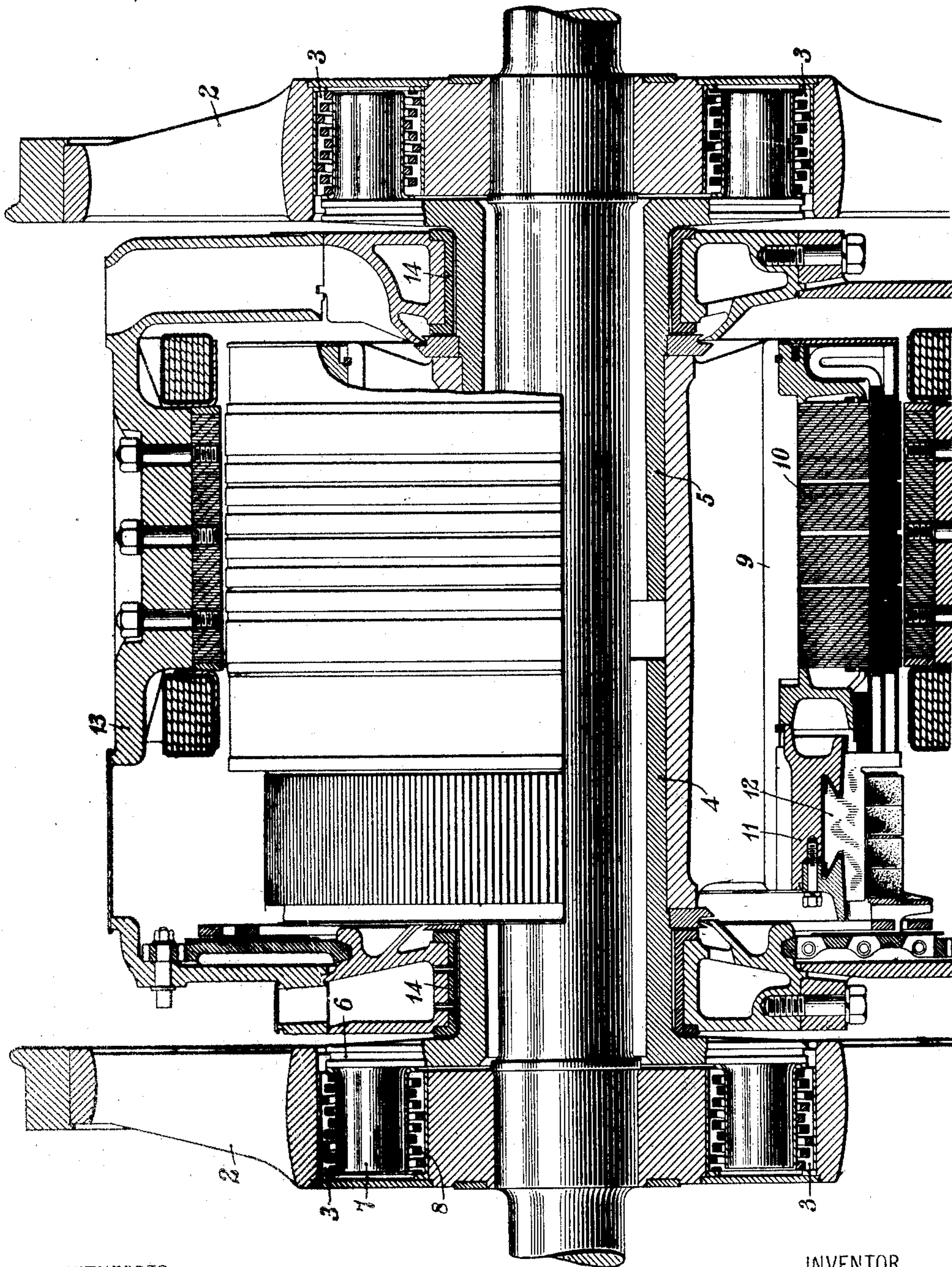


No. 883,246.

PATENTED MAR. 31, 1908.

R. SIEGFRIED.
DYNAMO ELECTRIC MACHINE.
APPLICATION FILED MAR. 3, 1906.



WITNESSES:

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ROBERT SIEGFRIED, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

DYNAMO-ELECTRIC MACHINE.

No. 883,246.

Specification of Letters Patent.

Patented March 31, 1908.

Application filed March 3, 1906. Serial No. 304,089.

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 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, 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 I accordingly propose to provide both ends of the quills with radial arms or flanges that they 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 order to permit of ready application of the punchings and sleeves to the supporting structures, especially when the inner diameters thereof are smaller than the outer diameters of the radial arms or flanges on the quills, I further propose to construct the quills in two parts upon which the support-

ing structures may be mounted after the other parts have been assembled thereon.

In another application, Serial No. 304,091, filed of even date herewith, I have shown and described a supporting structure for the core punchings and the commutator cylinder that is formed integral with one section of the quill, it being immaterial in that case as well as in the present one, whether the external diameter of the supporting structure is greater or less than the external diameter of the radial arms or flanges. In another application, Serial No. 304,090, filed of even date herewith is set forth still another structure in which the supporting device is formed integral with the quill and has a diameter that is slightly greater than that of the radial arms or flanges, so that the punchings and commutator cylinder may be slipped over the arms or flanges.

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

Mounted upon opposite ends of an axle that may be the driving axle of a locomotive or other vehicle, are wheels 2 each of which is provided with a set of annularly arranged chambers 3. Surrounding the axle, between the driving wheels 2, is a quill that comprises two parts 4 and 5, the outer ends of which are provided with annular flanges or radial arms 6, from which bosses 7 project into the wheel chambers 3. The bosses are surrounded, within the chambers, by resilient cushioning means, such as specially constructed helical springs 8 that form the subject-matter of an application, Serial No. 294,410, filed by me January 3, 1906.

Mounted upon and keyed to the inner ends of the quill sections 4 and 5, is a spider or supporting structure 9 for a laminated, magnetizable core 10 and for a sleeve 11 upon which the segments of a commutator cylinder 12 are assembled and secured. 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 sections that are located between the supporting structure for the armature and the radial arms or flanges, relative rotation between the parts being thereby permitted.

In assembling the rotatable member, the core punchings and the sleeve 11 for the com-

mutator cylinder should be applied to the supporting structure before it is mounted upon the quill sections, and consequently it is immaterial whether the outer diameter thereof is greater or less than the inner diameter of the punchings and of the sleeve.

Although I have shown and described the invention as applied to a dynamo-electric machine of the direct current type, I desire it to be understood that it may also be employed in connection with alternating current machines or with other prime movers.

The details of construction and the arrangement of the 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:

1. The combination with an axle, wheels mounted thereon having annular sets of chambers, and a two-part sleeve or quill surrounding the axle and having flanges or radial arms at its extremities and bosses that project therefrom into the chambers in the wheels, of a dynamo-electric machine comprising a rotatable member and a supporting structure mounted upon the quill or sleeve.

2. The combination with an axle, wheels mounted thereon having annular sets of chambers, and a two-part sleeve or quill surrounding the axle and having flanges or radial arms at its extremities and bosses that project therefrom into the chambers in the wheels, of a dynamo-electric machine comprising a rotatable member and a supporting structure therefor that is mounted upon the quill or sleeve and is of smaller external diameter than the flanges or radial arms.

3. The combination with an axle, wheels mounted thereon and a transversely divided quill or sleeve surrounding the axle and resiliently connected to the wheels, of a dynamo-electric machine comprising a rotatable, magnetizable core and a supporting structure mounted upon the quill or sleeve.

4. The combination with an axle, wheels mounted thereon and a transversely divided quill or sleeve surrounding the axle and provided with flanges or radial arms at its extremities and resilient connections between the quill and the wheels, of a dynamo-electric machine comprising a laminated, magnetizable core and a supporting structure mounted upon the quill or sleeve.

5. The combination with an axle, wheels mounted thereon and a transversely divided quill or sleeve surrounding the axle and provided with flanges or radial arms at its extremities and resilient connections between the quill and the wheels, of a dynamo-electric machine comprising a laminated, magnetizable core and a supporting structure therefor that is mounted upon the quill or

sleeve and is of less external diameter than the flanges or radial arms.

6. The combination with an axle, wheels mounted thereon, a transversely divided quill or sleeve surrounding the axle between the wheels and provided with flanges or radial arms at its extremities, and resilient connections between the quill and the wheels, of a dynamo-electric machine comprising a rotatable, magnetizable core and a supporting structure mounted upon the inner ends of the parts of the quill.

7. The combination with an axle, wheels mounted thereon, a transversely divided quill or sleeve surrounding the axle between the wheels and provided with flanges or radial arms at its extremities, and resilient connections between the quill and the wheels, of a dynamo-electric machine comprising a rotatable, magnetizable core, a removable commutator cylinder and a supporting structure mounted upon the inner ends of the parts of the quill.

8. The combination with an axle, wheels mounted thereon, a transversely divided quill or sleeve surrounding the axle between the wheels and provided with flanges or radial arms at its extremities, and resilient connections between the quill and the wheels, of a dynamo-electric machine comprising a rotatable, magnetizable core, a removable commutator cylinder and a supporting structure therefor that is mounted upon the inner ends of the parts of the quill and is of less external diameter than the flanges or radial arms.

9. The combination with an axle and wheels mounted thereon, of quills or sleeves surrounding the axle between the wheels, resilient connections between the outer ends of the quills and the wheels, and a dynamo-electric machine that is mounted upon the quills.

10. The combination with an axle and wheels mounted thereon, of quills or sleeves surrounding the axle between the wheels, resilient connections between the quills and the wheels, and a dynamo-electric machine mounted upon the inner ends of the quills.

11. The combination with an axle and wheels mounted thereon having annular sets of chambers, of quills or sleeves surrounding the axle between the wheels and provided with flanges or radial arms at their outer ends and with bosses that project therefrom into the wheel chambers, and a dynamo-electric machine mounted upon the inner ends of the quills.

12. The combination with an axle and wheels mounted thereon having annular sets of chambers, of quills or sleeves surrounding the axle between the wheels and provided with flanges or radial arms at their outer ends

and with bosses that project therefrom into the wheel chambers, resilient cushioning means surrounding the bosses within the chambers, and a dynamo-electric machine
5 mounted upon the inner ends of the quills.

13. In a dynamo-electric machine, the combination with a stationary and a rotatable member, of a transversely divided quill or sleeve upon which said members are
10 mounted.

14. The combination with an axle and wheels mounted thereon, of a dynamo-electric machine located between the wheels and a supporting structure therefor that loosely surrounds the axle and is resiliently connected to the wheels.

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

ROBERT SIEGFRIED.

Witnesses:

OTTO S. SCHAIRER,
BIRNEY HINES.