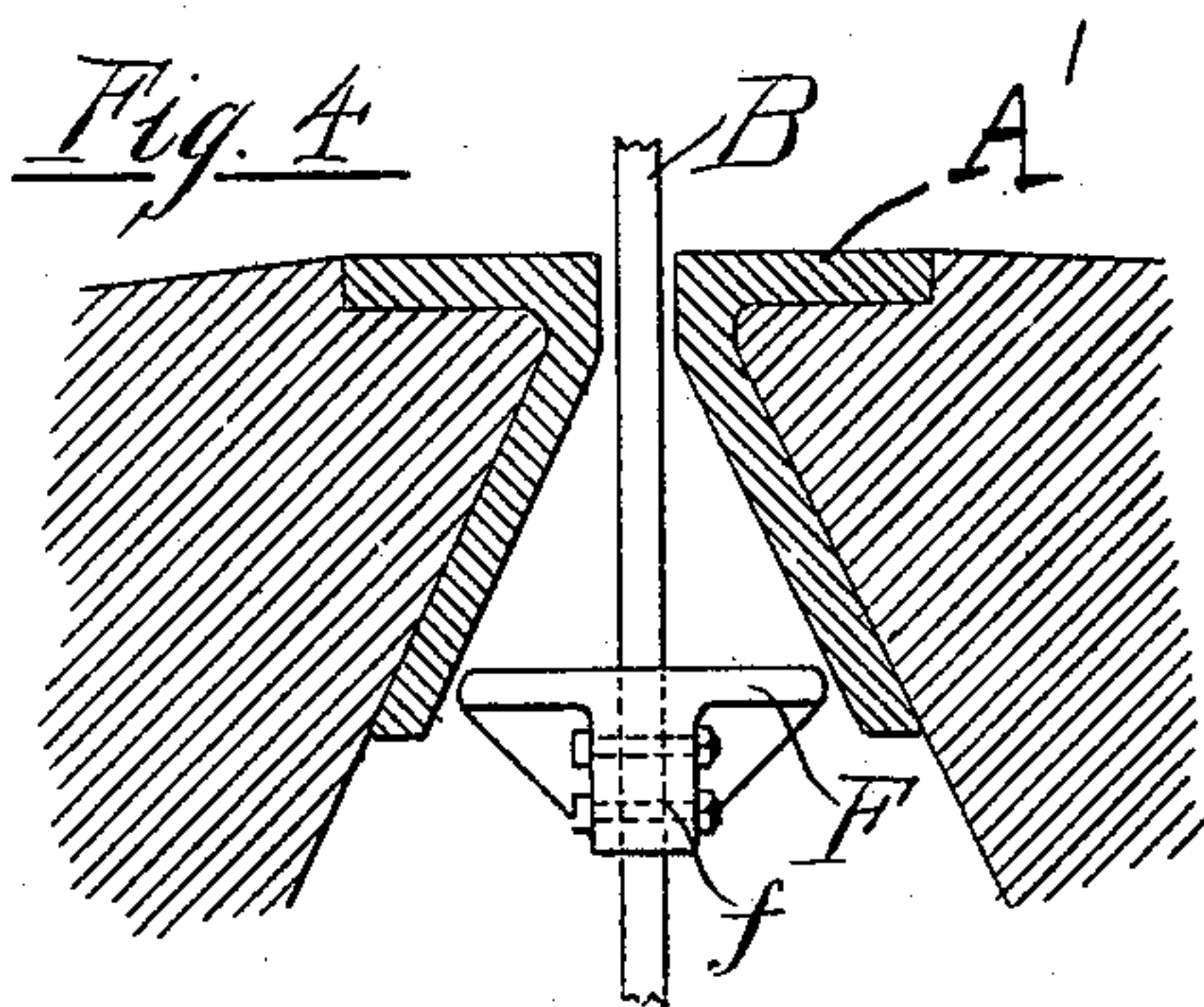
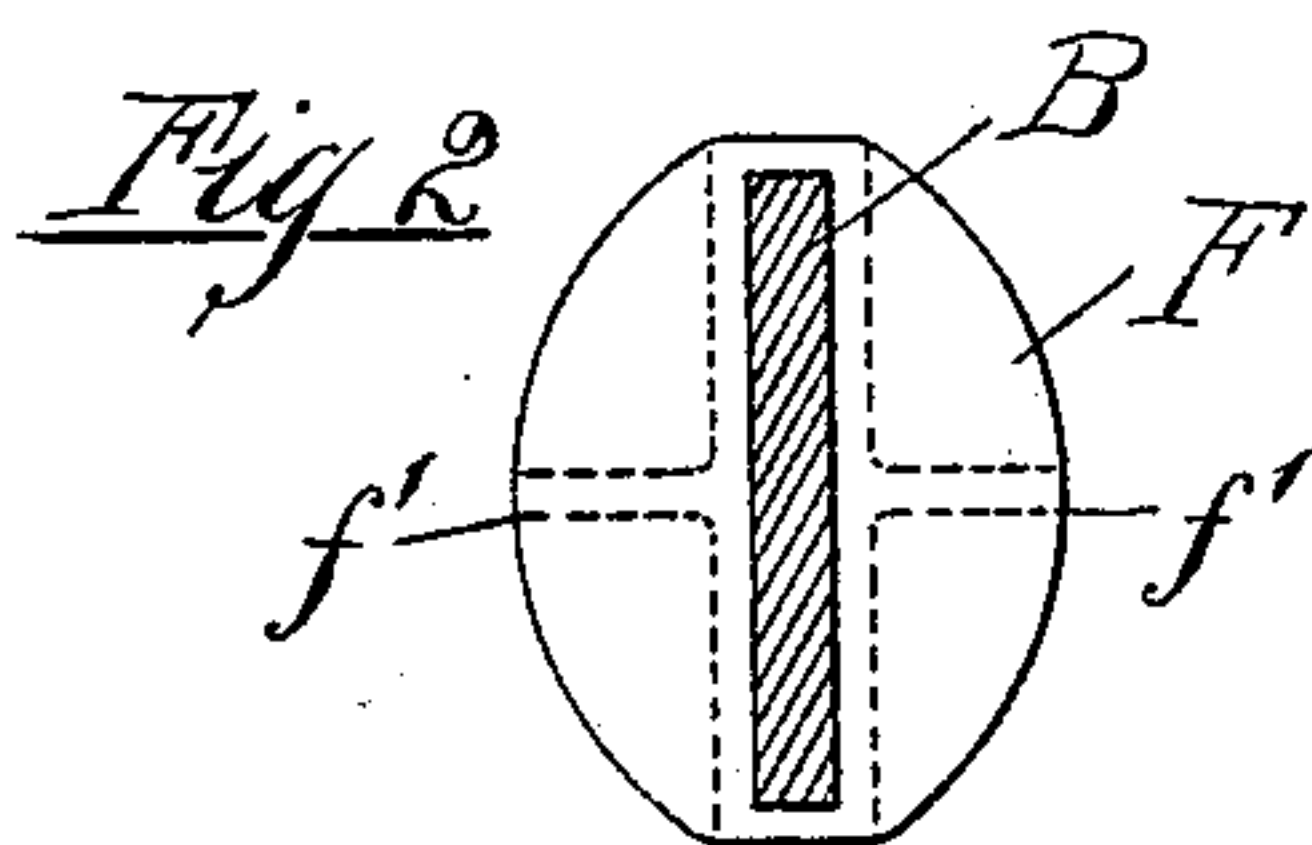
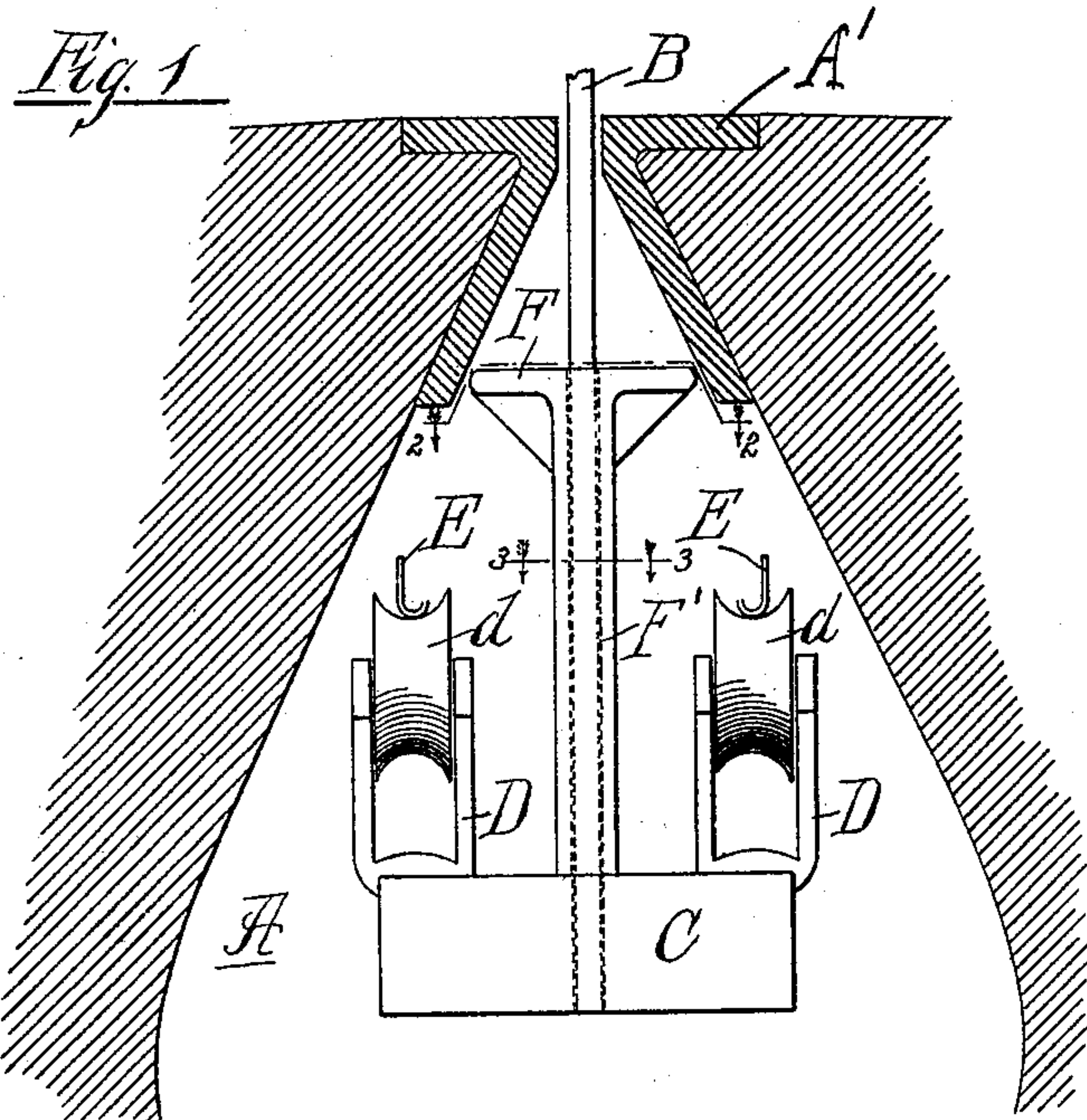


(No Model)

A. G. WHEELER.  
ELECTRIC RAILWAY.

No. 583,525.

Patented June 1, 1897.



Witnesses

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# UNITED STATES PATENT OFFICE.

ALBERT G. WHEELER, OF NEW YORK, N. Y.

## ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 583,525, dated June 1, 1897.

Application filed March 5, 1896. Serial No. 581,877. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT G. WHEELER, of New York city, in the county of New York and State of New York, have invented certain  
5 new and useful Improvements in Electric Railways; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of  
10 this specification.

This invention relates to electric railways of that class comprising an underground conduit which is provided with a longitudinal slot,  
15 through which passes a supporting-bar attached to the car and carrying at its lower end a traveling contact device by which current is transmitted from the conductors to the motor on the car.

20 The invention consists in the matters hereinafter described, and pointed out in the appended claims.

In the operation of electric railways of the kind described injuries to the conductors and  
25 supporting-insulators thereof often occur by reason of quick and sudden lateral movements of the car or truck thereof, which movements throw the supporting-bar and the contact device thereon forcibly in a lateral direction, and  
30 thereby bring violent shocks and blows upon the conductor or conductors with which the contact device is engaged. This may be better understood by consideration of the fact that inasmuch as the supporting-bar which  
35 passes through the slotted conduit engages said slot at one point only lateral movement of the car or truck to which the upper end of the bar is attached will tend to throw the bar into an inclined position or forcibly oscillate  
40 the same, the sides of the slot acting as a fulcrum about which the bar is turned when so forcibly moved or oscillated. Moreover, even when the bar is mounted to slide sidewise on the car or truck, as is usually the case, sudden or violent or transverse movements of the  
45 car or truck will similarly transmit quick and violent oscillations to the bar, because the bar cannot slide quickly enough on the car to prevent sidewise movements being transmitted thereto. Such laterally-movable connection  
50 of the bar with the car is illustrated, for instance, in a prior patent, No. 511,343, granted

to John C. Love December 26, 1893. It is to be noted, furthermore, that even when provision is made for lateral movement with relation to the supporting-arm of the trolley-wheels which engage the conductor (as in said Love patent before mentioned) violent blows on the conductors are not avoided, because the shifting of the said trolley-wheels relatively to the bar cannot take place quickly enough to prevent the violent lateral motions of the bar being transmitted through the trolley-wheels to the conductors. To prevent such lateral movement of the supporting-bar  
55 or trolley with respect to the conductors, I propose to employ guide projections or flanges upon the said bar below the slot-rails or slot of the conduit, said guide-flanges being extended laterally from the bar to points adjacent to the lower parts of the slot-rails or the upper parts of the conduit-walls adjacent thereto, so as to strike the walls and resist any lateral movement of the bar whenever the latter tends to move sidewise in the lurching of  
60 the car and to thereby maintain the supporting-bar at all times substantially in a vertical position. By this construction oscillatory motion of the bar under laterally-acting shocks and blows (which arise from sudden  
65 sidewise movements or lurches of the car and which in the absence of said guides on the bar would be transmitted to the conductors and their supports) is prevented.

In prior patent, granted to John C. Love  
70 December 26, 1893, No. 511,343, a slotted conduit is shown having slot-rails which are provided with deep depending flanges which serve as guides to hold the supporting-bar upright and thereby prevent lateral vibration  
75 thereof. The guides or guide-flanges on the supporting-bar, made as above described, perform the functions of such guide-flanges on the slot-rails while saving the expense incident to their use.

My invention may be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a sectional view of the conduit, showing a supporting-arm and traveling contact device carried thereby. Fig. 2 is a sectional plan view of the supporting bar or standard, taken on line 2 2 of Fig. 1. Fig. 3 is a similar view, taken on line 3 3 of Fig. 1.



Fig. 4 is a sectional view of the upper part of the conduit, showing a modified construction in the guide-flange on the supporting-bar.

As shown in said drawings, A indicates a conduit, and A' A' the slot-rails thereof, said slot-rails being shown as having dependent divergent flanges, which form the upper parts of the conduit-walls.

B indicates the supporting-bar, which is attached at its upper end to the car and which extends downward into the conduit and is there provided with traveling contact devices, which in the instance shown consist of a block C, carrying two supporting-arms D D, in the free ends of which are mounted pulleys or trolleys *d*, which run in contact with conducting wires or strips E, which latter extend through the conduit and serve to convey current from the generator to the motors on the several cars.

F indicates a guide-flange or projection which is mounted on the bar B below the conduit-slot and projects at the side of the bar to points adjacent to the side walls of the conduit at either side of the said bar.

As shown in Figs. 1, 2, and 3, the guide-flange F is attached to a tubular support or sleeve F', which fits over the bar B, so as to slide endwise thereon, and reaches downward to and comes in contact with the parts which support the traveling contact device. In the instance shown the said sleeve reaches to and rests upon the base or frame C, which is attached to the lower end of the bar B. As shown in Fig. 4, however, said flange F is provided with a central hub *f*, which is apertured for the passage of the bar B and is secured to the said bar by bolts or rivets, as shown in the drawings.

The guide-flange F is intended to move in contact, or nearly so, with the opposite side of the walls of the conduit, so that in case of any lateral movement of the bar tending to throw the same out of its vertical position the flange, by contact with the conduit, will arrest such lateral movement and thereby retain the bar in its vertical position. The flange F, as shown, is provided at its opposite sides with curved contact-surfaces *f' f'*, intended to facilitate the sliding of the flange along the conduit-walls and to reduce to a minimum the frictional resistance between the said flange and the side walls of the conduit.

The presence of the guide-flange F obviously prevents any considerable oscillatory movement in the supporting-bar B, with the result of avoiding rapid or sudden lateral movements or oscillations of the lower end of the bar and the contact devices carried thereon and the avoidance of sudden and violent strains or blows on the conductors or their

insulated supports, which would result from such quick lateral movements of the contact devices.

The construction of the guide-flange F with a depending sleeve which reaches to the lower end of the arm B and rests on the parts of the traveling contact devices there located embodies a separate and further improvement of affording important results in practice. In case of any accident, such as the car leaving the track or running into an open switch, by which the supporting-bar should be drawn upward with great force, the guide-flange will catch on the slot-rail, while the sleeve will hold the body of the traveling contact device from rising with the bar, so that the bar will become detached from the traveling contact device and no injury to the conductor will occur, it being obviously desirable that in case of accident the simplest and cheapest part of the apparatus should be broken, which in this instance is the frame of the traveling contact device, it being highly important that the conduit and the conductor in same should be preserved from breakage or injury in case of an accident of the kind referred to. The frame or body part C of the traveling contact device will usually be attached to the supporting-bar by screws or bolts, and in case an accident by which the bar should be drawn forcibly out through the slot the pressure on the top of said frame arising from the contact of the guide-flanges with the conduit-rails will result in the breaking away or separation of the trolley-frame from the bar and avoidance of any injury to any other parts of the apparatus.

I claim as my invention—

1. The combination with a supporting-bar and traveling contact devices carried by the same, of a guide-flange located on the bar above the traveling contact devices and projecting laterally therefrom to engage the opposite sides of the slotted conduit, said flange being provided with a sleeve which surrounds the bar and serves as a means of supporting the flange thereon, substantially as described.
2. The combination with a supporting-bar and a traveling contact device carried by the bar, of a guide-flange mounted on the bar and provided with a sleeve which slides endwise on the bar and which is supported in position by the parts at the lower end of the bar, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

ALBERT G. WHEELER.

Witnesses:

E. MCD. HAWKES,  
JOHN MCGRAIL.