

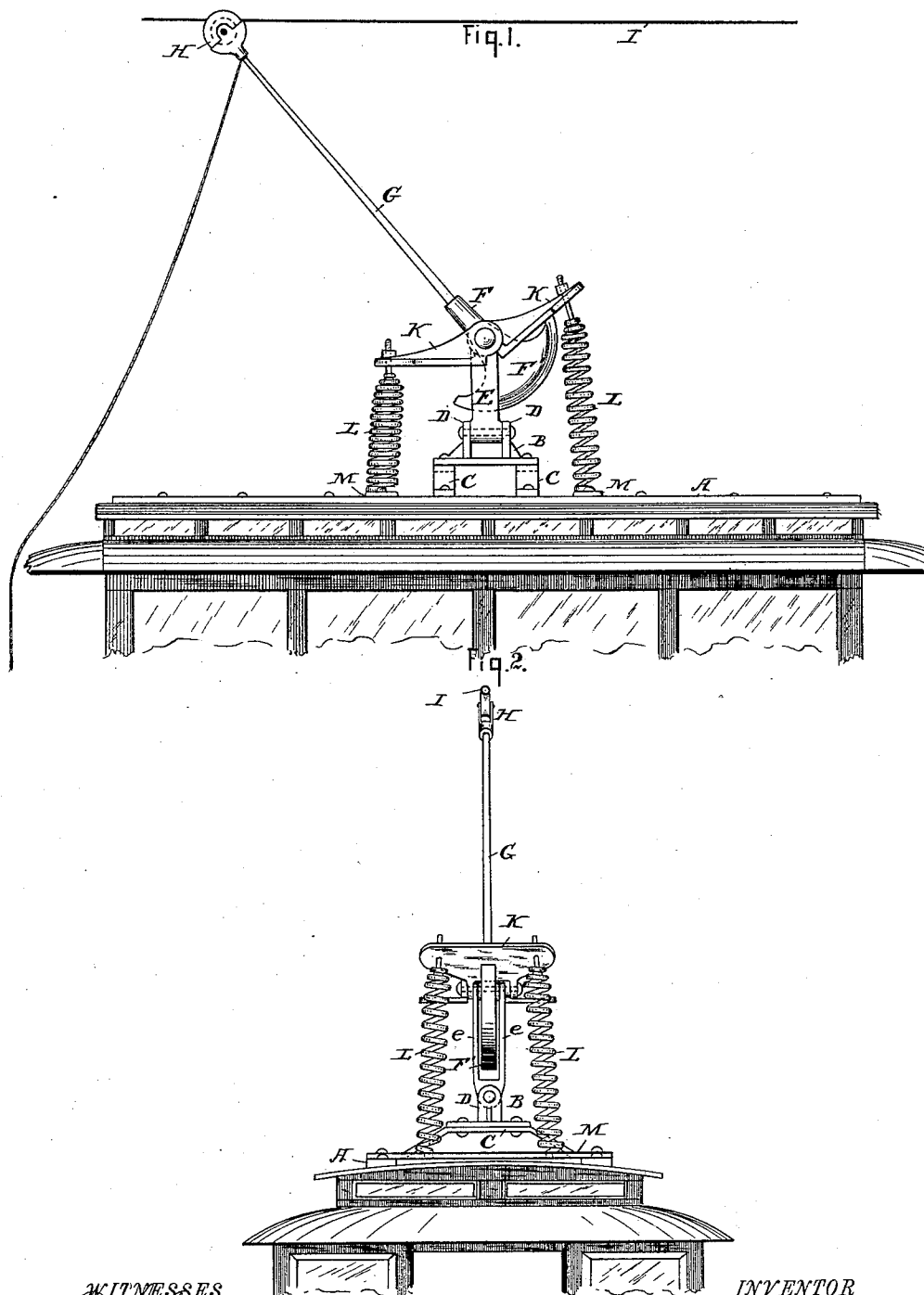
(No Model.)

F. B. RAE.

TROLLEY ARM SUPPORT FOR ELECTRIC RAILWAYS.

No. 428,136.

Patented May 20, 1890.



WITNESSES
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FRANK B. RAE, OF DETROIT, MICHIGAN, ASSIGNOR TO THE DETROIT ELECTRICAL WORKS, OF SAME PLACE.

TROLLEY-ARM SUPPORT FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 428,136, dated May 20, 1890.

Application filed March 13, 1890. Serial No. 343,715. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. RAE, a citizen of the United States, residing at Detroit, Wayne county, State of Michigan, have invented certain new and useful Improvements in Trolley-Arm Supports for Electric Railways, of which the following is a specification.

My invention relates to trolley-arm supports for electric railways, and has for its object to provide means whereby the trolley-arm and its trolley may be supported against the conductor, generally arranged overhead of the track, and to allow the trolley and its arm to follow the irregularities of the conductor or the motor-car without danger of derailment.

To these ends my invention consists, generally, in a trolley-arm support constructed and arranged substantially as hereinafter pointed out.

Referring to the accompanying drawings, forming part of this specification, Figure 1 is a side view of a portion of a car provided with my improved trolley-arm support, and Fig. 2 is an end view of the same.

In electric railways as now generally constructed the electric conductor is suspended over the track, and the motor-car moving over the track is provided with some means of forming an electric connection between the car and the conductor. This is generally in the shape of a trolley-arm carrying a trolley bearing on the conductor, the arm being mounted upon the top or other portion of the motor-car. Owing to the irregularities of the conductor with relation to the track and to the jostling and other movements of the car, considerable difficulty is experienced in maintaining good electric contact between the trolley and the conductor, and various means have been suggested for this purpose. It has been found requisite that the trolley should bear against the conductor, and preferably trail or follow the motion of the car, and it should be so supported that under all conditions it will yield to the inequalities of the conductor and the motions of the car without slipping or breaking contact with the conductor. I attain these objects in the present instance by providing a trolley-arm support which shall have freedom of motion both lon-

gitudinally in line with the conductor and the motion of the car and laterally or transversely thereto, and in all of these motions shall be controlled by spring-pressure, which tends to maintain the trolley-arm support in a vertical position.

In carrying out my invention I mount upon the roof A of the car or other suitable portion thereof a base-piece B of the trolley-arm support. This is shown supported by two arch or bridge pieces C C, secured to the car-roof. Extending from the base-piece are two standards D D, arranged fore and aft or in a line with the travel of the car. Supported on and pivoted in these standards is the main rocking arm E of the support, which is preferably formed with two arms *e*, forming a U, in which is attached the support proper F. This support is in the form of a socket to receive the trolley-arm G, carrying the trolley H, bearing against the conductor I, and is pivotally mounted in the arms *e* of the main support E. Connected to this socket-piece is a counter-weight F', preferably in the shape of a segmental plate, substantially as shown, which swings between the extensions *e e* of the main support. Extending laterally each side of the socket-piece are the wings or flanges K K, having a broadened outer edge, as clearly shown in Fig. 2. Adjustably connected to these wings at each extremity are the springs L L, the other ends of the springs being secured in some suitable manner to the car-roof. In the present instance I have shown the plate or bar M arranged on the roof of the car at each side of the bridge-pieces C. In this way I form a suitable support for the springs, to which they can be secured, and at the same time readily detached, if necessary, from the car without danger of mutilating or injuring the car-roof. The bars and the bridge-pieces, being extended laterally or transversely of the car, can better be secured to the frame-work of the roof. From this construction it will be seen that under all conditions the tendency of the springs is to maintain the trolley-arm in a substantially vertical position; but at the same time it is free to assume an inclined position in the direction of the travel of the car and be held there under tension of the springs, and to allow for

the lateral movement of the car or inequalities of the conductor it can swing on the main support transversely of the car, the springs acting also to overcome this movement as well, while they tend to restore the support to its normal position. By properly adjusting the tension of the springs the trolley-arm support, while given the freedom of motion in all directions, will be maintained in such a position as to keep up the contact between the trolley and conductor under all conditions.

While I have thus described what I consider the best embodiment of my invention, it will be understood that the precise construction and details of arrangement may be varied by those skilled in the art without departing from the general principles thereof, and I do not therefore limit myself to the construction and arrangement shown.

What I claim is—

1. In a trolley-arm support, a base-piece, a main supporting-piece mounted in the base-piece and capable of lateral movement, and a socket-piece pivotally mounted in the main support and capable of longitudinal movement, substantially as described.

2. In a trolley-arm, a base-piece, a laterally-movable supporting-piece pivotally mounted therein having extending arms, a socket-piece pivotally mounted in said extended arms, wings connected to the socket-piece, and springs connected to the wings and to the car-roof, substantially as described.

3. In a trolley-arm support, a base-piece provided with fore and aft standards, the main support pivotally mounted therein provided with extending arms, a socket-piece mounted in said extended arms, and having a counterweight swinging between said arms, substantially as described.

4. In a trolley-arm support, a base-piece, a main support pivotally mounted therein, a socket-piece pivotally mounted in said support, the said socket-piece being provided with wings extending from its sides, and four springs connecting the ends of the wings with the car-roof, substantially as described.

5. In a trolley-support for electric-motor cars, the combination, with the car, of the base-piece carrying the support, and bridge-pieces interposed between the base-piece and the car-roof, substantially as described.

6. In a trolley-arm support for motor-cars, the base-piece for the support, bridge-pieces interposed between the base-piece and the car-roof, transverse bars secured to the car-roof, and springs connected to said bars and to the trolley-arm support, substantially as described.

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

FRANK B. RAE.

Witnesses:

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