conductor, substantially as described.

5 7. In an electric railway, bridge-pieces, as 4 5, each comprising two main parts, to which the ends of conductors are secured, trolley-supporting extensions, as *ff*, electric connections between the two main parts of the
10 bridge-pieces, and means for insulating the bridge-pieces from each other, substantially as described.

8. In an electric railway, the bridge-pieces 4 5, comprising two main parts, conductors
15 secured to said main parts, disks of conducting material connecting the two main parts of each piece, a disk of insulating material between the conducting-disks, trolley-supporting extensions, as *ff*, upon the bridge-pieces,
20 and a disk of insulating material beneath the trolley-supporting extensions, provided with a stud extending up to a level with the top of said trolley-supporting extensions, substantially as described.

25 9. In an electric railway, a movable vehi-

cle, an electric supply-conductor, a trolley-wheel and a support therefor comprising a member arranged parallel with the track and pivoted at one end to swing horizontally, and a downwardly-extending member pivoted to
30 the opposite end of said first member, so as to have horizontal movement and supporting at its outer end the trolley-wheel, substantially as described.

10. In an electric railway, a movable vehi- 35 cle, an electric supply-conductor, a trolley-wheel and a support therefor comprising a horizontal member pivotally connected at one end to the vehicle, a fulcrum-stud 22, supported in its opposite end, and a second pivoted
40 member having a socket in one end, within which is detachably secured said fulcrum-stud and carrying the trolley-wheel, substantially as described.

Signed at Lynn, Massachusetts, this 20th 45 day of March, A. D. 1891.

WILLIAM C. GOSS.

Witnesses:

THEO. H. KELLAM,
C. B. TUTTLE.