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W. T. OVIATT.

ELECTRICAL CONTACT FOR TROLLEY SYSTEMS OF ELECTRIC RAILWAYS.

APPLICATION FILED AUG. 29, 1905.

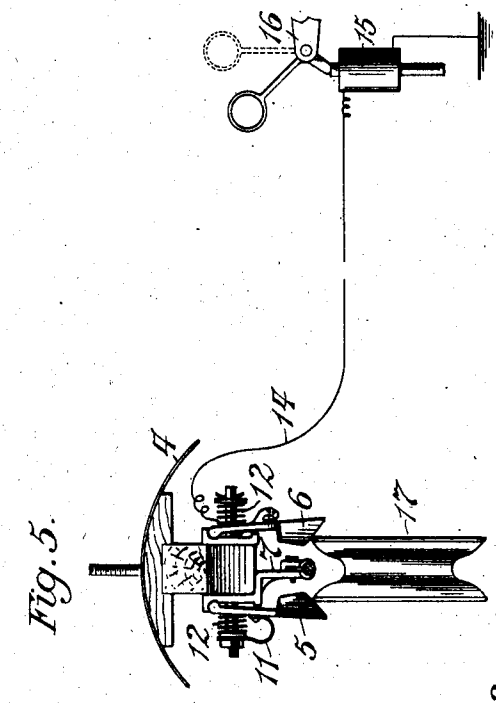

Fig. 5.

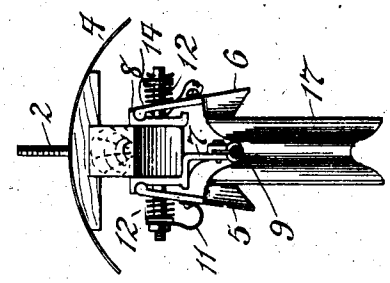

Fig. 4.

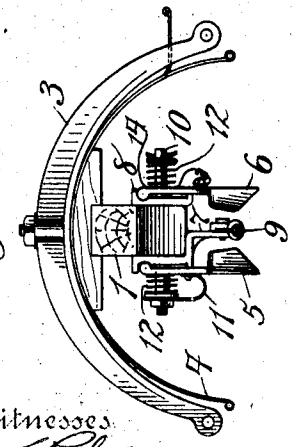

Fig. 3.

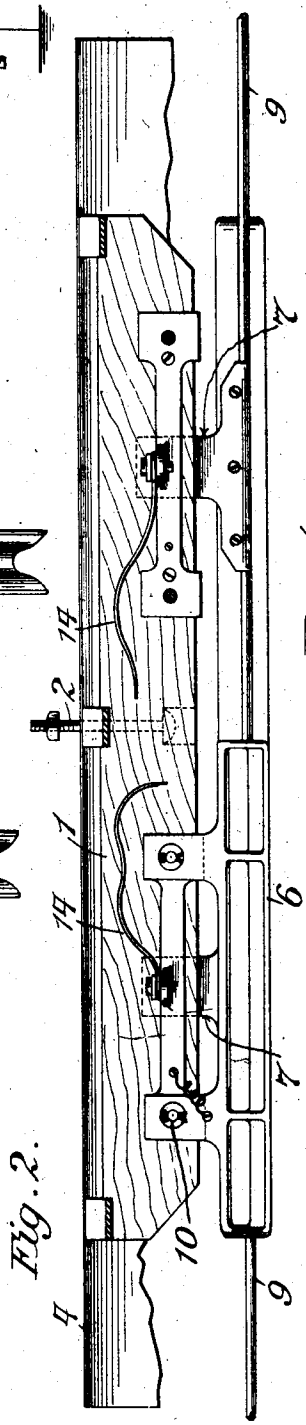

Fig. 2.

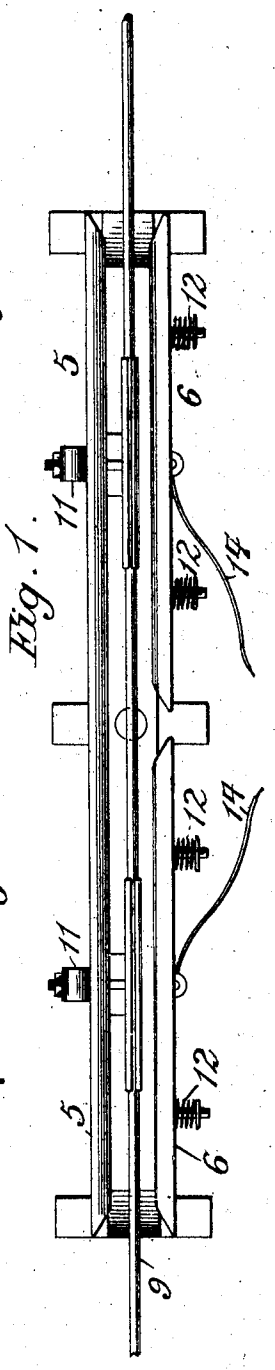

Fig. 1.

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UNITED STATES PATENT OFFICE.

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ELECTRICAL CONTACT FOR TROLLEY SYSTEMS OF ELECTRIC RAILWAYS.

No. 834,636. Specification of Letters Patent. Patented Oct. 30, 1906.

Application filed August 29, 1905. Serial No. 276,196.

To all whom it may concern:

Be it known that I, WESLEY T. OVIATT, a citizen of the United States, residing at Stratford, county of Fairfield, and State of Connecticut, have made a new and useful Invention in Electrical Contacts for Trolley Systems of Electric Railways, of which the following is a specification.

My invention is directed particularly to a novel contacting device for use with trolley systems of electric railways of the well-known overhead or suspended trolley-conductor type; and it has for its objects, first, to provide means whereby a part of the working current flowing through the trolley-wire may be utilized for operating or effecting electric translating devices, such as signals or the like, wherever the same may be needed in such a system; second, to devise a contacting device of such a nature that it will always maintain the circuit closed between the trolley-wire and the translating device or signal, no matter what may be the speed of the car or how the trolley-wheel may bound or the trolley-wire swing, such acts usually causing the discontinuance of current-flow to the translating devices in existing types of such appliances; third, to devise a contacting device of the nature referred to in which the contact between the lateral faces of the trolley-wheel and the stationary contacts shall always be of a sliding nature, thereby maintaining the operative parts, both movable and stationary, in the best possible condition for carrying or conveying the current from the trolley-wire to the point where it is to be used.

For a full and clear understanding of my invention, such as will enable others skilled in the art to construct and use the same, reference is had to the accompanying drawings, in which—

Figure 1 is a plan view from underneath and as seen looking upward, illustrating my novel contacting device for use in connection with trolley systems of electric railways, the hood or cover therefor being removed. Fig. 2 is a part sectional, part side elevational view of the invention as disclosed in Fig. 1. Fig. 3 is a transverse sectional view as seen looking at Fig. 2 from left to right. Fig. 4 is a similar sectional view showing the trolley-wheel in place as it passes therethrough; and Fig. 5 is a similar view illustrating the operation of the device when the trolley-wheel jumps or is separated momentarily from the trolley-wire, said figure illustrating also diagrammatically the connection of my novel contacting device with the controlling solenoid for a semaphore or equivalent signal.

It has heretofore been proposed to utilize a portion of the working current carried by a trolley-wire or conductor for such purposes through the agency of yieldingly-suspended contacts located closely adjacent to the trolley-wire and in such relation thereto that the passage of the trolley-wheel effects a circuit connection to and through the translating device located beside the track by a rolling contact only. Such devices as these have heretofore been used for operating switches and semaphore-signals and the sounding of alarms.

My improvement embodies mainly a novel feature whereby an absolute certainty of operation is effected as the trolley-wheel passes the point where the device is located.

Referring now to the drawings in detail, in all of which like numerals of reference represent like parts wherever used, 1 represents a wooden or other insulating strip, which is supported at intervals by bolts 2, extending through metallic yokes 3, said yokes being secured to the trolley-wire poles in the usual manner.

4 is a hood for protecting the entire device.

5 6 constitute the contacting devices, the same being in the nature of metallic bars pivotally supported at their upper ends by bolts 10 10, extending through metallic plates 7 8 and provided with yielding springs 12 12, surrounding the bolts and held in place by locking-pins, as shown. One set of these plates 7 extends downward to a point beneath the insulating-strip 1 and at their lower ends are rigidly secured directly to the trolley-wire in the same manner as trolley-wire supports are ordinarily utilized. The bars 5 are preferably longer than the bars 6, the former bars being located in pairs corresponding to each bar 6, the latter bars being located in pairs corresponding to each bar 5. Said bars 5 are electrically connected directly to the trolley-wire 9 by a conductor 11, and the bars 6 are each connected by a conductor 14 to a translating device, as a signal-controlling magnet 15, adapted to control the movement of a semaphore or

other signal 16. 12 12 are springs for holding the bars 6 yieldingly in close proximity to the trolley-wire 9.

17 is the trolley-wheel.

It will be seen that by reason of the pivotally-supported nature of the bars 5 and 6 and the yielding springs which hold them in relatively close proximity to the trolley-wire and of the fact that the lower edges of said bars extend a considerable distance below the trolley-wire there will always be a positive frictional or sliding contact between the lateral or side faces of the trolley and the yieldingly-supported bars 5 and 6, and this whether the trolley-wheel be in contact with the trolley-wire or not, said contact with the trolley-wire being a secondary condition, the essential contact being always, as stated, a frictional or sliding contact such that the parts are kept bright, and therefore always capable of rendering the best possible conductivity to the branch current it is desired to utilize.

The operation will be obvious on inspection of the drawings, it being apparent that no matter what may be the position of the trolley-wheel 17 with relation to the trolley-wire 9, so long as it remains in contact with the bars 5 and 6 there will always be a combined rolling and sliding closed circuit to the electrical translating device or signal-magnet 15. (See Fig. 5, which discloses the trolley-wheel 17 bridging the bars 5 and 6.)

It is well known that trolley-wheels frequently jump from the trolley-wire sufficient distances to practically break or interrupt the circuit at least to such an extent as to seriously interfere with the working of signals where branches of the working current are utilized through the trolley-wheels of cars, the trolley-wire and circuit-closing devices being located in close proximity thereto.

My improvement makes it impossible that there shall be any substantial variation of current-flow through the signal-magnet 15, except for abnormally-wide separation of the trolley-wheel 17 and trolley-wire 9. In fact, such never occurs except when said trolley-wheel is manually removed.

I do not limit my invention to the especial details of construction shown in the accompanying drawings and hereinbefore described, as I believe it is broadly new with me to devise a circuit-closing device for use with trolley-wires and branch circuits running therefrom to translating devices of such a nature that no matter what may be the speed of the car or the vibration of the trolley-wheel or trolley-wire there will be no appreciable variation of current-flow to the signal-magnet or other translating devices when the trolley-wheel passes through between the yielding bars 5 and 6 when connected and arranged in the manner shown.

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

1. A frictional contacting device for use with a trolley-wire, embracing two contacting bars yieldingly supported in close proximity to the trolley-wire, one of said bars being electrically connected thereto and the other insulated therefrom and connected to a translating device, the electrical contact between the trolley and the trolley-wire being of a rolling nature and between the trolley and the bars of a frictional or sliding nature, substantially as described.

2. A contacting device for use with a trolley-wire, embracing two contacting bars yieldingly supported by an insulating-strip with their edges projecting below the trolley-wire, one of said bars being permanently electrically connected with the trolley-wire and the other by a branch conductor to a translating device, the electrical contact between the trolley and the trolley-wire being of a rolling nature and between the trolley and the bars of a frictional or sliding nature, substantially as described.

3. A contacting device for use with a trolley-wire, embracing one contacting bar yieldingly supported in close proximity to the trolley-wire and permanently electrically connected thereto; in combination with two or more parallel conducting-bars insulated from each other and from the trolley-wire, said bars each being provided with an independent conductor for conveying current to a translating device, the electrical contact between the trolley and the trolley-wire being of a rolling nature and between the trolley and the bars of a frictional or sliding nature, substantially as described.

4. A contacting device for use with a trolley-wire, embracing two contacting bars yieldingly supported from an insulating-strip on opposite sides of the trolley-wire and with their lower edges projecting below said wire, one of said bars being connected permanently to the trolley-wire and the other through an electromotive device adapted to control a signal, the electrical contact between the trolley and the trolley-wire being of a rolling nature and between the trolley and the bars of a frictional or sliding nature, substantially as described.

5. A contacting device for use with a trolley-wire, embracing an insulating base or support in the nature of a wooden strip provided with means for securing it to a fixed support; in combination with a pair of contacting bars yieldingly supported on opposite sides of said strip and in close proximity to the trolley-wire; together with a metallic plate secured also to the base and to the trolley-wire, one of said bars being permanently electrically connected to the trolley-wire, the electrical contact between the trolley and the trolley-wire being of a rolling nature and be-

tween the trolley and the bars of a frictional or sliding nature, substantially as described.

6. A contacting device for use with a trolley-wire, embracing an insulating base or support in the nature of a wooden strip provided with means for sustaining it from a permanent support; in combination with two contacting bars yieldingly supported thereby and a trolley-wire also supported thereby, the lower edges of said bars projecting below the trolley-wire, one being permanently connected to the trolley-wire and the other through a conductor to an electric translating device, the entire device being provided with a protecting-hood, the electrical contact between the trolley and the trolley-wire being of a rolling nature and between the trolley and the bars of a frictional or sliding nature, substantially as described.

7. A contacting device for use with a trolley-wire, embracing metallic supporting-yokes sustaining an insulating-base in the nature of a wooden strip; in combination with a pair of contacting bars yieldingly supported thereby and a trolley-wire also supported thereby, one of said contacting bars being permanently electrically connected to the trolley-wire and the other through a conductor to an electrical translating device; together with a hood which covers the entire device, the electrical contact between the trolley and the trolley-wire being of a rolling nature and between the trolley and the bars of a frictional or sliding nature, substantially as described.

8. A contacting device for use with a trolley-wire, embracing an insulating-support, a pair of contacting bars yieldingly supported thereby and a trolley-wire also sustained by the support midway between the adjacent edges of the contacting bars, one of said bars being permanently electrically connected to the trolley-wire, the other through a conductor to a translating device; in combination with a protecting-hood covering the entire structure, the arrangement being such that when the trolley-wheel passes between the contacting bars it forms an electrical connection between the trolley-wire and the translating device, whether it be in contact with the trolley-wire or with the contacting bars, the electrical contact between the trolley and the trolley-wire being of a rolling nature and between the trolley and the bars of a frictional or sliding nature, substantially as described.

9. A contacting device for use with a trolley-wire embracing two contacting bars located on opposite sides of the trolley-wire, one of said bars being connected directly to the trolley-wire and the other by a conductor to a translating device, as a signal, the arrangement being such that the contact between the trolley-wheel and said bars is always of a frictional nature, substantially as described.

10. A contacting device for use with a trolley-wire embracing two contacting bars permanently secured on opposite sides of the trolley-wire and with their lower edges below the same; one of said bars being connected to the wire and the other by a conductor to a translating device beside the track, the arrangement being such that frictional contact is had between the trolley-wheel and both of said bars, and rolling contact with the trolley-wire itself and that should the trolley break circuit with the trolley-wire there will still be maintained good frictional contact with the contact-bars, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WESLEY T. OVIATT.

Witnesses:

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J. F. NOBLE.