

No. 816,600.

PATENTED APR. 3, 1906.

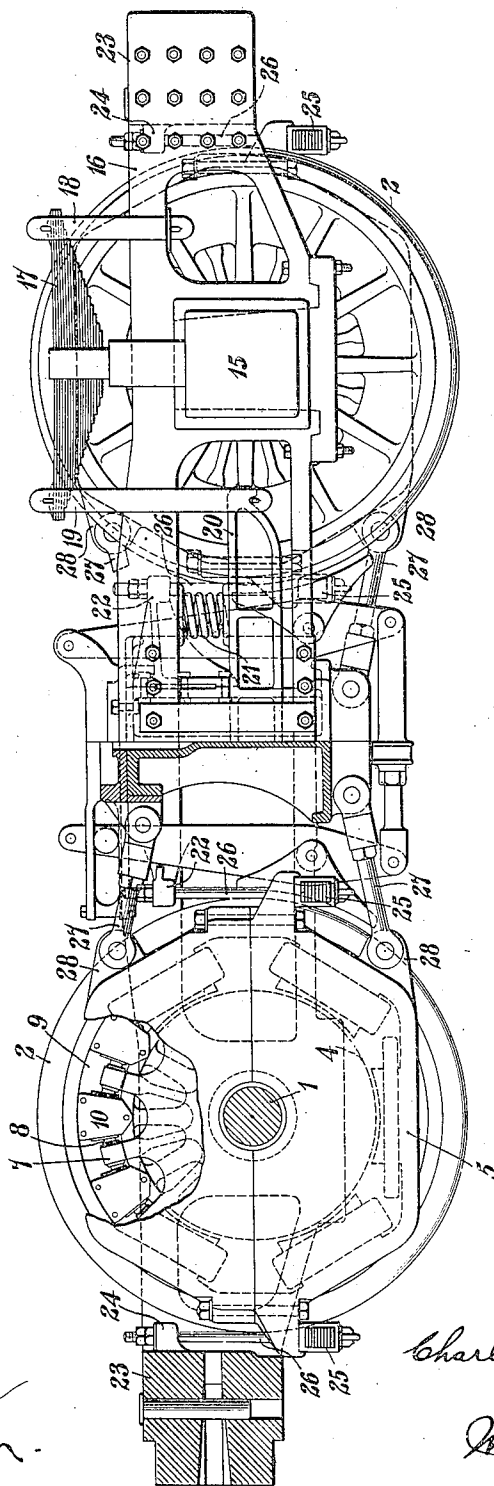
C. A. PSILANDER.

SUSPENSION MEANS FOR ELECTRIC RAILWAY MOTORS.

APPLICATION FILED APR. 3, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

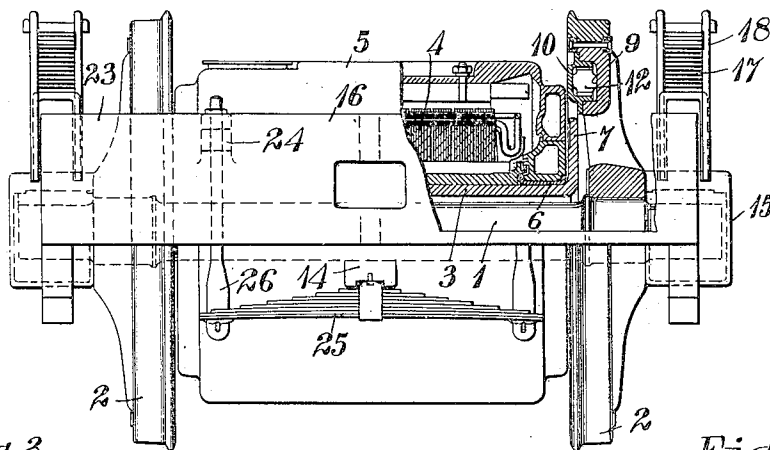
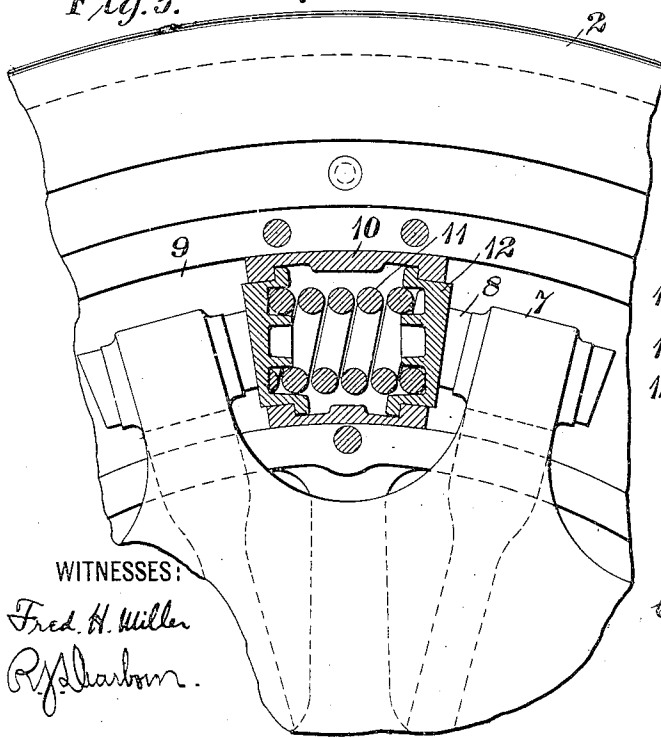
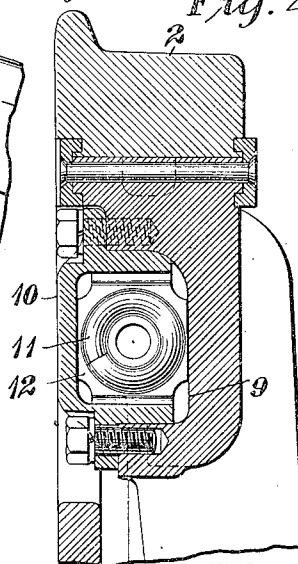


Fig. 3.



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Fig. 4.



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SUSPENSION MEANS FOR ELECTRIC-RAILWAY MOTORS.

No. 816,600.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed April 3, 1905. Serial No. 253,643.

To all whom it may concern:

Be it known that I, CHARLES A. PSILANDER, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Suspension Means for Electric-Railway Motors, of which the following is a specification.

My invention relates to suspension means for electric-railway motors of the class in which the armature of the motor is mounted upon or surrounds the driving-axle.

The object of my invention is to provide such means for supporting a large part of the weight of the motor on the truck-frame that the motor shall be substantially independent of all distortions and tilting movements of such frame and the motor-bearings shall be relieved of the weight of the field-magnet frame.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a view, partially in side elevation and partially in section, of a locomotive-truck embodying my invention. Fig. 2 is a view in end elevation of the truck shown in Fig. 1, some of the parts being broken away for the sake of clearness of illustration. Figs. 3 and 4 are enlarged sectional views of resilient suspension and connection means between a motor-armature and a driving-wheel.

Surrounding the axles 1 of the driving-wheels 2 are quills 3, on which motor-armatures 4 are mounted. Field-magnet frames 5 of the motors are provided with bearings 6 for the quills 3, thus permitting of rotation of the armatures 4 and quills 3 independently of the field-magnet frames. The quills 3 are provided at each end with radial arms 7, which carry at their outer ends removable wearing-pieces 8. The inner sides of the driving-wheels 2 are provided with annular recesses 9, in which casings 10 are secured. These casings 10 contain springs 11 and caps 12, and the projecting ends of the caps engage the wearing-pieces 8 of the arms 7. The springs 11 are compressed before being placed in the casings 10, and the motor is supported under all conditions by the arrangement here shown with its axis approximately coincident with the axis of the driving-axle.

The outer ends of the driving-axle 1 are

provided with journal-boxes 15, which are seated in and support a truck-frame 16. Leaf-springs 17 are secured midway of their ends to the tops of the journal-boxes 15, and their ends are connected, by means of links 18 and 19, respectively, to the truck-frame and to equalizing-levers 20, springs 21 being interposed between the equalizing-levers and the main truck-frame.

The truck-frame 16 is provided with oppositely-projecting bracket-arms 22, and the end pieces 23 of the truck-frame are provided with inwardly-projecting lugs 24. From the bracket-arms 22 and lugs 24 leaf-springs 25 are supported by means of suspension-links 26, centrally-located lugs 14 upon the motor-field-magnet frames being secured to the middle points of the leaf-springs.

Rotation of the motor-field-magnet frames by reason of the torque exerted between the field-magnet poles and the armatures is prevented by links 27, which are connected between lugs 28 upon the upper and lower sides of the motors and the truck-frame 16.

It is evident that my invention provides suspension means for railway-motors whereby the tilting movements and distortions of the truck-frame are transmitted in a minimum degree to the motors. If one side of the truck-frame should be suddenly raised while the other side remained in its original position, only one-half of the distortion would be transmitted to the motor without the intervention of springs, and by the use of these springs, as outlined in the foregoing description, the distortion is reduced to a minimum.

I claim as my invention—

1. In an electric locomotive, the combination with a truck-frame, a driving-axle, a quill, a motor-armature mounted thereon, and a motor-field-magnet frame having bearings for said armature, of lugs integral with said frame and leaf-springs having their middle portions attached to said lugs and having their ends secured to said truck-frame.

2. In an electric locomotive, the combination with a truck-frame, a driving-axle, a motor-armature flexibly mounted thereon, and a field-magnet frame surrounding and having bearings for said armature, of lugs integral with said field-magnet frame, and leaf-springs

having their ends secured to said truck-frame and their middle portions secured to said lugs.

3. In an electric locomotive, the combination with a truck-frame, a driving-axle, a motor-armature flexibly mounted thereon, and a field-magnet frame surrounding and having bearings for said armature, of lugs integral with said field-magnet frame, leaf-springs having their ends secured to said truck-frame and their middle portions secured to said lugs, and links between said motor and said truck-frame.

4. In an electric locomotive, the combination with a truck-frame, a driving-axle, a motor-armature flexibly mounted thereon, and a field-magnet frame surrounding and having bearings for said armature, of lugs integral with said motor-frame, leaf-springs having their ends secured to said truck-frame and their middle portions secured to said lugs, and links attached respectively to the upper and lower sides of the motor-frame and to the truck-frame.

5. In an electric locomotive, the combination with a truck-frame, a driving-axle, a motor-armature flexibly mounted thereon, and a field-magnet frame surrounding and having bearings for said armature, of a centrally-located lug on each side of the motor-frame, and leaf-springs having their ends supported by the truck-frame and their middle portions secured to said lugs.

6. In an electric locomotive, the combination with a truck-frame, a driving-axle, a quill surrounding said axle and connected thereto, a motor-armature mounted on said quill, and a motor-field-magnet frame having bearings for said quill, of a centrally-located lug on each side of the motor-frame, and springs having their ends supported by the

truck-frame and their middle portions secured to said lugs.

7. In an electric locomotive, the combination with a truck-frame, a driving-axle, a motor-armature flexibly mounted thereon, and a motor-field-magnet frame having bearings for said armature, of a pair of links suspended from the truck-frame at each side of the motor and a spring interposed between each side of the motor-frame and the corresponding links.

8. In an electric locomotive, the combination with a truck-frame, a driving-axle, a motor-armature flexibly mounted thereon, and a field-magnet frame having bearings for said armature, of spring connections between the middle portions of the field-magnet frames and the truck-frame adjacent to the ends of the motor.

9. In an electric locomotive, the combination with a truck-frame and its axles, of an electric motor having its armature loosely sleeved upon one of said axles and spring connections between substantially the middle point of each side of the field-magnet frame of the motor and the truck-frame.

10. In an electric locomotive, the combination with a truck-frame and its axles, of an electric motor having its armature loosely sleeved upon one of the axles and leaf-springs connected at their middle points to the middle points of the sides of the motor field-magnets and at their ends to the truck-frame.

In testimony whereof I have hereunto subscribed my name this 30th day of March, 1905.

CHARLES A. PSILANDER.

Witnesses:

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