

(No Model.)

G. BAEHR.  
DYNAMO ELECTRIC MACHINE.

No. 486,524.

Patented Nov. 22, 1892.

Fig. 1.

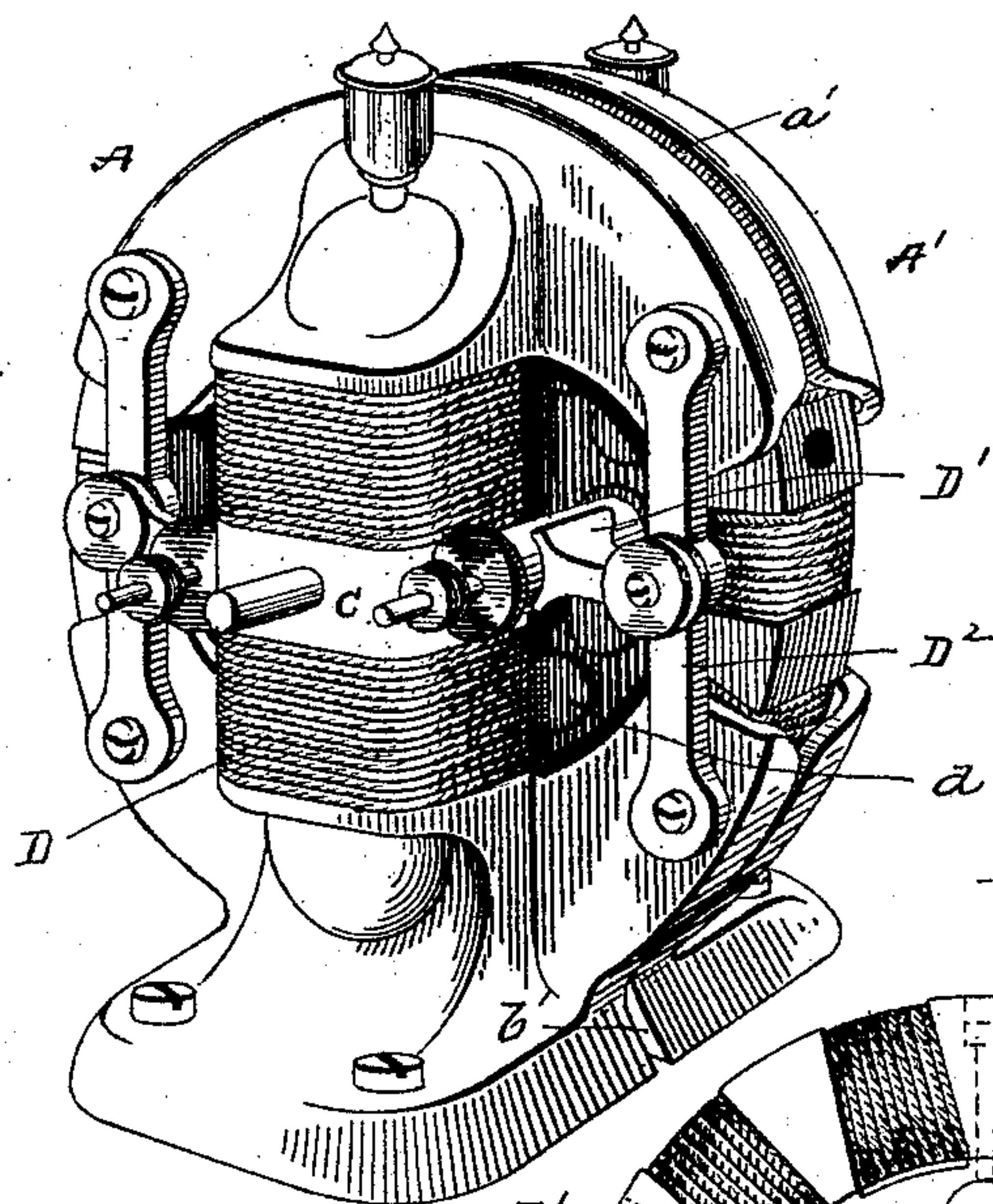
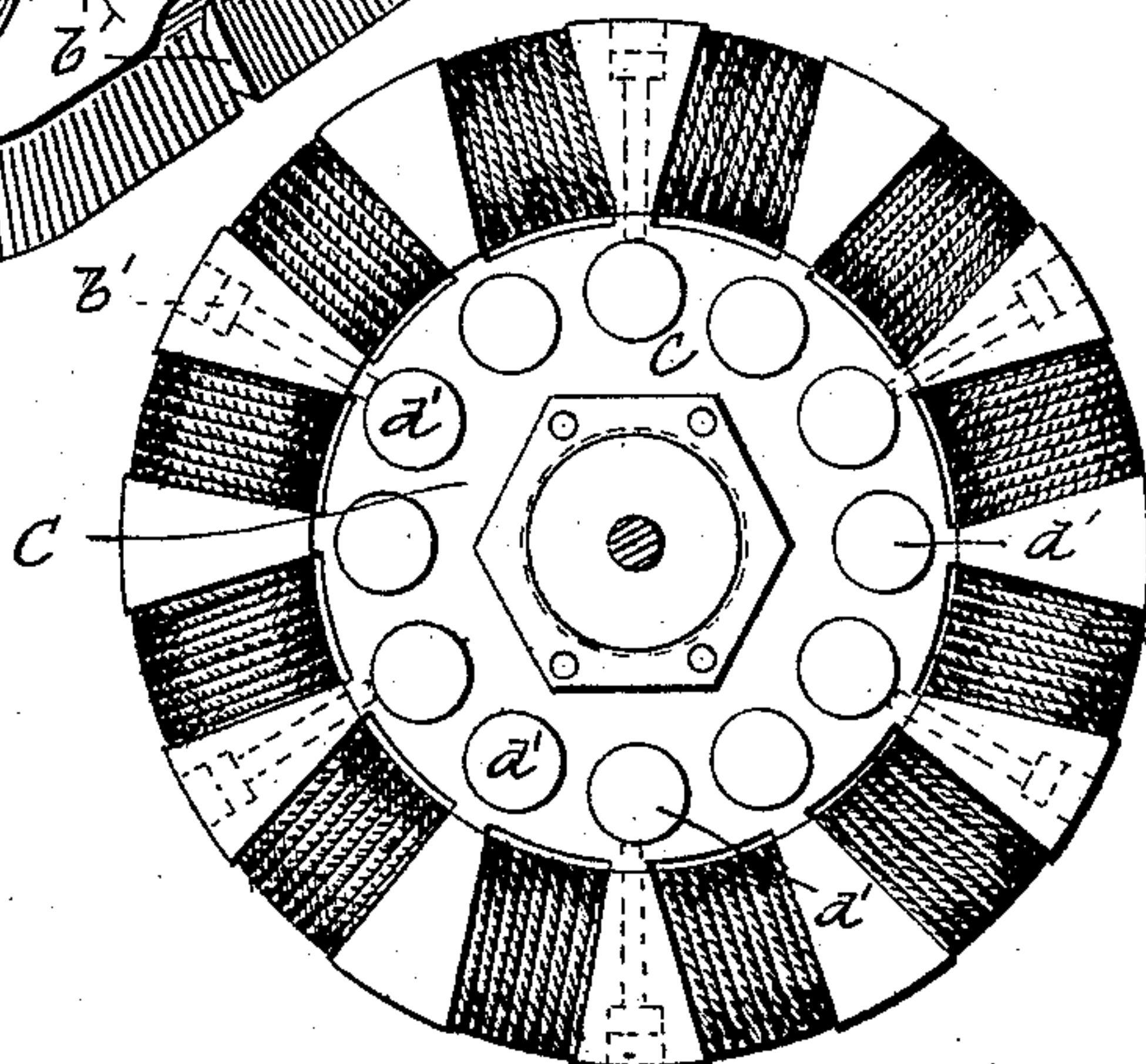


Fig. 3.

B



B

Fig. 4.

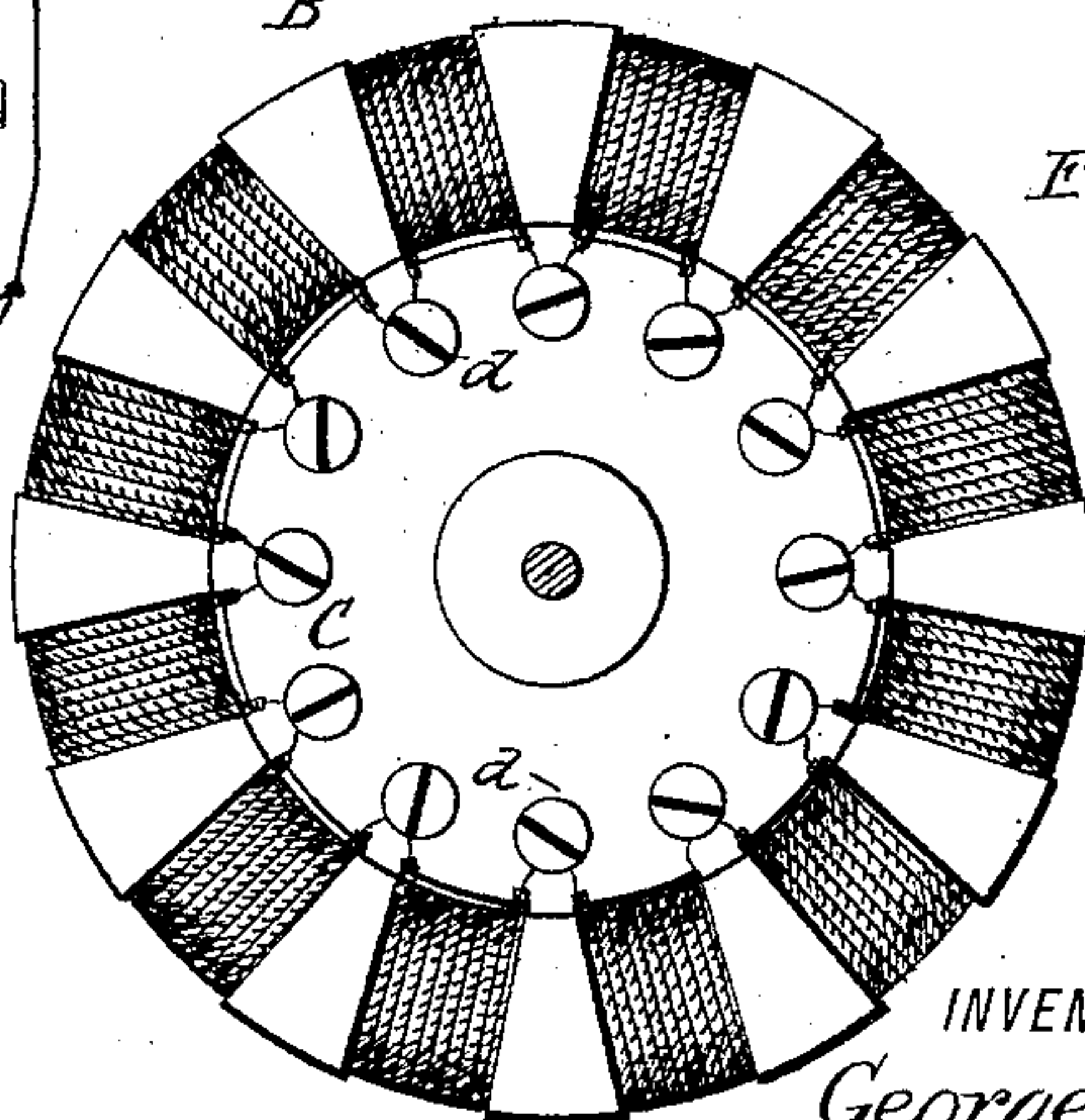
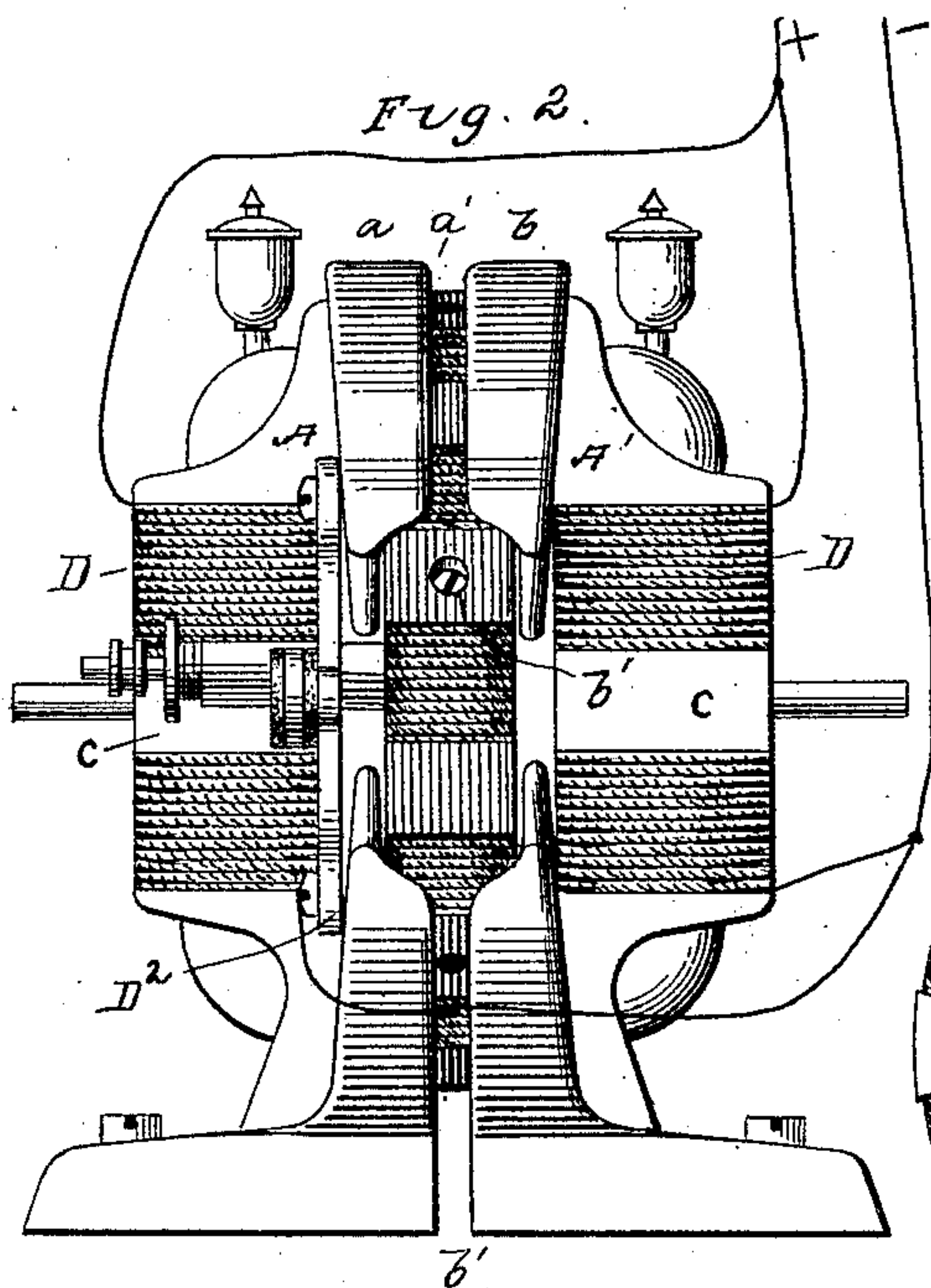


Fig. 2.



WITNESSES:

Frank S. Ober.

Wm. Rosenbaum

INVENTOR

George Baehr

BY

W. D. Johnston  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

GEORGE BAEHR, OF BROOKLYN, NEW YORK.

## DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 486,524, dated November 22, 1892.

Application filed December 18, 1891. Serial No. 415,452. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE BAEHR, a citizen of the United States, residing in Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Dynamo-Electric Machines, of which the following is a specification.

This invention relates to dynamo-electric machines and motors, and has special reference to the construction of the field-magnet, armature, and commutator. The object of the field-magnet construction is to prevent the stoppage of the machine in case a portion of the field-magnet coils should be burned out or otherwise destroyed. The object of the armature and commutator construction is to bring the two as closely together as possible and make the machine more compact and to provide a simple way of supporting the armature upon the shaft.

The invention will now be described in detail in reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the machine; Fig. 2, a side elevation, and Figs. 3 and 4 views of the opposite sides of the armature and commutator.

A A' represent two castings which are substantially fac-similes of each other, each being provided with pole-pieces *a b*, connected by a piece *c*, forming the core of two coils. (Represented by D D.) The cores at the middle are enlarged to provide a bearing for the armature-shaft, as will be hereinafter described. These castings are placed together upon a base face to face, a small space *a' b'* being left between them. The direction of the current through the coils is such that the parts of the pole-pieces adjacent to each other are of like polarity. Therefore the two magnetic circuits act together and in the same direction upon the armature. The coils of these two castings may be connected in series with each other or in multiple and the machine be equally as efficient; but if they are connected in multiple, and this I prefer, should one of the coils be burned out or short-circuited, so that the magnet of which it formed a part became de-energized, the circuit would still be continuous through the other magnet and the lines of force produced by it would still act upon the armature independent of the destroyed

magnet and would pass through the armature in preference to the injured side of the field-magnet, because the air-gap between the two castings is made a trifle greater than the air-gap between the faces of the poles and the armature-core. Another advantage arising from this construction of field-magnet is that any imperfections in the iron of one of the castings will not affect the circuit through the other casting. The total magnetic system is therefore more flexible and reliable than it is when entire. If the machine is compound wound, the series coil may be placed upon one side and the shunt-coil upon the other. Then if the series coil becomes destroyed the machine will continue to run as an ordinary shunt-dynamo. In case of damage to one of the coils it is obvious that the machine will lose some of its efficiency—that is, about twenty per cent.—but the point is it will not stop. The machine may be either bipolar or multipolar and still act in the same manner as described.

The armature B is a Pacinotti ring supported upon the shaft by the cylindrical block C of fiber or other insulating material. This block serves as a spider and the armature is secured to it by means of radial screws *b'*, which pass through the lugs of the ring and into the block.

The commutator is formed of plugs *d*, having a threaded body, portions of which pass through the block of insulating material C and project slightly on each side. One end of the plug has a broad flat head *d'*, against which the contact devices bear, and the other end has a slot to receive a screw-driver for working the plug into place. The ends of the coils are soldered or otherwise secured to the rear ends of the plugs, as shown in Fig. 4. A space is left between the heads of the adjacent plugs, so that they are perfectly insulated from each other. The contact device is a carbon pencil set at right angles to the face of the plugs in holders D', located on each side of one of the field-cores and supported on brass arms D<sup>2</sup>. It will be seen from the construction of this commutator that the armature and commutator stand in the same plane and that the commutator adds nothing to the width of the machine. The armature-shaft has its bearings in the iron portion of

the field-magnets located between the parts of the coils.

Having thus described my invention, I claim—

- 5 1. In a dynamo-electric machine, the combination, with a ring-armature, of a field-magnet on each side thereof, each magnet consisting of a vertical core wound with two coils, a space being left between them for the armature-shaft bearings, pole-pieces projecting  
10 from each end of the cores and surrounding the side and periphery of the armature, pole-pieces of like sign being opposite each other, and the coils of the respective magnets being  
15 in separate circuits, substantially as described.

2. The combination, with an armature, of a disk or spider supporting the same, plugs of metal being inserted in the disk or spider with their ends exposed on both faces of the disk or spider, one end serving as a contact- 20 surface for the brushes and the other end having attached to it the ends of coils on the armature, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing 25 witnesses.

GEORGE BAEHR.

Witnesses:

WM. A. ROSENBAUM,  
FRANK S. OBER.