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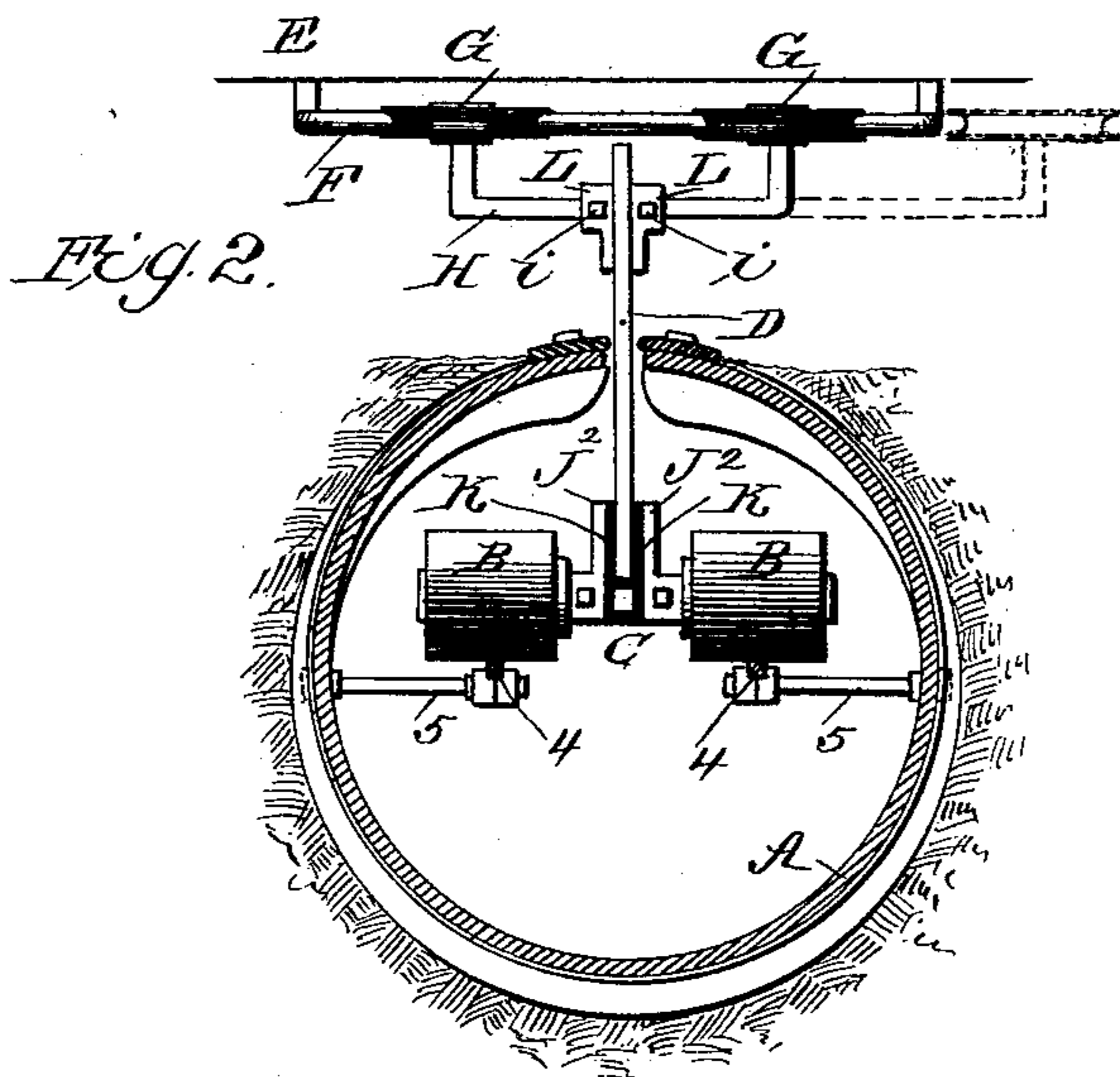
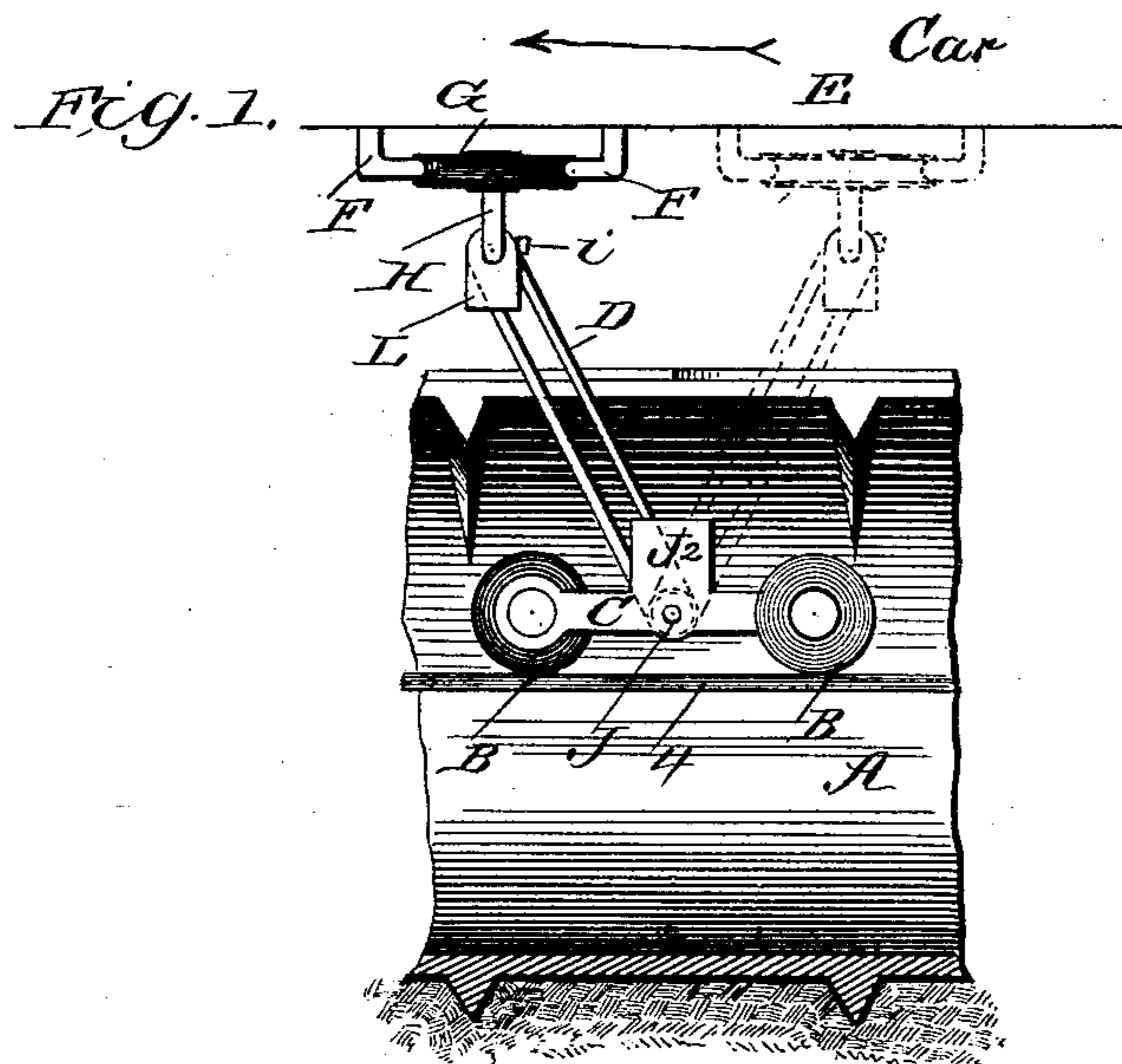
2 Sheets—Sheet 1.

W. F. JENKINS.

TROLLEY FOR ELECTRIC RAILWAY CONDUITS.

No. 481,402.

Patented Aug. 23, 1892.



WITNESSES:

*Fred G. Dieterich*  
*Edw. W. Byrne.*

INVENTOR:

*Wilton F. Jenkins*

BY

*Munn & Co.*

ATTORNEYS

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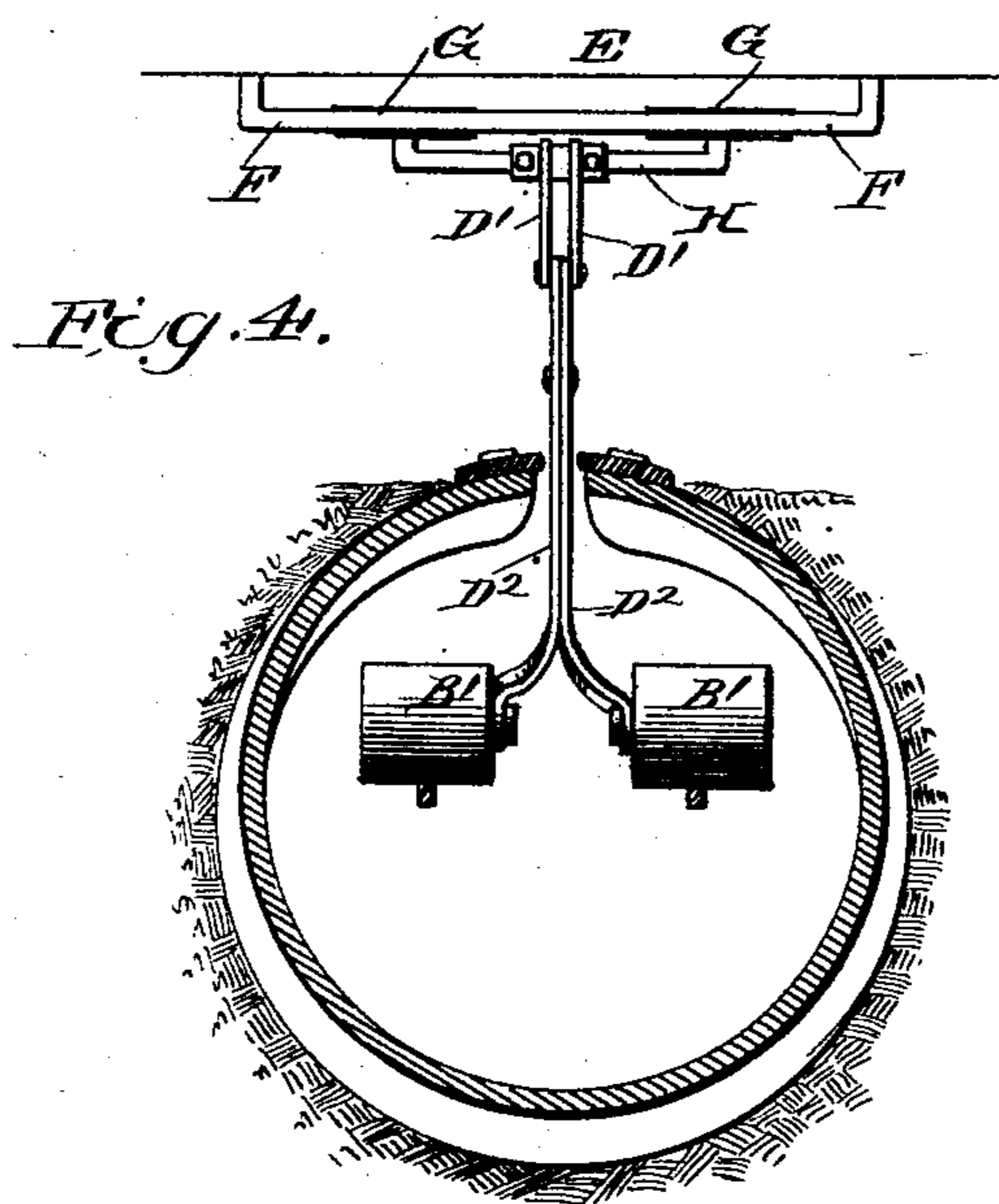
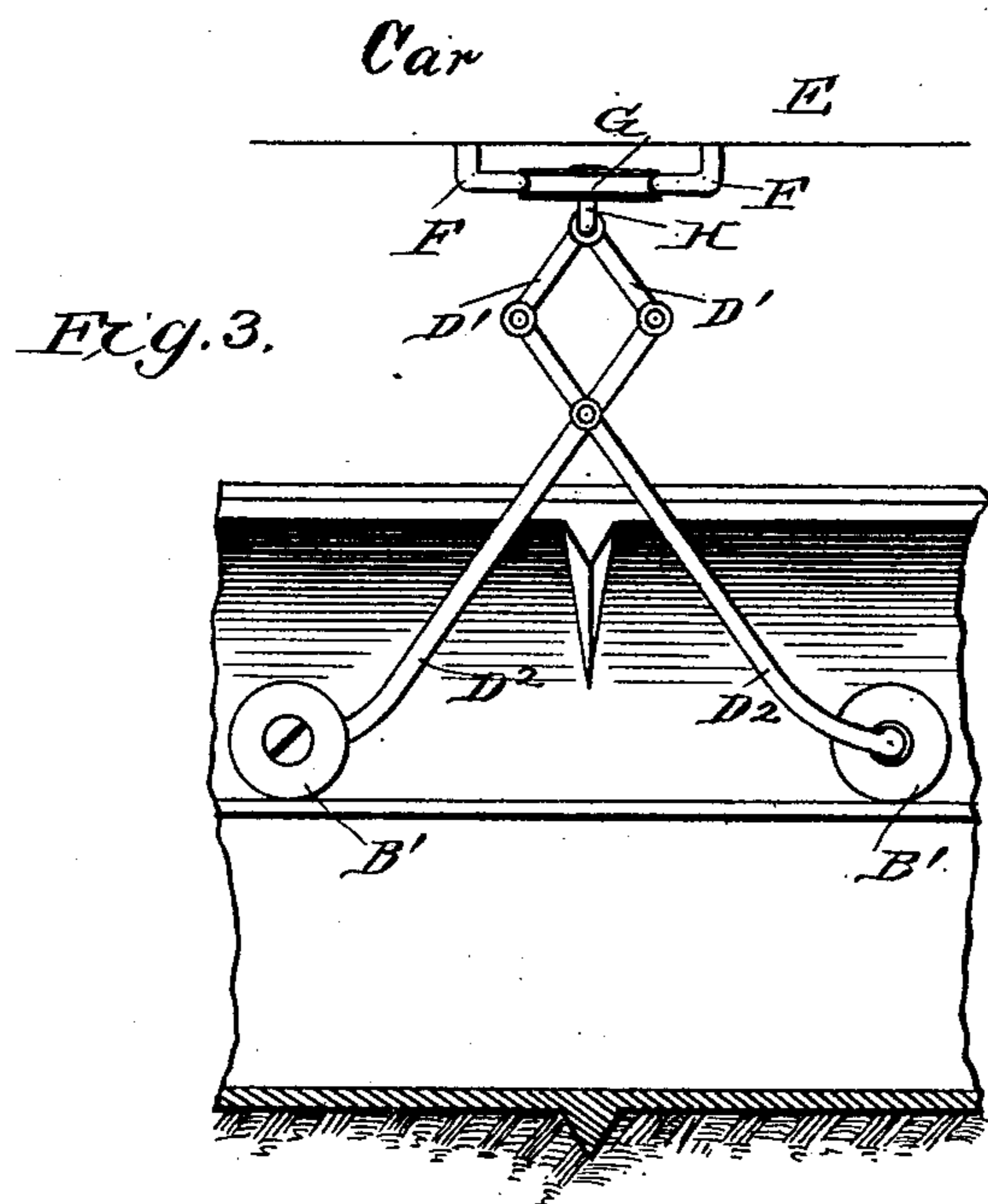
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*Edw. W. Ryan*

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*Wilton F. Jenkins*

BY *M. L.*  
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# UNITED STATES PATENT OFFICE.

WILTON F. JENKINS, OF RICHMOND, VIRGINIA, ASSIGNOR OF FIVE-SIXTEENTHS TO LOUIS EUKER AND WILLIAM E. SHELLEY, OF SAME PLACE.

## TROLLEY FOR ELECTRIC-RAILWAY CONDUITS.

SPECIFICATION forming part of Letters Patent No. 481,402, dated August 23, 1892.

Application filed September 5, 1891. Serial No. 404,811. (No model.)

*To all whom it may concern:*

Be it known that I, WILTON F. JENKINS, of Richmond, in the county of Henrico and State of Virginia, have invented a new and useful  
5 Improvement in Trolleys for Underground Electric Conduits, of which the following is a specification.

My invention relates to trolleys for underground electric conduits for use on electric  
10 railways; and its object is to provide means for adjusting the trolley to the car in such manner as to permit the connection to be readily made; to provide a drag connection for the trolley, which may be reversed with-  
15 out disconnection from the car, and to provide means for taking up vertical and lateral vibration between the car and trolley.

To these ends the invention consists in the peculiar construction and arrangement of the  
20 various parts of the device, as will be herein-after fully described.

In the drawings, Figure 1 is a side view of the trolley shown applied to the car and the conductor in the conduit. Fig. 2 is an end  
25 view of the same; and Fig. 3 is a side view, and Fig. 4 an end view of a modification.

In the drawings, A represents the underground conduit, in which are contained the conductors 4 4, sustained upon horizontal dia-  
30 metrically-projecting arms 5 5.

E is the lower portion of a car which, in the position of the parts shown in Fig. 1, is arranged to travel in the direction of the arrow. This car is provided on its under side with  
35 two rigid guide-bars F, hung a little below the level of the car and arranged in parallel position transversely to the car. These guide-bars have inturned and rounded edges, (see Fig. 1,) set just far enough apart to receive  
40 the grooved pulleys G, which move longitudinally along these guide-bars and are sustained by the same. These pulleys are journaled upon the upturned ends of a pendent bail H, which passes through an elongated slot in a  
45 drag-link D. This link D is kept in a middle position on the bail H by two removable plates L L, which are secured by set-screws i to the bail. These plates serve to hold the link D in right-angular position to the bail  
50 and prevent said link from moving laterally. When the pulleys G, with bail H, are to be in-

serted between the guides F, these plates L are removed and the bail is slipped first to one side far enough to permit one pulley to be entered and then is slipped to the other  
55 side far enough to allow the other pulley to be inserted. After the pulleys are both inserted the plates L L are tightened up by their set-screws, so as to hold the link in central position.

B B are the trolley wheels or rollers, which are arranged to travel, respectively, upon the two conductors 4 4. These rollers are arranged one in advance and the other in the rear and upon opposite sides of the carriage  
60 C. The link D is connected to the carriage by means of a pivotal bolt J, and thus serves to drag along the trolley.

One of the great advantages of the slotted link D is that its slot not only takes up the  
65 vertical vibrations of the car and prevents them from being transmitted to the trolley; but the slot also allows the drag connection to be readily reversed when the car is to be sent in the opposite direction without disconnection,  
70 as shown by the dotted lines.

In forming the trolley-carriage it is provided with two upwardly-extending plates J<sup>2</sup> J<sup>2</sup>, separated from each other by insulation K, and between these insulator-plates the link  
80 D may play backward and forward, but is limited in its motion to a true vertical plane.

In Fig. 3 is shown a modification of my invention. In this case the same guides F are attached to the car, and the same grooved  
85 pulleys G G and bail H are employed. The trolley-carriage and connection, however, are formed of two jointed and crossed legs D<sup>2</sup> D<sup>2</sup>, having wrist-pins at their lower ends, which carry the trolley-rollers B' B'. These crossed  
90 legs are jointed at their upper ends to links D' D', which in turn are jointed to the bail. These links D' and legs D<sup>2</sup> form together a toggle-joint or lazy-tongs, which permit the car to move freely up and down without trans-  
95 mitting any strain to the trolley and conductors, the pulley G and guides F serving to allow lateral adjustment, as before described.

I am aware that a vertical and lateral movement between the car and trolley has heretofore been provided for, as shown, for instance, in Patent No. 419,309, issued to me  
100

and B. J. Black, as joint inventors, and I therefore make no broad claim to these adjustments.

Having thus described my invention, what I claim is--

1. The combination, with the lower portion of a car having the transverse parallel guide-rails F F, of the bail H, having grooved pulleys arranged horizontally between and supported by said guide-rails, and a trolley hung upon said bail, substantially as shown and described.

2. The slotted and reversible drag link or bar, combined with and hung to a trailing trolley, subjacent conductors supporting the trolley, and a transverse bail or axial connection passing through the opening of the drag-link and free to move vertically therein and connected to the car, substantially as shown and described.

3. The trolley-carriage having parallel insulated plates  $J^2 J^2$ , combined with the drag-link D, hung upon a horizontal axis between said plates, substantially as shown and described.

4. The combination, with the trolley and the lower part of a car having bearing-surfaces for the trolley and the bail H on the trolley, of the slotted drag-link D and the adjustable plates L L, connected to the bail

upon opposite sides of the drag-link, substantially as and for the purpose described.

5. The combination of the lower portion of a car having parallel transverse guide-rails F F, the bail H, with horizontal grooved pulleys G G, fitting between the rails, the slotted link D, hung upon the bail, and the trolley-carriage having a pivoted or jointed connection with the link, substantially as shown and described.

6. The trolley-carriage C, having its trolley rollers or wheels arranged at opposite ends upon opposite sides and having upwardly-projecting plates  $J^2 J^2$ , in combination with the drag-link jointed between said plates to the trolley-carriage, substantially as and for the purpose described.

7. The combination, with a portion of the car, a trailing trolley, and subjacent conductors supporting the trolley, of an open reversible drag-link or slotted bar connecting the car and trolley and adapted to take up vertical motion between the car and trolley and also permit of the reversal of the position of the trolley, substantially as shown and described.

WILTON F. JENKINS.

Witnesses:

EDW. W. BYRN,  
P. B. TURPIN.