

(No Model.)

E. P. CLARK.  
DYNAMO ELECTRIC MACHINE.

No. 330,095.

Patented Nov. 10, 1885.

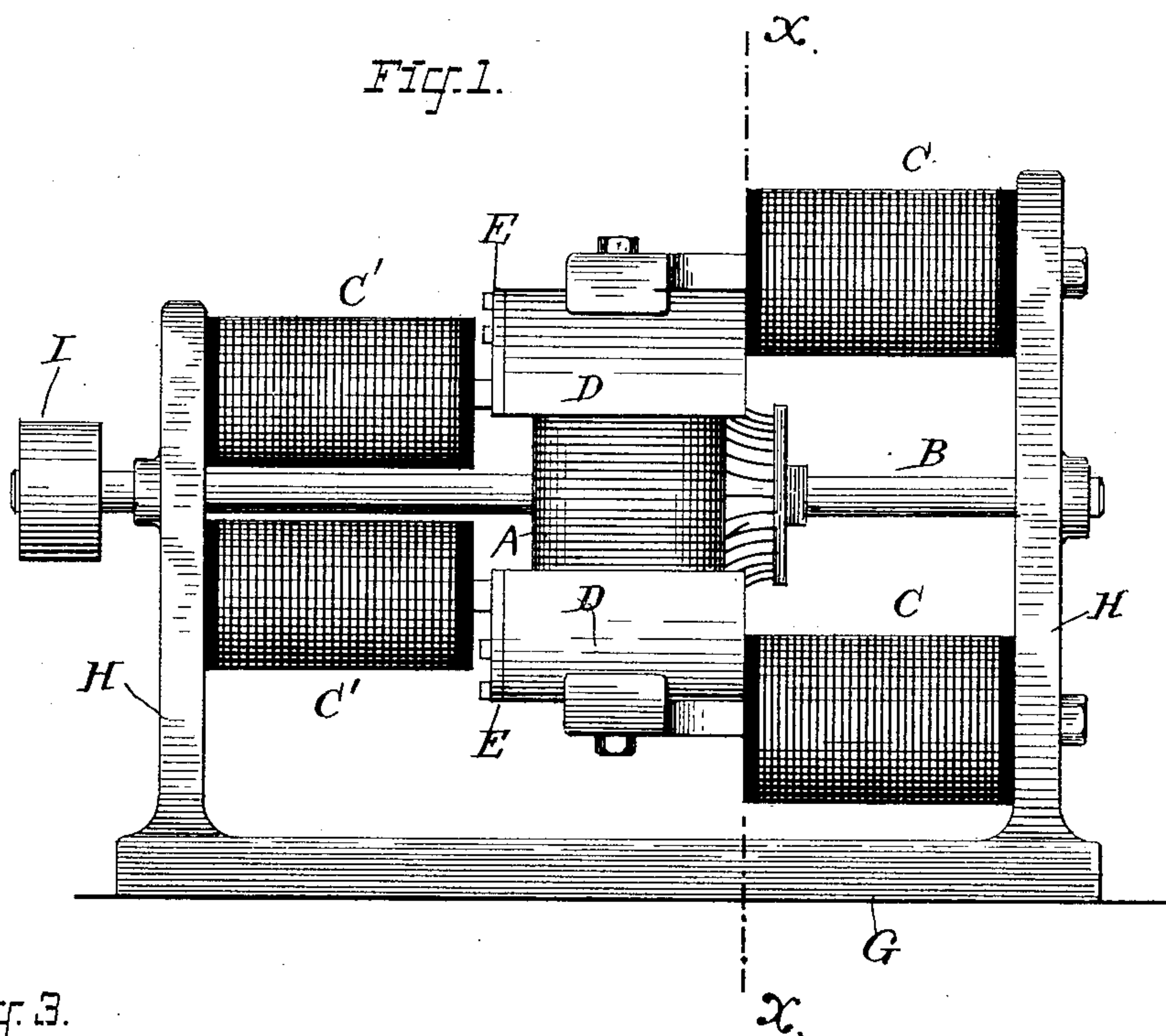


Fig. 3.

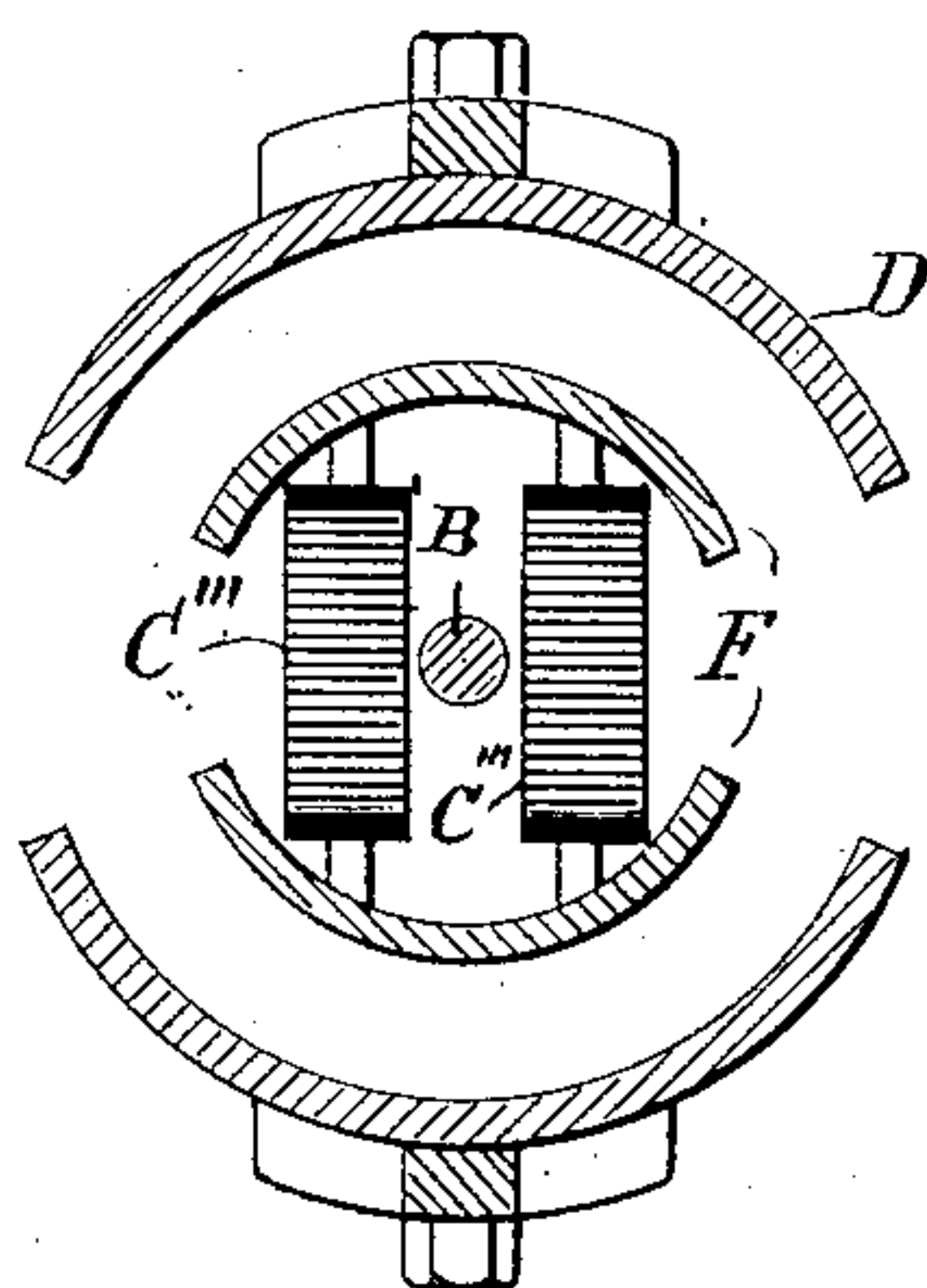
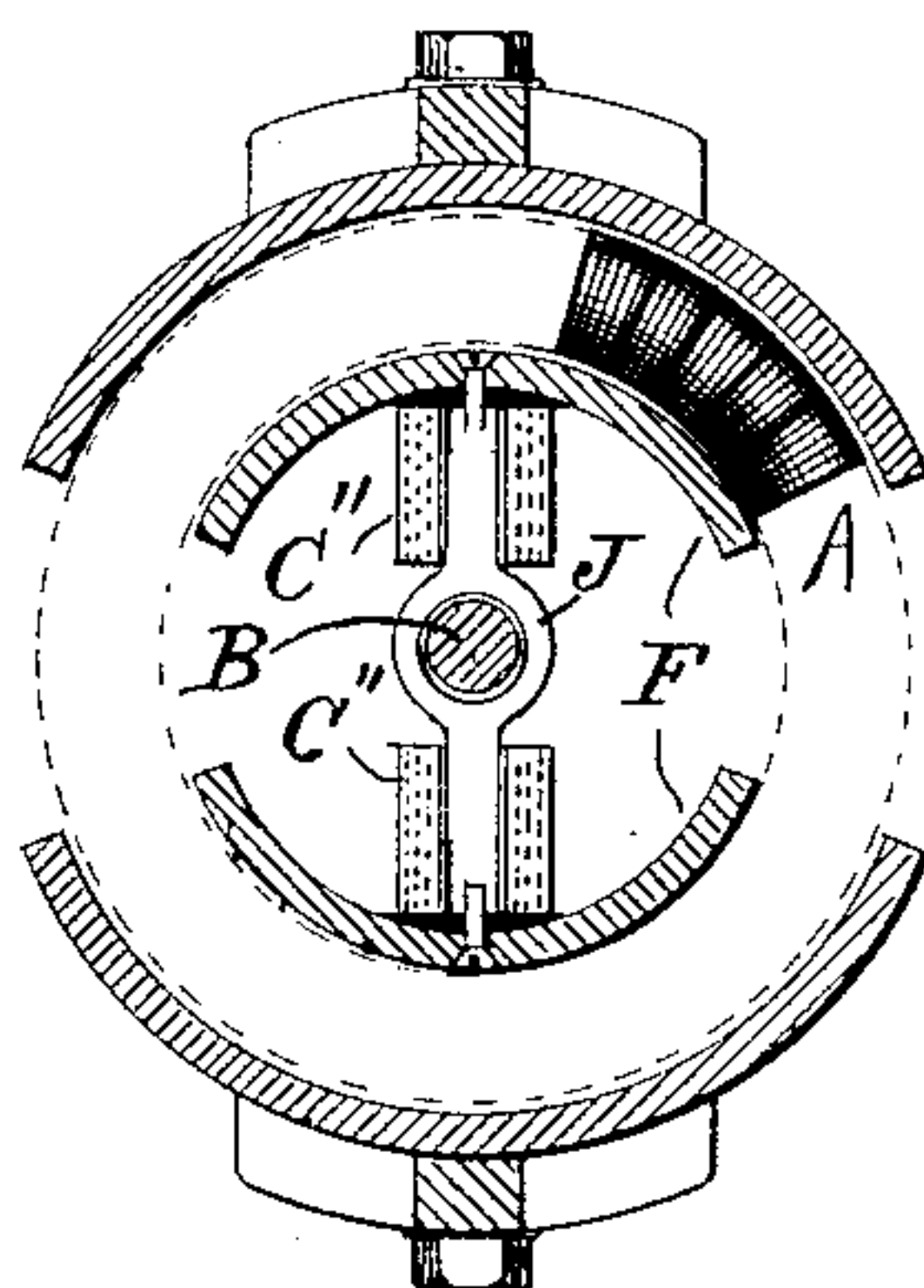


Fig. 2.



ATTEST:

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By his Attorney

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# UNITED STATES PATENT OFFICE.

ERNEST PAUL CLARK, OF OWEGO, NEW YORK.

## DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 330,095, dated November 10, 1885.

Application filed June 17, 1885. Serial No. 168,941. (No model.)

*To all whom it may concern:*

Be it known that I, ERNEST PAUL CLARK, a citizen of the United States, and a resident of Owego, in the county of Tioga and State of New York, have invented certain new and useful Improvements in Dynamo-Electric Generators, of which the following is a specification.

This invention relates to that class of dynamo-electric machines provided with field-magnets having external and internal pole-pieces.

The invention has for its object such a construction and disposition of parts that the magnetic field embraces the armature in the most effectual manner. To this end the invention consists in improvements of construction and disposition of parts.

The description which follows is in connection with and in conformity to the accompanying drawings, where—

Figure 1 is a general side view, and Figs. 2 and 3 sectional views, through the line X, the difference between the latter two being in reference to the internal field-magnets.

B is the shaft, supported by the upright pieces H. A is a ring-armature supported by the shaft, and located between the inner and outer pole-pieces, F and D, respectively, which are secured to their respective field-magnets C' and C, and are connected together by plates of iron E, for the purpose of equalizing the magnetic field of the aforesaid field-magnets C' and C. C'' and C''' show internal field-magnets whose pole-pieces are F, or those of the field-magnets C'.

In Fig. 3 the shaft passes between the magnets C''', while in Fig. 2 the shaft passes loosely through the double core J of the magnets C''. The preferred form is that shown in Fig. 3. The said magnets C have the axial lines of their coils just outside the surface of the armature, and parallel thereto, while the magnets C' have their axial lines of their coils within the surface of the armature and parallel thereto. This is apparent from the drawings, which show the former located considerably above the shaft B, and the latter very near to said shaft. By this arrangement the

magnetic field is distributed more effectually than in other machines of a similar type.

As to the mode of operation of this machine, it is essentially the same as that of dynamo-machines in general. A pulley, I, is provided, by which the armature may be rotated, and the electrical connections and a commutator are provided for the purpose of completing the circuit. Such parts (not shown) are not a part of my invention. A convenient position for the commutator is shown, however, anywhere between the magnets C.

What I claim is—

1. In a dynamo-electric machine, an external and an internal pole-piece, each pole-piece being the segment of a cylinder, and the said pole-pieces being connected by a plate of magnetic material, substantially as described.

2. In a dynamo-electric machine, a field-magnet the axial lines of whose coils are without the cylindrical surface of a cylindrical or ring armature, a second field-magnet the axial lines of whose coils are within the cylindrical surface of a cylindrical or ring armature, and a third field-magnet the axial lines of whose coils are perpendicular to the cylindrical surface of a cylindrical or ring armature, the first field-magnet having external pole-pieces, and the second and third field-magnets having common internal pole-pieces, substantially as and for the purpose described.

3. In a dynamo-electric machine, the combination of a shaft provided with a ring-armature, internal pole-pieces and magnets connecting them to each other, and two additional field-magnets, one of which has coils whose axial lines are parallel to the said shaft and is connected to the external pole-pieces, and the other of which has coils whose axial lines are parallel to the said shaft and is connected to the internal pole-pieces, substantially as described.

4. In a dynamo-electric machine, the combination of a shaft provided with an armature, internal pole-pieces and magnets connecting them to each other, and two additional field-magnets, one of which has coils whose axial lines are parallel to the said shaft and is connected to the external pole-pieces, and the

other of which has coils whose axial lines are  
parallel to said shaft and is connected to the  
internal pole-pieces, and the said external and  
internal pole-pieces being connected by plates  
5 of magnetic material, substantially as de-  
scribed.

In testimony that I claim the foregoing as

my invention I have signed my name, in pres-  
ence of two witnesses, this 15th day of June,  
1885.

ERNEST PAUL CLARK.

Witnesses:

ODELL J. WATROS,  
S. L. KING.