

**No. 641,682.**

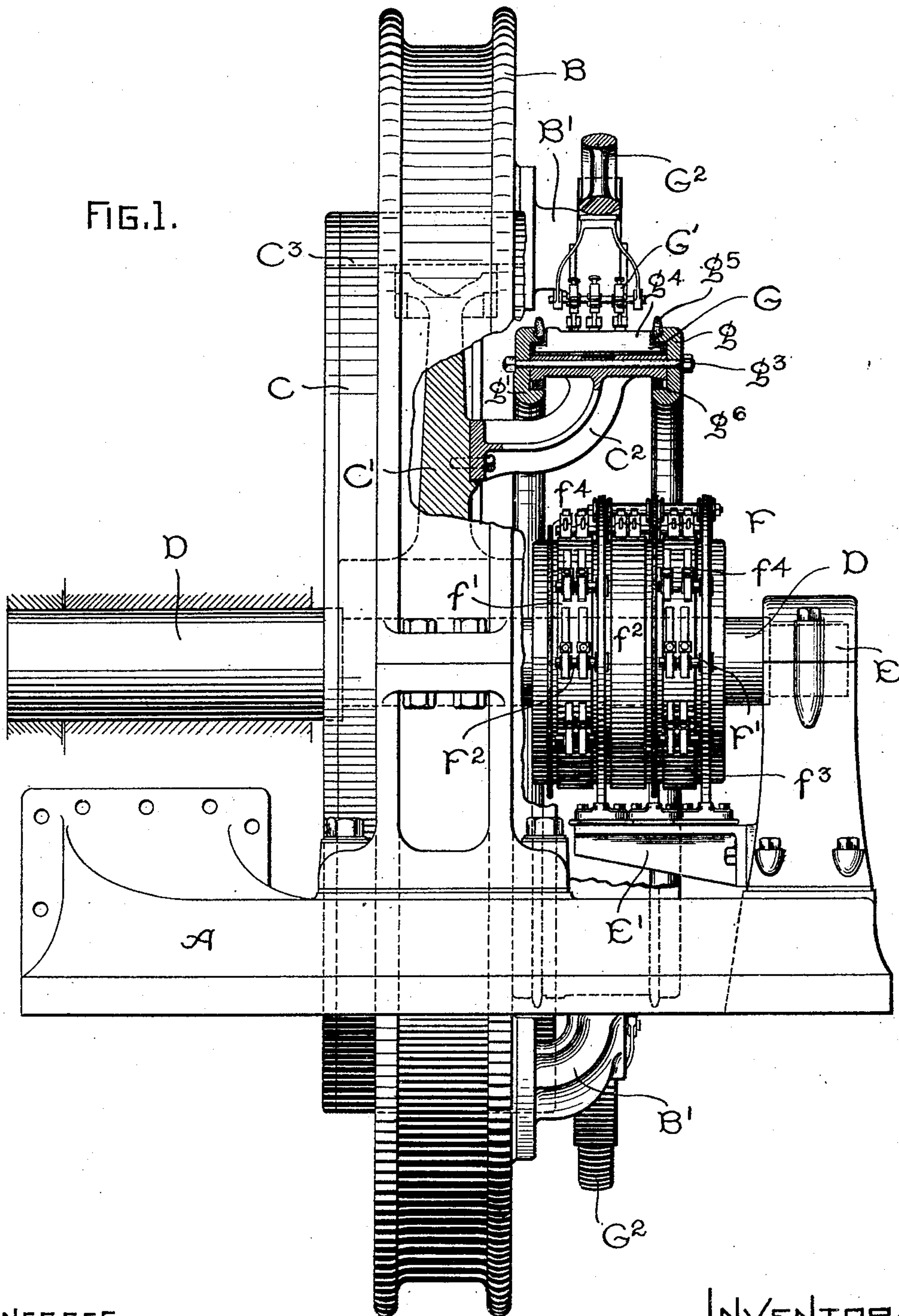
**Patented Jan. 23, 1900.**

**W. L. R. EMMET.**  
**DYNAMO ELECTRIC MACHINE.**

(Application filed Dec. 16, 1898.)

(No Model.)

**2 Sheets—Sheet 1.**



WITNESSES.

A. Ernst Altenpohl.

A. F. Macdonald.

INVENTOR.

William L. R. Emmet

by *Albert G. Davis*  
Atty.

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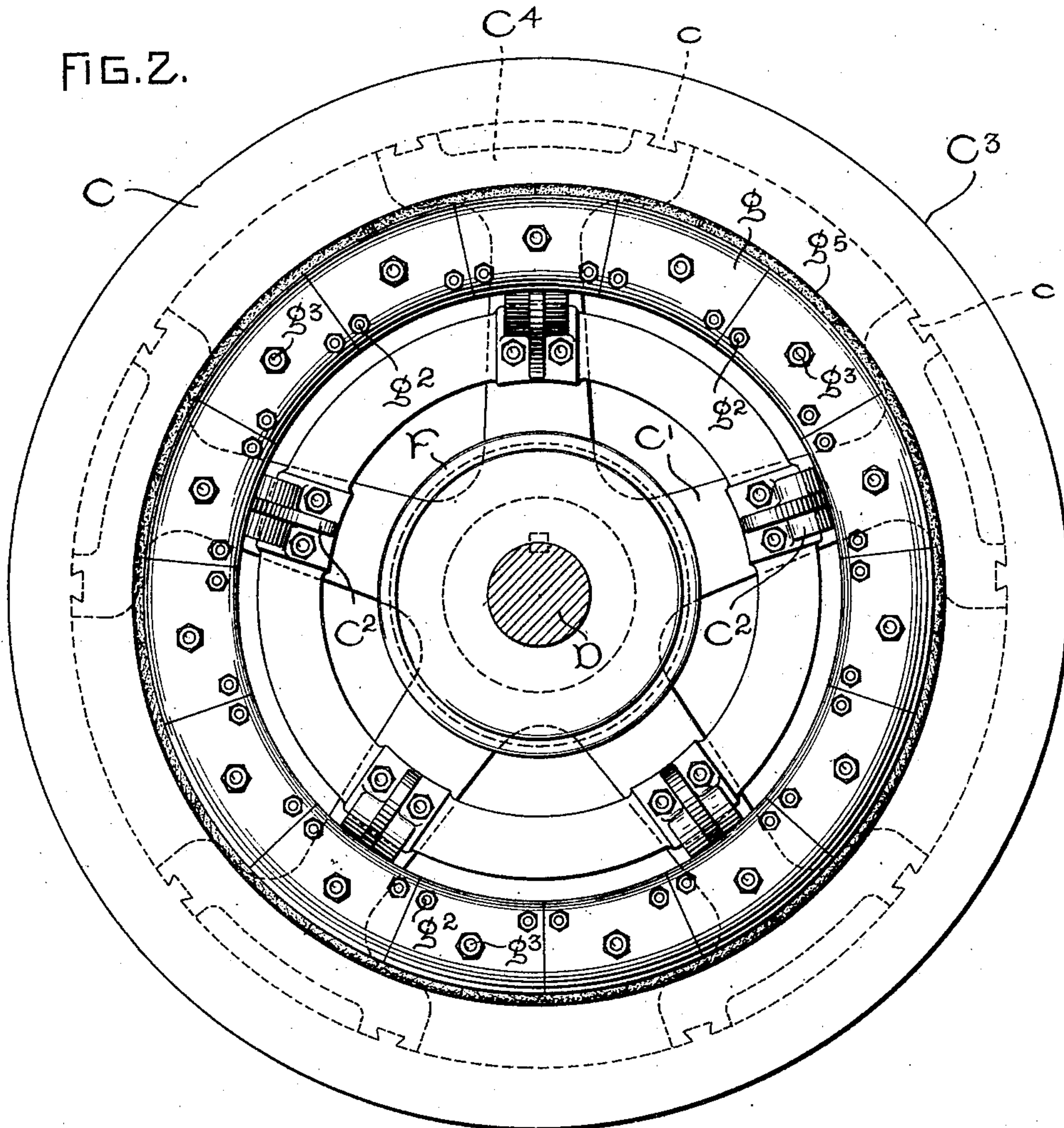
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*A. Gust Altempohl.*  
*A. F. Macdonald.*

INVENTOR.

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# UNITED STATES PATENT OFFICE.

WILLIAM L. R. EMMET, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE  
GENERAL ELECTRIC COMPANY, OF NEW YORK.

## DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 641,682, dated January 23, 1900.

Application filed December 16, 1898. Serial No. 699,435. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM LE ROY EMMET, a citizen of the United States, residing at Schenectady, county of Schenectady, in the State of New York, have invented certain new and useful Improvements in Dynamo-Electric Machines, (Case No. 880,) of which the following is a specification.

My present invention relates to the construction of rotary converters, double-current generators, and other types of dynamo-machines possessing both collectors and commutating devices, and has for its object to economize the space in these machines, so that they may be made with shorter shafts, obtain greater rigidity, and take less space than as heretofore constructed.

In old types of rotary converters the collector-rings by which the alternating current was fed to the armature have been located upon one end of the shaft, the armature being hung in the middle and the commutator placed upon the opposite side of the armature from the collector-rings. With my present arrangement I am enabled to diminish the length of the shaft, as by it I place the commutator and collecting-rings at the same end of the shaft, one outside the other. I prefer to affix the commutator to the spider or other convenient part of the armature structure and to secure the collector-rings directly upon the shaft; but it is obvious that a mere reversal comes within the spirit and scope of my invention. Any usual and convenient brush-holding arrangement may be made. In practice I have preferred to arrange the collector-brushes upon a bracket bolted to the outboard-bearing; but any other construction may be employed.

The accompanying drawings show a machine constructed according to my invention.

Figure 1 is an end elevation, partly in section, of a complete machine; and Fig. 2 is a side elevation of the armature.

A is the base of the apparatus.

B is the field-magnet frame.

C is the armature, and C' is the spider, to the arms of which bracket-arms C<sup>2</sup> are bolted or otherwise secured. These are designed to carry the commutator G, which is of well-known construction, consisting of end rings

or flanges  $g g'$ , commutator-bars  $g^4$ , with suitable insulation, and rings  $g^5$  of insulation between the flanges  $g$  and the bars. Bolts  $g^3$  secure the parts together, and wedges  $g^6$ , working against inclined surfaces upon the under part of the commutator-spider and secured by bolts  $g^2$ , clamp the commutator parts firmly in place.

The brushes G' of the commutator are carried upon the usual ring G<sup>2</sup>, supported by brackets B' B' from the field-magnet B. The collecting device F consists of collecting-rings  $f' f^2 f^3$ , separated by the usual insulating-septa  $f^4 f^4$ . To the outboard-bearing E, which turns the shaft D of the apparatus, is bolted a bracket E', and from this the collector-brush holders F' are supported, being provided with studs F<sup>2</sup>, the brushes being removed for clearness of illustration. A three-phase collector is shown; but of course any other type might be used.

The same parts are shown in Fig. 2, the armature-laminations C<sup>3</sup> being secured by dovetails  $c$  to the expanded faces C<sup>4</sup> of the armature-spider, this construction being one which is well understood.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A dynamo-electric machine provided with alternating and direct current terminals, and a commutator and collector overhanging one another in a plane transverse to the shaft.

2. A dynamo-electric machine provided with alternating-current and direct-current terminals and corresponding armature-circuits, and a commutator and collector between the terminals nesting within one another.

3. A dynamo-electric machine provided with alternating and direct current terminals and armature-circuits connected therewith, a commutator mounted upon the armature and overhanging the shaft, and a collector for alternating currents mounted beneath said commutator.

4. A dynamo-electric machine provided with a collector mounted close to the shaft, and a commutator overhanging said collector and secured to the armature-spider.

5. A rotary converter provided with direct

and alternating current leads, a commutator and collector connecting with said leads and superposed one over the other in the same plane transverse to the shaft.

- 5 6. The combination in a converter of an armature and field-magnet, a shaft, an out-board-bearing for the shaft, a commutator secured to the armature, a collecting device secured to the shaft, and a bracket upon the out-  
10 board-bearing for supporting the collector-brushes.

7. In a dynamo-electric machine, the combination with the armature of a commutator and a collector on the same end of the shaft, one surrounding the other.

In testimony whereof I have hereunto set my hand this 14th day of December, 1898.

WILLIAM L. R. EMMET.

Witnesses:

B. B. HULL,  
M. H. EMERSON.