

wherewith the conductor is connected, said wheel being carried by said plunger but insulated therefrom, means for returning the plunger inwardly, and an electric circuit closer or switch proper provided in the outer end of the lateral extension and by means of which circuit is closed through said conductor and wheel when said parts are projected outwardly by said shoe, substantially as described. 14th. The combination with a slotted conduit, of laterally operative contact devices arranged therein at intervals along the same and adapted to be actuated by a collector or shoe, each said contact device comprising a reciprocating plunger held in suitable metallic bearings, a conductor insulated within said plunger, a contact wheel connected with said conductor at the inner end thereof, said wheel being carried by said plunger but insulated therefrom, means to prevent rotation of the plunger in its bearings, a water-tight chamber at the outer end of said plunger, electric terminals or switches provided therein to be engaged by said conductor when the same is projected outwardly by the contact of the shoe with said wheel, substantially as described. 15th. The combination with the slotted conduit, of the metallic lateral extensions or parts, each having a recess opening into the conduit, a metallic plunger having metallic bearings within each extension, a contact wheel carried upon the outer end of said plunger but insulated therefrom, a conductor extending from the wheel through the end of said plunger and insulated therefrom, a contact provided upon the outer end of said plunger, a chamber in the outer end of said extension, a switch provided therein, an electric conductor or feed-wire, and means whereby the same is connected to the switch within the said extension, substantially as described. 16th. The combination with the slotted conduit, of the metallic lateral extensions or parts, each having a recess opening into the conduit, a metallic plunger having metallic bearings within each extension, a contact wheel carried upon the outer end of said plunger, a chamber in the outer end of said extension, a switch provided therein, an electric conductor or feed-wire, means whereby the same is connected to the switch within the said extension, and removable surface plates upon each extension, upon the removal of which access may be had to said contact wheel, to said switch and to the electrical connections. 17th. The combination with the conduit, of the metallic lateral extensions or parts, the plunger laterally operative therein, contact devices insulated from the plunger and at opposite ends thereof, said devices being connected, a shoe to travel within the conduit to engage the inner contact device, the electrical connections provided in the outer end of the lateral extension, two springs forming the terminal thereof, and the outer contact device carried by said plunger adapted to enter between said springs, said connections and said springs being wholly insulated from said lateral extension and part, substantially as described. 18th. The combination with the slotted conduit, of metallic lateral extensions thereof, each extension being provided with a chamber or recess, a plunger having metallic bearings therein, in which the same is adapted to operate laterally with respect to the conduit, a contact wheel and a conductor carried by said plunger and insulated therefrom, a water-tight chamber in the outer end of the extension, contact springs provided therein, means for connecting electric wire therein, said springs being supported in a body of insulating material and thereby insulated from surrounding parts, and the outer end of said conductor adapted to engage said springs when the plunger is projected outwardly, substantially as described. 19th. The combination with the metallic lateral extension of a slotted conduit, of an open ended chamber or cylinder provided therein, a metallic plunger, thereby provided with bearings at its opposite ends, the inner portion of said chamber or cylinder being enlarged between said bearings, a contact wheel carried by said plunger, a conductor extending through the plunger, said conductor and wheel both insulated from the plunger, means to prevent the rotation of the plunger, and a water-tight chamber provided in the outer end of said extension, and a switch device provided therein to engage an extension of said conductor, substantially as described. 20th. The combination with the metallic lateral extension of a slotted conduit, of an open ended chamber or cylinder provided therein, a metallic plunger thereby provided with bearings at its opposite ends, the inner portion of said chamber or cylinder being enlarged between said bearings, a contact wheel carried by said plunger, a conductor extending through the plunger, said conductor and wheel both insulated from the plunger, means to prevent the rotation of the plunger, and a water-tight chamber provided in the outer end of said extension, and a switch device provided therein to engage an extension of said conductor, and means to prevent the entrance of moisture to the switch chamber through the plunger chamber, substantially as described. 21st. A contact-shoe for employment in a slotted conduit, said shoe comprising a body of insulated material, the same being of considerable length and provided with sharp wedge-like ends 41, and oppositely arranged contact plates of equal length provided upon the sides of said body, substantially as described. 22nd. A contact-shoe for employment in a slotted conduit, said shoe comprising a body of insulated material, the same being of considerable length and provided with sharp wedge-like ends 41, contact plates of equal length provided upon the sides of said body, said plates being arranged opposite each other upon opposite sides of the body of insulating material, and horizontal strengthening ribs provided upon the upper and lower edges of said body, substantially as described. 23rd. A contact-shoe for employment in a slotted conduit, said shoe comprising a body of insulating material, the same being of considerable

length and provided with sharp pointed or wedge-like ends 41, a contact plate or plates provided upon one or both sides of said body, horizontal strengthening ribs provided upon the upper and lower edges of said body and the upper rib provided with convex top, as and for the purpose specified. 24th. The combination in a circuit closer to be actuated by a traveling shoe, of a metallic plunger or tube, a conductor provided therein and having an end to engage said switch, a contact wheel carried upon the outer end of said conductor, bearings for said plunger, the inner surface of said plunger and the surface of said conductor being rough and a compressed filling of insulating material between said parts whereby the same are locked together and the conductor insulated from the plunger, substantially as described. 25th. The combination with the lateral projection of an underground conduit, of a contact wheel to be engaged by a contact shoe, a horizontally and laterally movable plunger whereby said wheel is carried and from which the same is insulated, a conductor extending through said plunger, a water-tight chamber provided at the outer end of said plunger and containing a switch to be engaged by said conductor, bearings intermediate between said chamber and the inner end of said plunger, said bearings being distant from one another and separated by a chamber, substantially as described. 26th. The combination with the lateral projection of an underground conduit, of a contact wheel to be engaged by a contact shoe, a horizontally and laterally movable plunger whereby said wheel is carried and from which the same is insulated, a conductor extending through said plunger, a water-tight chamber provided at the outer end of said plunger and containing a switch to be engaged by said conductor, bearings intermediate between said chamber and the inner end of said plunger, said bearings being distant from one another and separated by a chamber, and a spring provided in said chamber to act upon said plunger, substantially as described. 27th. The combination with the slotted conduit, of lateral extensions, said extensions comprising lower parts 7 and upper parts 8, said lower parts having broad flanges or bases, means for securing said parts together, a chamber or recess within said lateral extension so formed, longitudinal flanges provided upon said extensions at their inner ends to facilitate joining the same with the conduit sections, removable surface plates and circuit closing said switch devices provided in said lateral extension, substantially as described. 28th. The combination with the slotted conduit, of lateral extensions, said extensions comprising lower parts 7 and upper parts 8, said lower parts having broad flanges or bases, means for securing said parts together, a chamber or recess within said lateral extension so formed, longitudinal flanges provided upon said extensions at their inner ends to facilitate joining the same with the conduit sections, removable surface plates, a removable heel plate 11 provided with a depending part forming the outer end of the lateral extension, circuit closing and switch devices provided in each lateral extension, the same being normally insulated from one another and at all times insulated from the extension or containing box, substantially as described. 29th. The combination with a conduit having lateral extensions, of laterally operative circuit closing devices provided therein and adapted to be operated by a moving shoe, a switch device provided in the lateral extension and wherewith the contact device is adapted to be engaged, electrical connections with said switch device, and said switch device and said connections being entirely inclosed in hard insulating material with the exception of the part to be engaged by said contact device, substantially as described. 30th. The combination with a slotted conduit, of a shoe to move therein, laterally operative contact devices to be engaged by said shoe, means whereby circuit is closed through said contact devices when the same are projected outwardly, each said contact device comprising a plunger, a conductor insulated within the same, a yoke secured upon the end of said conductor and also insulated from said plunger, and a contact wheel arranged in said yoke, substantially as described. 31st. The combination with a slotted conduit, of a shoe to move therein, laterally operative conduit devices to be engaged by said shoe, means whereby circuit is closed through said contact devices when the same are projected outwardly, each said contact device comprising a plunger, a conductor insulated within the same, a yoke secured upon the end of said conductor and also insulated from said plunger, a contact wheel arranged in said yoke, and a spring 33 interposed between the yoke and said wheel, as and for the purpose specified.

No. 57,960. Car Fender. (*Défense de chars.*)

Paul Jones, Cincinnati, Ohio, U.S.A., 2nd November, 1897; 6 years. (Filed 1st May, 1896.)

Claim.—1st. The combination, substantially as hereinbefore set forth, of the front platform, fender-supporting hangers secured thereto, the pivoted fender-frame supported by said hangers, means substantially as shown to sustain the fender in its elevated position against force applied to throw it to its lower position, an electromagnet in the main or line circuit, and tripping mechanism such as described to close the circuit, release the fender-sustaining device, and permit the fender to drop to its lowest position. 2nd. The combination of the front platform, the hangers secured thereunder at each side, the fender-frame pivoted in said hangers, the coil-springs connected with the hangers and fender-frame and exerting their tension to throw the fender to its lowest position, a support fitted to slide in guides secured underneath the car platform, a bar connecting said support to the fender-frame, a lever having a detent to