FOR ELECTRICITY TRANSMISSION TO VEHICLES.

No. 886,319. PATENTED APR. 28, 1908.

E. W. FARNHAM.

SUPPORT FOR ELECTRIC CONTACT SHOES.

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Fig. 1.

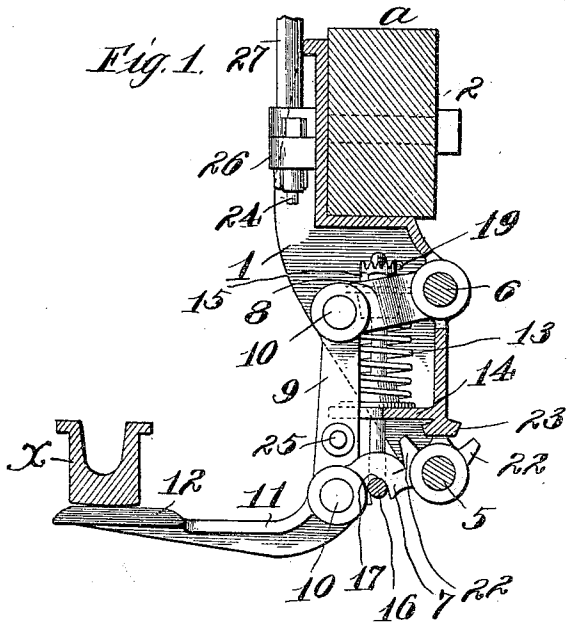
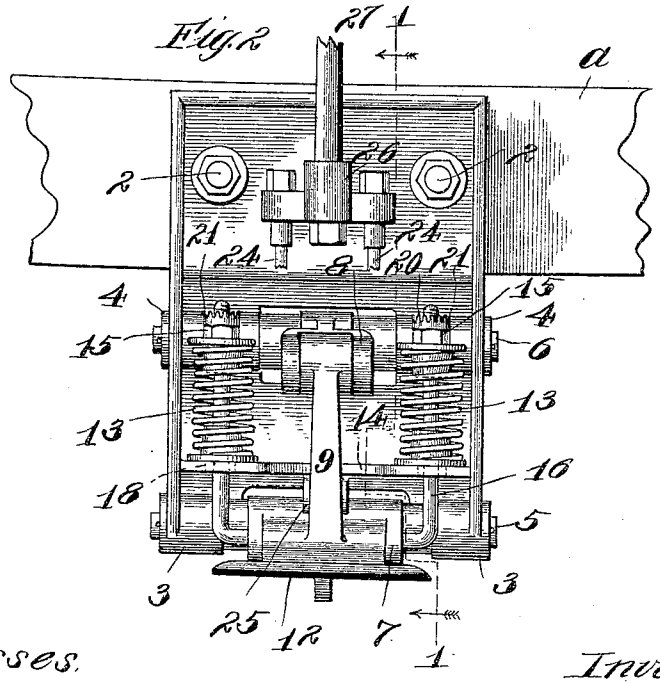


Fig. 2.



Witnesses.

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SUPPORT FOR ELECTRIC CONTACT-SHOES.

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To all whom it may concern:

Be it known that I, ED WILSON FARNHAM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Supports for Electric Contact-Shoes, of which the following is a specification.

This invention relates to means for making electrical connection between a car and an electric contact rail, and it has for its object the provision of means for keeping the face of the contact shoe in close contact with and substantially parallel with the contact face of the rail. The shoe herein shown is adapted to make contact with an under-running (that is to say, an inverted) contact rail, and the means for attaining the object mentioned is arranged to keep the shoe in a substantially horizontal position at all times, whereby a large collecting surface is always presented to the rail.

The invention also relates to the various features of improvement hereinafter pointed out.

In the accompanying drawings, Figure 1 is a view of an electric contact shoe, showing its operative relation to the contact rail, and illustrating the means for supporting the shoe from one of the trucks of a railway car. Fig. 2 is an elevation of said shoe and its supporting means viewed from the side of the car-truck.

The supporting means for the contact shoe may be attached to the car-truck in any suitable manner. I have herein shown only a portion of the attaching means, namely, a wooden bar *a*. To this bar is firmly secured a hanger 1 by means of bolts 2 passing through said bar and hanger. A pair of bearing ears 3 is provided at the lower end of said hanger, and at a point above said bearing ears 3 is a similar pair of bearing ears 4, said pairs of ears respectively supporting pivot rods or shafts 5 and 6. Upon these shafts are mounted arms 7 and 8 of equal length and having bifurcated outer ends, said outer ends being pivotally connected with the opposite ends of a link 9 by means of bearing studs 10 on said link. It will thus be seen that the link 9, though free to move vertically, will always remain parallel with a line joining the axes of the shafts 5 and 6. An arm 11 is formed integral with the lower end of the link 9 and extends horizontally outward from the car-truck, its outer end being widened to form the contact shoe 12. The link 9 and shoe 12 are yieldingly supported upon two coiled springs 13 seated at their lower ends upon a shelf 14 formed upon the hanger 1, their upper ends engaging and bearing against nuts 15 turned upon the ends of a U-bolt 16, the middle portion of which U-bolt lies beneath and supports the arm 7. Said metal portion of the U-bolt engages a notch 17 in the arm 7, and the legs of the bolt extend upward through suitable openings 18 in the shelf 14. The nuts 15 are adjustably locked upon the upper ends of the U-bolt by means of cotter pins 19 passing through said bolt and engaging notches 20 formed in washers 21. Stop lugs 22 on the hub of the arm 7 are adapted to engage shoulders 23 formed on the hanger 1 to limit the pivotal movement of said arm and, consequently, the vertical movement of the contact shoe 12 in either direction.

The contact rail *x*, which may be of any ordinary or preferred construction, is supported with its contact face in position to be engaged by the upper side of the contact shoe 12, as indicated in Fig. 1.

Wires 24 are connected with the link 9 at 25 and extend to a suitably apertured lug 26, whence the current is conveyed to the circuit upon the car by means of the wire 27.

In use, the upper face of the contact shoe 12 will remain substantially parallel with the contact face of the rail *x*, even though the car-truck should move vertically to some extent. The link 9, being carried by two parallel pivoted arms 7 and 8 of equal length, will always remain parallel with a line joining the axes of the pivots for said arms; hence, the contact shoe 12 carried by said link will always remain horizontal, though free to yield vertically to accommodate itself to movements of the car-truck or inequalities in the contact rail. Good electrical contact will therefore be maintained at all times between the shoe 12 and the rail *x*.

It is clear that the contact shoe and its supporting hanger may be attached to the car-truck in other ways than that herein shown; that various kinds of yielding supports for the shoe may be substituted for that illustrated in the drawings; and that the embodiment herein shown may be modified in various ways without departing from the spirit and scope of the invention. I there-

fore desire to have it understood that I do not wish to limit myself to the precise details herein set forth.

I claim as my invention:

1. In a support for electric contact shoes, in combination, a hanger adapted to be secured to the car and comprising a shelf; two parallel arms of equal length pivoted at one of their ends to said hanger; a link connecting the opposite ends of said arms; a substantially horizontal shoe-supporting arm connected with said link; a U-bolt, the middle portion of which extends under and supports one of said parallel pivoted arms; and two springs seated upon said shelf and each surrounding one arm of said bolt and bearing against one end of its bolt-arm.

2. In a support for electric contact shoes, in combination, a hanger adapted to be secured to the car; and means carried by said hanger for yieldingly holding a contact shoe upward into contact with an inverted third rail, said means comprising two parallel arms of equal length pivoted at one of their ends to said hanger and extending in a plane at right angles with the third rail; a link connecting the opposite ends of said arms; a substantially horizontal shoe-supporting arm connected with said link; and means for yieldingly pressing said shoe-supporting arm upward.

3. In a support for electric contact shoes, in combination, a hanger provided at its upper end with attaching means; bearings in the lower portion of said hanger; two arms of equal length having means at one end for pivotally supporting them in said bearings; a link connecting the opposite ends of said arms, said link being of substantially the same length as the distance between said bearings; a shelf on said hanger; a coiled spring seated on said shelf and connected with one of said arms and tending to swing said arms upwardly; and a shoe-supporting arm connected with said link.

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