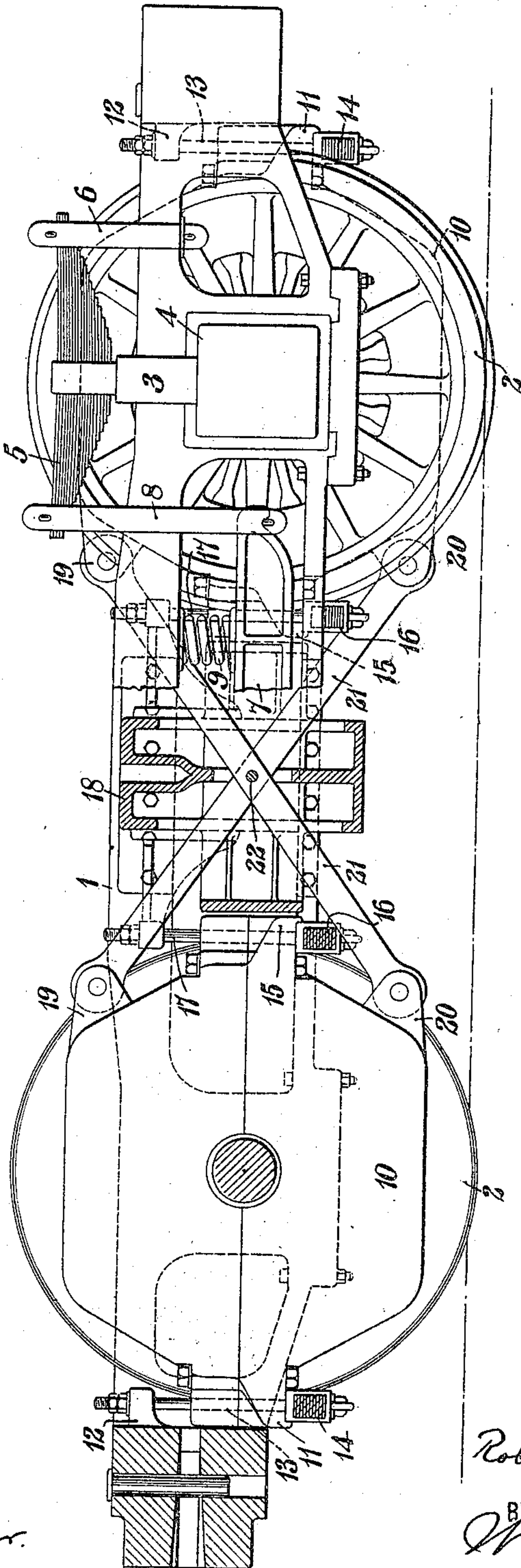


No. 812,891.

PATENTED FEB. 20, 1906.

R. SIEGFRIED.  
INTERCONNECTED SUSPENSION MEANS FOR GEARLESS MOTORS.  
APPLICATION FILED JUNE 12, 1905.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## INTERCONNECTED SUSPENSION MEANS FOR GEARLESS MOTORS.

No. 812,891.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed June 12, 1905. Serial No. 264,913.

*To all whom it may concern:*

Be it known that I, ROBERT SIEGFRIED, 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 Interconnected Suspension Means for Gearless Motors, of which the following is a specification.

My invention relates to electrically-propelled railway-vehicles, and particularly to propelling-motors for such vehicles that are connected to the truck-wheels without the interposition of speed-reducing gearings.

The object of my invention is to provide a simple and effective means for balancing and reducing to a minimum the strains which are exerted upon the motor-supports by the rotary torques that are produced by the normal operation of the motors.

The single figure of the accompanying drawing is a view, partially in side elevation and partially in section, of either a single truck or of one end of a double truck equipped with two motors which are respectively connected directly to the truck-wheels.

As here shown, the main truck-frame 1 is spring-supported upon the truck-wheels 2 by means of frames 3, that rest upon the bearing-boxes 4, leaf-springs 5, that are mounted in the frames 3, hangers 6, that connect the outer ends of the springs 5 with the truck-frame, a supplemental frame 7, hangers 8 between the inner ends of the springs 5 and the supplemental frame, and coil-springs 9 between the supplemental frame and the main frame 1. The propelling-motors 10 are supported at their outer ends from the truck-frame by means of lugs 11, projecting from the motor-frame, lugs 12, projecting from the truck-frame, hangers 13, suspended from the lugs 12, and springs 14, that are supported by the hangers 13. The inner ends of the motors 4 are similarly supported by means of lugs 15, similar to the lugs 11 at the outer ends, springs 16, similar to the springs 14 at the outer ends, and hangers 17, which are suspended from a cross-piece 18 of the truck-frame, indicated as having their armatures directly connected to the truck-wheels with-

out the interposition of speed-reducing gear- ing, though no specific means for making such connections are illustrated.

None of the parts thus far described pertain to my present invention except in the sense and to the extent that they are parts of an operative and desirable combination.

In order to balance against each other the torques exerted by the two motors and to thereby reduce to a minimum the strains exerted upon the truck-frame, I provide each of them with inwardly-projecting lugs 19 and 20, one of which is adjacent to the top and the other adjacent to the bottom of each motor, and I connect together the upper lug 19 of each motor and the lower lug 20 of the other motor by means of a bar or link 21 and connect the two bars or links together at their middle points by means of a pin or rod 22.

As here indicated, I provide only two connecting-links 17, and when only two are employed they may conveniently be located approximately midway of the ends of the motors; but obviously two or more pairs of such links may be employed, if desired.

By reason of the arrangement and connection shown the torque exerted upon the field-magnet frame of each motor will be opposite to and counteracted by that exerted upon the other frame, and there will consequently be an approximately perfect balance, which will substantially relieve the truck-frame and the supporting devices from injurious strains due to such torques.

I claim as my invention—

1. The combination with a truck, a pair of electric motors and supporting connections between the same and the truck, of balancing-links the opposite ends of which are connected respectively to the upper and lower parts of said motors and the middle points of which are connected together.

2. The combination with a truck, a pair of electric motors and supporting connections between the motors and the trucks, of a pair of balancing-links each of which connects the upper side of the one motor with the lower side of the other.

3. The combination with a truck, a pair of

electric motors and supporting connections  
between the motors and the trucks, of a pair  
of links the ends of which are pivotally at-  
tached to opposite sides of opposite motors  
5 and the middle points of which are connected  
together.

4. The combination with a truck, a pair of  
electric motors and supporting connections  
between the motors and the trucks, of a pair

of links the ends of which are pivotally at- 10  
tached to opposite sides of opposite motors.

In testimony whereof I have hereunto sub-  
scribed my name this 10th day of June, 1905.

ROBERT SIEGFRIED.

Witnesses:

H. D. SUMMERS,  
BIRNEY HINES.