

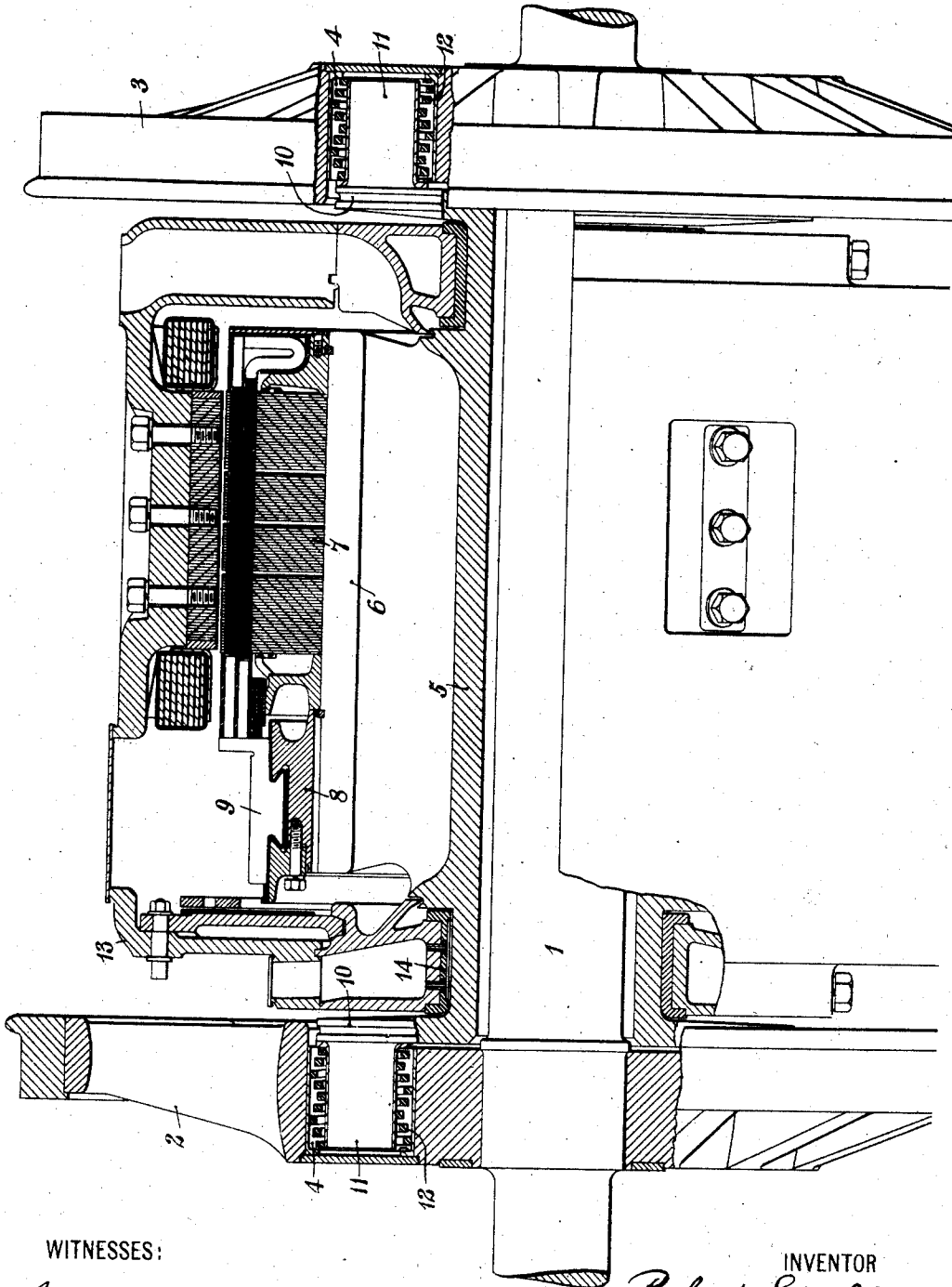
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PATENTED MAR. 31, 1908.

R. SIEGFRIED.

SUPPORTING STRUCTURE FOR DYNAMO ELECTRIC MACHINES.

APPLICATION FILED MAR. 3, 1906.



WITNESSES:

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SUPPORTING STRUCTURE FOR DYNAMO-ELECTRIC MACHINES.

No. 883,247.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed March 3, 1906. Serial No. 304,090.

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 Supporting Structures for Dynamo-Electric Machines, of which the following is a specification.

My invention relates to dynamo-electric machines and particularly to motors that are mounted upon and directly surround the driving axles of locomotives or other vehicles.

The object of my invention is to provide a novel and improved supporting structure for such motors.

Electric motors that are employed for the propulsion of locomotives and other vehicles are frequently mounted upon quills or sleeves that surround the driving axles and are directly and resiliently connected thereto or to the driving wheels, the motors thus applied being, in general, adapted for slower speeds of operation than the more usual forms that are connected to the driving axles by means of speed-reducing gearing. The quills or sleeves have usually been provided with radial arms or annular flanges at one end only and resilient or other connections have been interposed between the same and the driving wheels, such a structure permitting of convenient assembling of the parts of the rotatable members upon the quills or sleeves. However, when large and powerful motors are to be mounted in this manner it will generally be found desirable to connect both ends of the quills to the adjacent driving wheels, and in another application, Serial No. 304,089, filed of even date herewith, I have set forth a structure in which both ends of the quills are provided with radial arms or flanges that may be resiliently or otherwise connected to the driving wheels.

The magnetizable cores of the rotatable members of such dynamo-electric machines are usually and preferably composed of annular punchings or laminae that are mounted upon supporting structures carried by the quills, and the commutator cylinders are frequently assembled upon sleeves that may also be mounted upon the supporting structures. In the application above referred to, I have shown, described and claimed a transversely divided quill having a supporting structure upon which the magnetizable core and the commutator cylinder are detachably

mounted, and in still another application, Serial No. 304,091, filed of even date herewith, I have set forth an arrangement in which the supporting structure for the core punchings and the commutator cylinder is formed integral with one section of the quill. It is obvious that in both of these cases it is immaterial whether the external diameter of the supporting structure is greater or less than the outer diameter of the radial arms or flanges. According to my present invention, I propose to form the supporting structure for the armature parts integral or otherwise rigid with the quill and to make its external diameter equal to or slightly greater than the outer diameter of the radial arms, so that the core punchings and the commutator cylinder may be slipped over the radial arms or flanges.

The single figure of the accompanying drawing is a view, partially in transverse section and partially in elevation of a motor and the driving wheel of a vehicle that embody my invention.

Mounted upon opposite ends of an axle 1, that may be the driving axle of a locomotive or other vehicle, are wheels 2 and 3, each of which is provided with a set of annularly arranged chambers 4. Loosely surrounding the axle, between the driving wheels 2 and 3, is a quill or sleeve 5 formed integral with which is a supporting structure 6 for a magnetizable core 7, composed, as is usual, of annular punchings, and for a sleeve 8 upon which the segments of a commutator cylinder 9 are mounted and secured. The ends of the quill 5 may be provided either with radial arms or with flanges 10, as is desired, from which bosses 11 project into the wheel chambers 4, the bosses being surrounded, within the chambers, by resilient cushioning means, such as specially constructed helical springs 12, that form the subject-matter of application, Serial No. 294,410, filed by me January 3, 1906. In order to permit of application of the core punchings and the sleeve 8 to the supporting structure 6, the outer diameter of the supporting structure 6 is made equal to or slightly greater than the outer diameter of the radial arms or flanges 10. A stationary member 13 for the motor which, in this case, is the field magnet structure, is supported by means of bearings 14 that surround portions of the quill between the supporting structure 6 and the radial

arms 10, relative rotation between the parts being thereby permitted.

While I have shown and described the invention as applied to a dynamo-electric machine of the direct current type, it will be readily understood that it is equally applicable to alternating current machines or to other machines that are similarly mounted.

The details of construction and the arrangement of parts may obviously be varied considerably from what has been shown and described without departing from the spirit of the invention.

I claim as my invention:

15 1. The combination with an axle and wheels mounted thereon, of a dynamo-electric machine located between the wheels and comprising a rotatable, magnetizable core, and a supporting structure for the dynamo-electric machine having flanges or radial arms at its extremities the external diameter of which is less than the internal diameter of the magnetizable core.

25 2. The combination with an axle and wheels mounted thereon, of a dynamo-electric machine located between the wheels and comprising a rotatable, magnetizable core, a supporting structure for said core having flanges or radial arms at its extremities the external diameter of which is less than the internal diameter of the magnetizable core, and resilient connections between the supporting structure and the wheels.

35 3. The combination with an axle and wheels mounted thereon, of a dynamo-electric machine located between the wheels and comprising a rotatable, magnetizable core, a supporting structure for said core having flanges or radial arms at its extremities the external diameter of which is less than the internal diameter of the magnetizable core, and resilient connections between the flanges or radial arms and the wheels.

45 4. The combination with an axle and wheels mounted thereon having annular sets of chambers, of a dynamo-electric machine located between the driving wheels and comprising a rotatable, laminated core, and a

supporting structure for the core that loosely surrounds the axle and is provided, at its 50 extremities, with flanges or radial arms the external diameter of which is less than the internal diameter of the core laminae and with bosses that project therefrom into the wheel chambers, and resilient cushioning 55 means that surround the bosses within the chambers.

5. The combination with an axle and wheels mounted thereon having annular sets of chambers, of a dynamo-electric machine located between the driving wheels and comprising a rotatable, laminated core and a removable commutator cylinder.

6. The combination with an axle and wheels mounted thereon, of a dynamo-electric machine located between the driving wheels and comprising a rotatable, laminated core, and a supporting structure for the dynamo-electric machine that loosely surrounds the axle and is provided, at its 70 extremities, with flanges or radial arms the external diameter of which is less than the internal diameter of the core laminae and of the commutator cylinder.

7. The combination with a dynamo-electric machine comprising a rotatable, magnetizable core, of a supporting structure therefor having flanges or radial arms at its extremities the external diameter of which is less than the internal diameter of the rotatable core. 80

8. The combination with a dynamo-electric machine comprising a rotatable, magnetizable core and a commutator cylinder, of a supporting structure therefor having 85 flanges or radial arms at its extremities the external diameter of which is less than the internal diameter of the armature core and the commutator cylinder.

In testimony whereof, I have hereunto 90 subscribed my name this 23rd day of February, 1906.

ROBERT SIEGFRIED.

Witnesses:

OTTO S. SCHAIRER,
BIRNEY HINES.