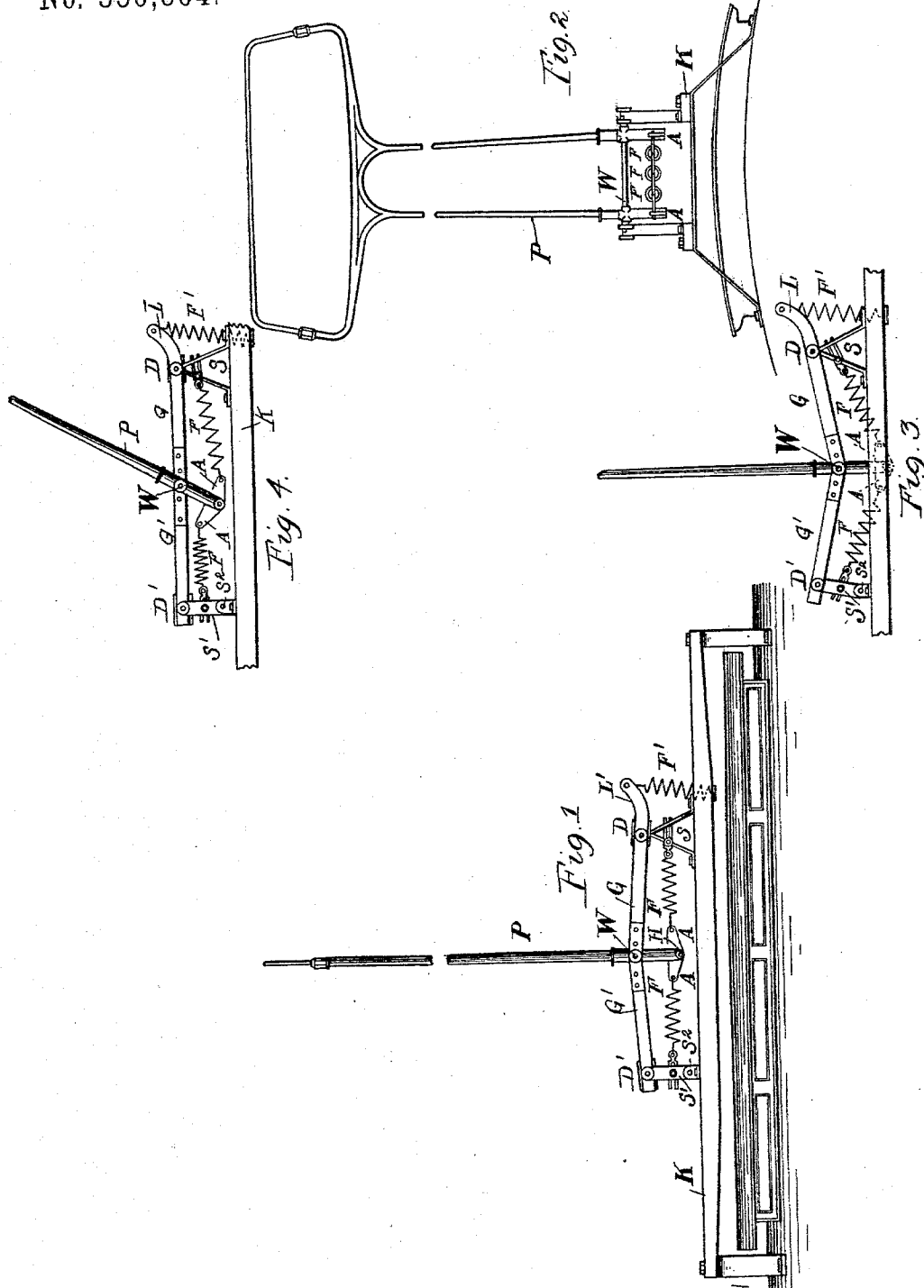


(No Model.)

E. B. W. REICHEL.
TROLLEY SUPPORT.

No. 556,864.

Patented Mar. 24, 1896.



Witnesses:
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UNITED STATES PATENT OFFICE.

EMIL BERTHOLD WALTER REICHEL, OF GROSS-LICHTERFELDE, GERMANY,
ASSIGNOR TO THE SIEMENS & HALSKE ELECTRIC COMPANY OF AMERICA,
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TROLLEY-SUPPORT.

SPECIFICATION forming part of Letters Patent No. 556,864, dated March 24, 1896.

Application filed September 3, 1895. Serial No. 561,252. (No model.) Patented in Belgium September 29, 1894, No. 111,897; in Hungary October 26, 1894, No. 1,483; in Italy November 16, 1894, No. 37,389; in France January 8, 1895, No. 241,537, and in Switzerland January 15, 1895, No. 9,027.

To all whom it may concern:

Be it known that I, EMIL BERTHOLD WALTER REICHEL, a subject of the Emperor of Germany, residing at Gross-Lichterfelde, near Berlin, Germany, have invented new and useful Improvements in Trolley-Supports, of which the following is a specification, and for which Letters Patent have been granted in Belgium, No. 111,897, dated September 29, 1894; in Italy, No. 37,389, dated November 16, 1894; in Hungary, No. 1,483, dated October 26, 1894; in France, No. 241,537, dated January 8, 1895, and in Switzerland, No. 9,027, dated January 15, 1895.

My invention relates to improvements in trolley-supports for electric-railway cars in which the contact device is pressed by springs slantingly against the trolley-wire, and the object of my invention is to provide a support which shall insure an unbroken contact and uniform pressure between the contact device and the feed-wire in all positions of the trolley-arm.

In Patent No. 536,967, dated April 2, 1895, I have shown and described a trolley-support. My present invention is a specific improvement upon the trolley-support shown in that patent and will be clearly understood by reference to the accompanying drawings, in which—

Figure 1 represents a side elevation of the support of my invention. Fig. 2 is an end elevation thereof. Fig. 3 represents the trolley-support in a depressed condition when the trolley-arm is upright. Fig. 4 shows the trolley-support with the trolley-arm inclined as it would be when in actual service.

Like letters of reference are used to indicate similar parts in the different views.

The trolley-arm P is supported upon the shaft W, which shaft is borne upon the levers G G'. Levers G G', two of each, are mounted upon the supports S S', the levers G G' being free to rock in the bearings D D'. One portion of the support S' is adapted to rock in the bearing S². The whole support is borne by the frame K, which is rigidly attached to the roof of the car. Powerful symmetrical

springs F F, of which one or more may be used, are attached to the end of the trolley-arm H and are opposed in their action so as to tend to bring the trolley-arm to a vertical position. Another powerful spring F' is attached to the short end L' of the lever G and tends to lift the trolley-arm P by raising the flexible joint to which is attached the shaft W. The position which the shaft W assumes is a resultant between the force of the spring F' tending to lift the shaft, the weight of the trolley-arm and the horizontal force of the springs F F, which tend to keep the arms G G' in a horizontal direction. The levers G G' are therefore held approximately in the position shown in Fig. 1, and the trolley-arm resting upon the shaft W in the bearings attached to the levers G G' is elastically supported and may be pressed downward by the application of a force directly or obliquely contrary to the direction of pull of the spring F'.

It will be understood that although but one lever G and one lever G' are shown in Fig. 1 there are preferably two of these levers and the trolley-arm is supported rigidly, as shown in Fig. 2, so that it can only oscillate in one plane—namely, that parallel with the motion of the car. The springs F are fastened to the trolley-arm G by the lever connections A A, the springs acting to impart to the trolley-arm a tendency to occupy a vertical position. This construction results in a quick response of the trolley-arm to any pitching of the car upon which it is mounted, the springs F F co-operating with the spring F' in tending to bring the trolley-arm P to a vertical position. In use the trolley-arm assumes the position shown in Fig. 4. The levers G G' are slightly depressed, thus holding the shaft W which sustains the trolley-arm in an elastic support and ready to respond promptly to any release of the pressure which holds the trolley-arm downward and in the oblique position. When the direction of the car is reversed, the trolley-arm assumes a vertical position, and as the downward pressure of the trolley-wire overcomes the resistance of the spring F', assisted by the springs F F, the trolley-arm assumes

the position shown in Fig. 3, and finally arrives at the oblique position opposite that shown in Fig. 4. I have shown this construction applied to a contact device consisting of a span of metal mounted upon a frame, but it will be readily understood that it is equally applicable to a trolley consisting of rotating contact-wheels.

The arrangement described herein has greater resistance to lateral oscillations than has the one of my prior patent already referred to, and hence is more stable. It also provides a greater upward pressure upon the trolley-arm when it is in a vertical or nearly vertical position and is less liable to derangement.

The precise constructions which I have used to carry out my invention, and which are shown herein, are capable of numerous modifications, all within the spirit of my invention. I therefore do not wish to be limited to the exact details of construction shown; but

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination with yieldingly-pressed levers pivoted to stationary supports, of a

pivoted trolley-arm mounted upon the ends of said levers, and springs for imparting to said trolley-arm a tendency to occupy a vertical position; substantially as described.

2. In a trolley-support, the combination with a trolley-arm adapted to oscillate only in a plane parallel with the line of travel of the car of yieldingly-mounted pivot or journal for said trolley-arm, and symmetrical opposing springs, attached to said trolley-arm and adapted to exert their greatest leverage thereon when said trolley-arm is in a vertical position; substantially as described.

3. The combination with a trolley-arm of the levers G G' mounted upon the supports S S', the shaft W supported flexibly by said levers, the springs F F attached to the trolley-arm by the levers A A and the spring F' adapted to press the shaft W upwardly; substantially as and for the purposes described.

In testimony whereof I affix my signature in the presence of two witnesses.

EMIL BERTHOLD WALTER REICHEL.

Witnesses:

JOHN B. JACKSON,

OSCAR BIELEFELD.