G. M. EATON.

TORQUE OPPOSING DEVICE.

APPLICATION FILED MAR. 9, 1908.

937,290.

Patented Oct. 19, 1909.

2 SHEETS—SHEET 1.

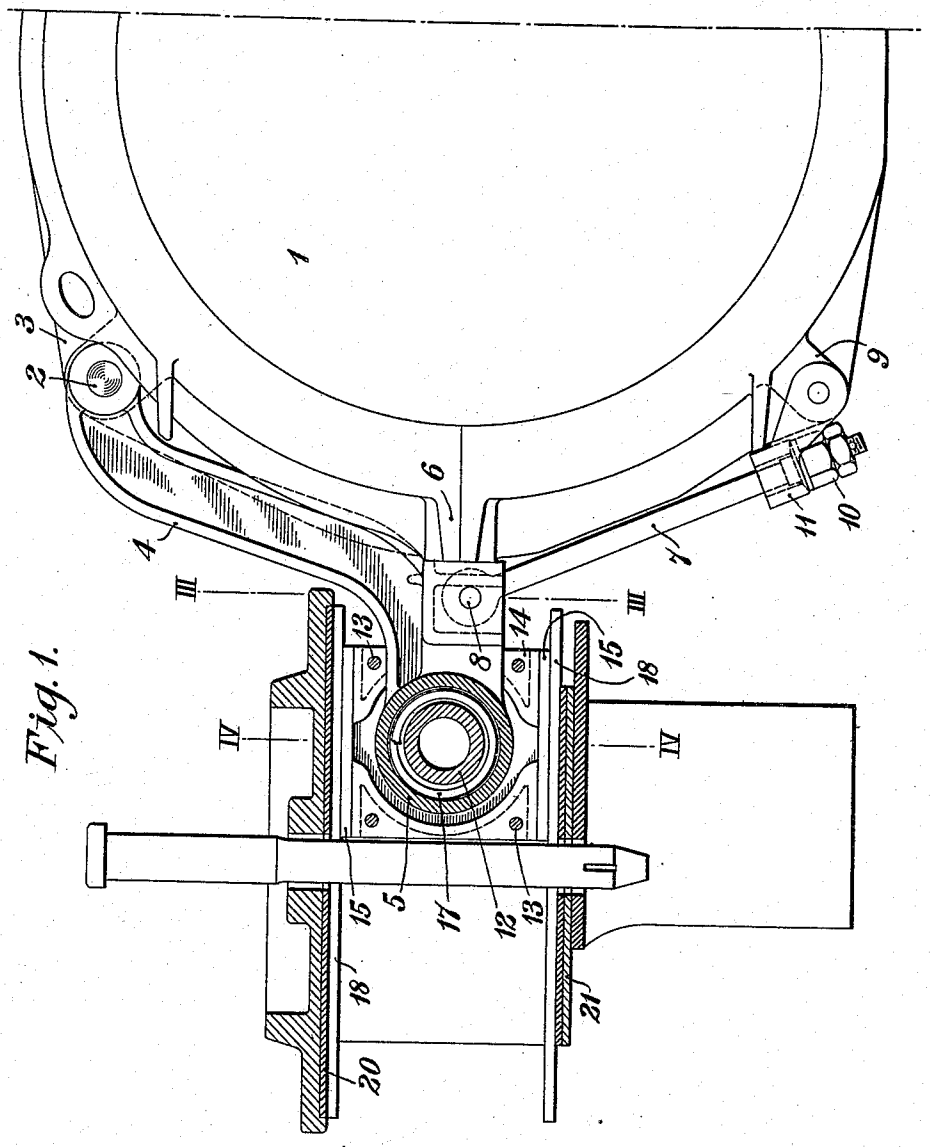

Fig. 1.

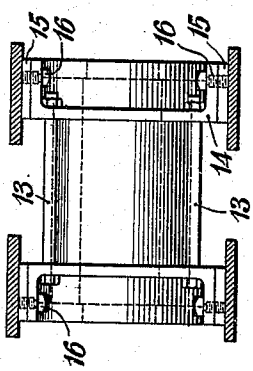

Fig. 2.

WITNESSES:

C. L. Belcher

Otto S. Schairer

INVENTOR

George M. Eaton

BY

Hurley & Carr

ATTORNEY

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 3.

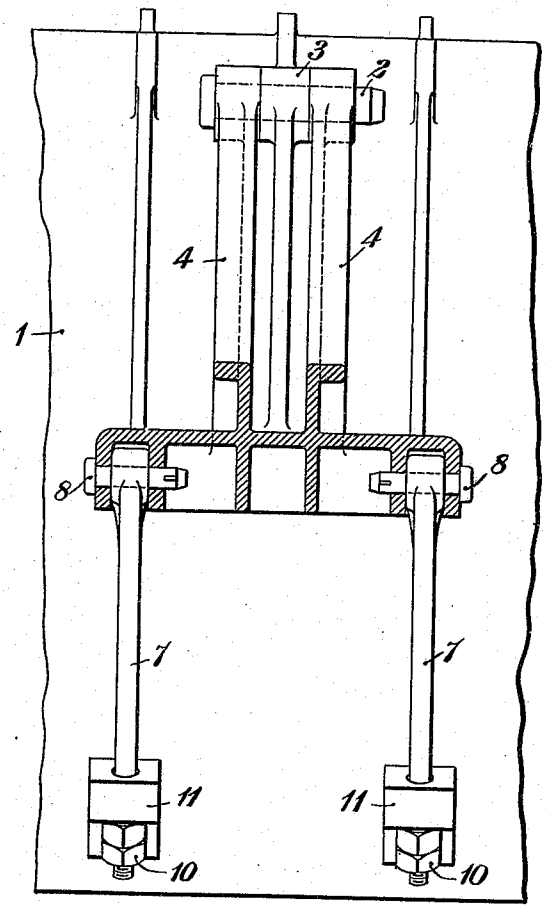
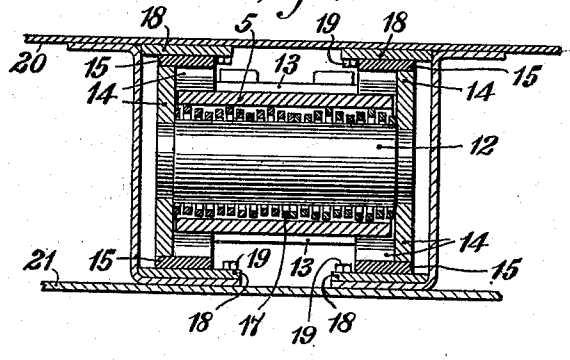


Fig. 4.



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C. L. Belcher

Otto J. Schairer

INVENTOR

George M. Eaton

BY

Wiley & Starr

ATTORNEY

ANDREW. B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE M. EATON, OF WILKINSBURG, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, OF EAST PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

TORQUE-OPPOSING DEVICE.

937,290. Specification of Letters Patent. Patented Oct. 19, 1909.

Application filed March 9, 1908. Serial No. 420,060.

To all whom it may concern:

Be it known that I, GEORGE M. EATON, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Torque-Opposing Devices, of which the following is a specification.

My invention relates to means for opposing the torques or forces of reaction to which the stationary members of railway motors and similar torque-producing devices are subjected.

The object of my invention is to provide means of the character indicated that shall be strong and effective in service and that shall not interfere with ready removal of the devices from and replacement thereof in their operating positions.

Figure 1 of the accompanying drawings is a view, in side elevation and in vertical section, of portions of an electric motor and of a vehicle truck embodying the invention. Fig. 2 is a view, in end elevation, of certain of the parts of Fig. 1. Fig. 3 is a view, in end elevation and in vertical section, on the line III—III of Fig. 1, and Fig. 4 is a view, in vertical section, on the line IV—IV of Fig. 1.

While the invention is here shown as employed in connection with a propelling motor 1 of an electric locomotive or other railway vehicle, it is applicable also in connection with other torque-producing devices that are employed and arranged in other relations.

Secured by means of a pin or bolt 2 to a lug 3 near the top of the motor 1 and extending downwardly in approximate conformity to the outline of the motor, is a bracket 4 the lower end of which is turned outwardly and is provided at its extremity with a sleeve 5, the axis of the sleeve lying in approximately the same horizontal plane as the axis of the motor. The bracket 4 bears, near its lower end, against a lug 6 upon the motor 1 and is maintained in that position by means of eye-bolts 7, the upper apertured ends of which are secured, by means of pins 8, to the bracket, and the lower threaded ends of which are secured to lugs 9 upon the motor frame by means of nuts 10 and suitable links or extensions 11.

Disposed concentrically within the sleeve 5 is a mandrel or rod 12 that is clamped by means of bolts 13 between end castings 14, to the upper and lower faces of which wearing plates 15 are secured by means of tap bolts 16. The mandrel or rod 12 is surrounded within the sleeve 5 by suitable resilient means, such, for instance, as specially formed helical springs 17 which constitute the subject-matter of Patent No. 817,133.

The parts thus far described constitute a detachable nose for the motor, the wearing plates 15 of which engage other wearing plates 18 that are secured, respectively, by means of tap bolts 19, to the upper and lower plates 20 and 21 of the vehicle truck bolster. The mandrel or rod 12 is, therefore, so mounted as to be capable of transverse and lateral motion with respect to the bolster, which motion may be caused by movements of the motor relative to the truck frame.

In operation, the torque of re-action exerted upon the motor frame by reason of the rotation of the movable member is applied to the rod or mandrel 12 by the bracket 4, the springs 17 serving as cushioning means for relieving the parts from undue shocks and strains and for preventing noisy operation. The motor may be removed from the truck without disturbing the connection between the bracket 4 and the mandrel or rod 12, by simply removing the pin 2 and the nuts 10. The provision of a detachable nose for the motor thus permits of arranging the parts of the vehicle more compactly than would otherwise be possible, while at the same time permitting of ready removal and replacement of the motor.

I claim as my invention:

1. The combination with a torque-producing device, and a nose removably secured thereto and comprising a sleeve, of a member arranged substantially concentrically within the sleeve, and resilient means interposed between the member and the sleeve.

2. The combination with a torque-producing device, and an adjacent frame member, of coöperating substantially concentric parts carried respectively by the device and the frame member and having a self adjusting, sliding engagement with said member, and resilient means interposed between the said parts.

3. The combination with a torque-produc-

ing device, and an adjacent frame member, of coöperating substantially concentric parts one of which is removably attached to the device and the other of which is supported by and is adjustable with reference to the frame member, and resilient means interposed between the said parts.

4. The combination with a torque-producing device, and an adjacent frame member, of coöperating substantially concentric parts one of which is removably attached to the device and the other of which is supported by the frame member, and resilient means interposed between the said parts.

5. The combination with a torque-producing device, of a laterally projecting nose removably secured thereto, a self adjustable member to which said nose is connected, and a resilient means interposed between the member and the nose.

6. The combination with an electric motor, of a laterally projecting nose detachably fastened to one side thereof and having a cylindrical outer end, a truck bolster having wearing plates, a frame movably mounted between said wearing plates and having a mandrel surrounded by the cylindrical portion of said nose, and a helical spring interposed between said mandrel and said cylindrical nose portion.

7. The combination with an electric motor having two sets of laterally projecting arms detachably fastened to one side of its field magnet frame and hinged together, of a truck bolster having parallel horizontal wearing plates, a frame movably mounted between said wearing plates and having a loose connection to said field magnet arms which embodies a cushioning spring.

8. The combination with an electric motor, and laterally projecting jointed arms detachably fastened to one side of the field magnet frame, of a truck frame having parallel horizontal wearing plates, a frame mounted between said wearing plates to support the jointed ends of said arms and a cushioning spring interposed between said parts.

In testimony whereof, I have hereunto subscribed my name this 3rd day of March, 1908.

GEORGE M. EATON.

Witnesses:
HIRAM A. TAYLOR,
EDWARD L. WILDER.