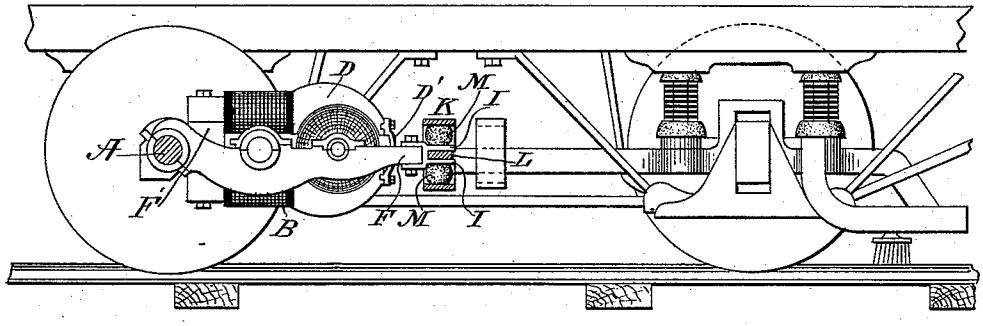
(No Model.)

E. W. RICE, Jr.

MOTOR SUSPENSION FOR RAILWAY WORK.

No. 524,117. Patented Aug. 7, 1894.

Fig. 2.



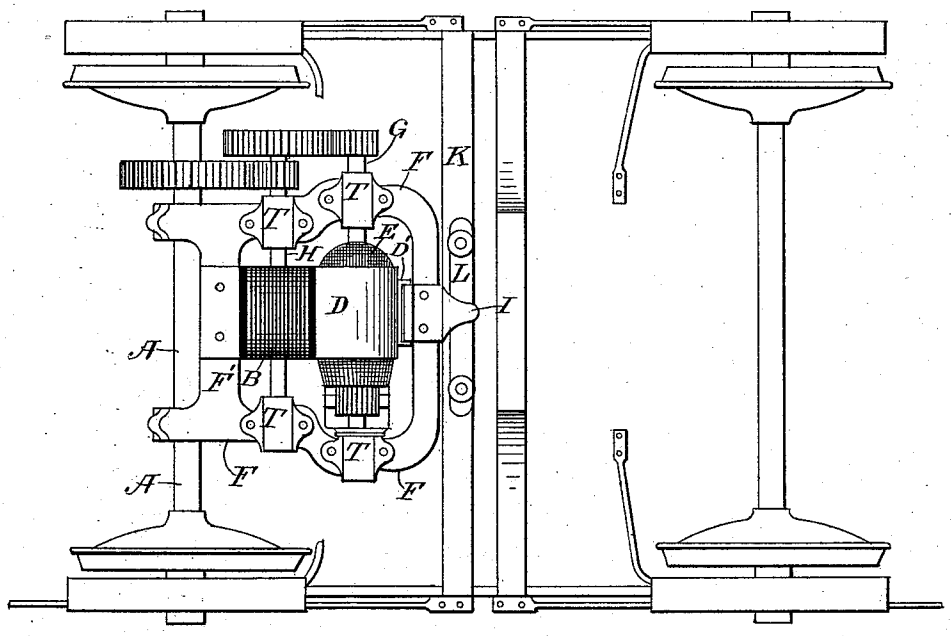


Fig. 1.

ATTEST:

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UNITED STATES PATENT OFFICE.

EDWIN WILBUR RICE, JR., OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE THOMSON-HOUSTON ELECTRIC COMPANY, OF CONNECTICUT.

MOTOR-SUSPENSION FOR RAILWAY-WORK.

SPECIFICATION forming part of Letters Patent No. 524,117, dated August 7, 1894.

Application filed August 15, 1889. Serial No. 320,907. (No model.)

To all whom it may concern:

Be it known that I, EDWIN WILBUR RICE, Jr., a citizen of the United States, and a resident of Lynn, in the county of Essex and State of Massachusetts, have invented a certain new and useful Motor-Suspension for Railway-Work, of which the following is a specification.

My invention relates to the manner of supporting or mounting an electric motor when applied to the propulsion of a railway car.

The object of my invention is to secure strength, rigidity and simplicity of construction together with an adaptation of the mechanism to jars and vibrations of the vehicle or its truck and an unchanged or fixed relation of the driving motor and intermediate gear to the car axle.

My invention consists in the novel organization and construction hereinafter described and more particularly specified in the claims.

In the accompanying drawings:—Figure 1, is a plan of an organization embodying my invention. Fig. 2, is a side elevation thereof.

F, indicates a rigid supporting frame for the electric motor and driving gear connecting the motor with the driving axle of the vehicle. This frame is formed in one rectangular piece free from bolts and joints which would be liable to become loosened from the constant jarring to which the machine is subjected. The said frame is preferably supported by sleeving it on the axle of the car for which purpose the two side pieces or extensions thereof are sleeved on the axles in the manner indicated at or near one end. The two cross or end pieces are used preferably as the supports for the field magnet. The parts of said magnet B, rest as shown at one end on one cross piece near the axle and at the other end are hung or supported by means of an extension from their pole pieces or in other suitable way upon the other cross piece uniting the side pieces at the opposite end of the rectangular frame. The cross piece next the car axle is indicated at F′, and may be employed to form the yoke which unites the two cores of the field magnets for the motor.

The pole pieces D, D, of the field magnets are united by a yoke D′, of some non-magnetic material which is suitably attached to or supported to the cross piece of the frame, as shown, or by some part carried by said cross piece. As will be seen this construction produces a solid rectangular supporting frame for the various parts of the motor, constructed in a single piece and completely encircling the motor, the armature shaft being mounted on bearings on the side pieces of said frame and the field magnet being hung or supported upon the end pieces. The frame may be cast or formed in any other suitable way in one piece with the side and cross pieces all integral with one another.

The armature E, of the electric motor has its shaft G, journaled in journal bearings in the side pieces of the frame and is connected through suitable intermediate gear, as indicated, with the driving axle A, of the car. The axle H, of the intermediate gear is also journaled in journal bearings in the side pieces as shown. The caps of the journal boxes are indicated at T.

Extending from the frame F, and attached to or formed in one piece therewith is a nose-piece I, which embraces a bar L, and is capable of sliding freely thereon in longitudinal directions. The bar L, is mounted between elastic cushions or springs M, carried by the truck-frame K, of the vehicle. The motor and its supporting frame are in this construction free to move in perfect unison with the axle thereby preserving the proper relation of the gearing to the axle of the vehicle and transmitting power. Another advantage is that the motor mechanism is free from strains, and the difficulties found to exist where the attachment is made by means of bolts to the car frame or truck are entirely avoided.

It will be noted that in the construction thus described the supporting frame is entirely distinct from the parts of the motor which it supports and that the various parts of this motor, such as the magnet-cores, the armature journals, &c., are all detachably secured thereto or mounted therein. It is, moreover, to be observed that the said frame is so constructed as to be detachable from the car in one piece and without dismantling the same. I thus produce a frame which not only forms a rigid support inclosing the va-

rious parts of the motor, but one from which the said motor, or any of its parts, may be removed without disturbing said frame. The rearwardly extending lugs or sleeves *f*, moreover, enable me to mount the parts of the motor more compactly inasmuch as all of its parts may be readily disposed to the side of the car-axle and not above or below the same, as would be the case if the axle passed through the inclosing parts of the frame. It will be noted, moreover, that the frame, F, is provided preferably with upwardly facing journal bearings which, when the journals of the armature shaft and shaft, H, are in place, are closed by the removable caps T. By this arrangement and the means already described for securing the field magnets in place, it will be seen that I am enabled to remove the parts of the motor from the frame, F, without disturbing or dismantling the same.

What I claim as my invention is—

1. In an electric railway motor, a supporting frame sleeved on the car axle and consisting of two side and two cross pieces formed in one piece, one of such yoke pieces constituting the yoke piece or bar for the field magnet of the motor.

2. In an electric railway motor, a rectangular supporting frame for the field magnet cores and armature of the motor constructed in a single piece, said frame being journaled at one end upon the car axle and supported at the other on a cross-bar of the car truck frame, and an armature shaft mounted in detachable bearings on the sides of the frame and parallel with the car axle.

3. In an electric railway motor, the combination, of a rectangular frame constructed in a single piece and supported in a horizontal plane by the car axle at one end of said frame and by a cross-bar of the car truck at the other, an armature for the motor detachably mounted upon bearings on the opposite sides of said supporting frame and having its shaft parallel to the car axle, and field magnet cores sustained by said frame, substantially as and for the purpose set forth.

4. In an electric railway motor, the combination of a rigid supporting frame having its side pieces sleeved at one end on the car axle and united at the other by a cross piece with a nose piece extending from said frame, and a bearing or support on the truck frame upon which the nose piece rests, substantially as and for the purpose described.

5. In an electric railway motor, a rigid supporting frame having its side pieces sleeved at one end on the car axle and united at the other by a cross piece integral therewith, in combination with a nose piece extending from such cross piece and free to slide upon a suitable bearing or support.

6. In an electric railway motor, the combination of a rigid supporting frame for the armature axis consisting of two side pieces or bars sleeved at one end on the car axle and united at their opposite end by a cross bar or piece integral with them, and a nose piece extending from such cross piece and free to slide on an elastically mounted bar or support.

7. In an electric railway motor, a rectangular frame made in a single piece supporting the field magnet cores and armature and provided at one end with rearwardly extending lugs or sleeves journaled on the car axle the frame being supported at the opposite end by a cross beam or portion of the car truck.

Signed at New York, in the county of New York and State of New York, this 7th day of August, A. D. 1889.

EDWIN WILBUR RICE, JR.

Witnesses:
H. C. TOWNSEND,
THOS. F. CONREY.