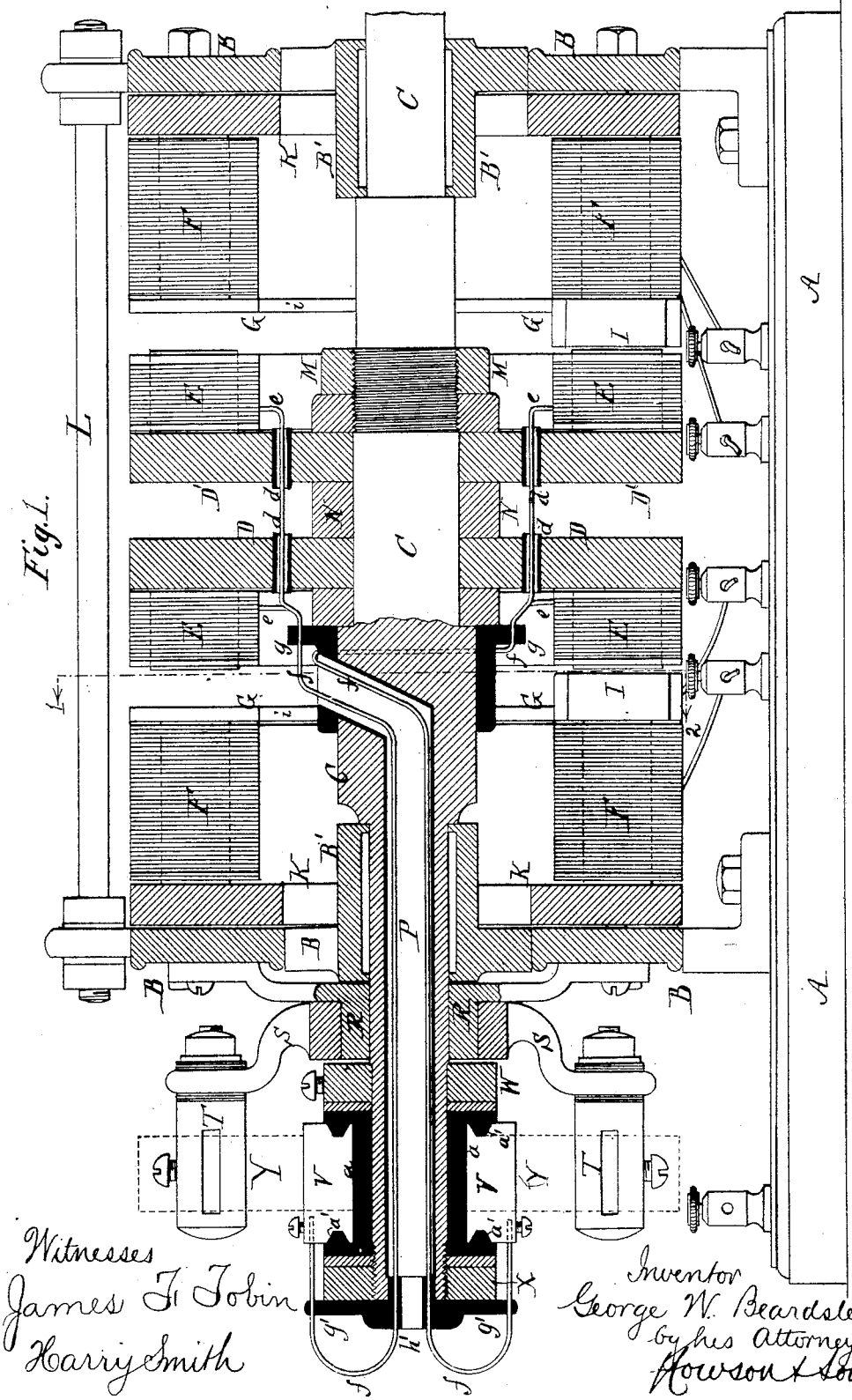
(No Model.) 2 Sheets—Sheet 1.

G. W. BEARDSLEE.

DYNAMO ELECTRIC MACHINE.

No. 264,228. Patented Sept. 12, 1882.

Fig. 1.



Witnesses
James F. Tobin
Harry Smith

Inventor
George W. Beardslee
by his Attorneys
Howson & Sons

(No Model.) 2 Sheets—Sheet 2.

G. W. BEARDSLEE.

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Fig. 3.

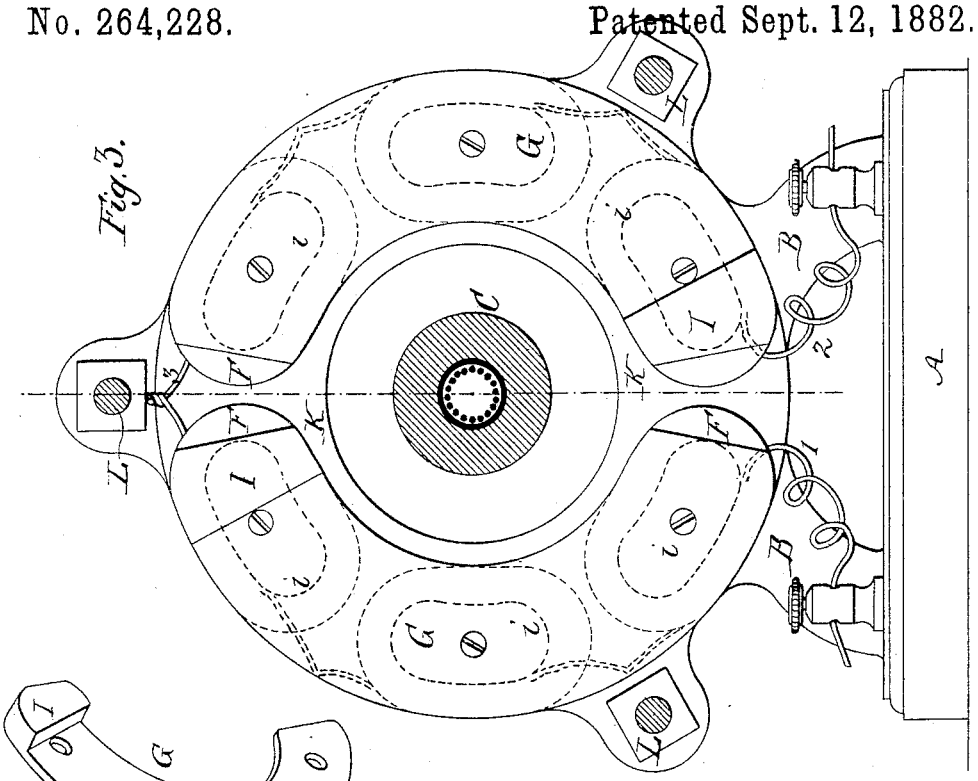


Fig. 4.

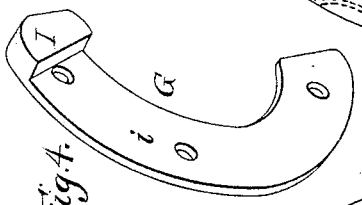
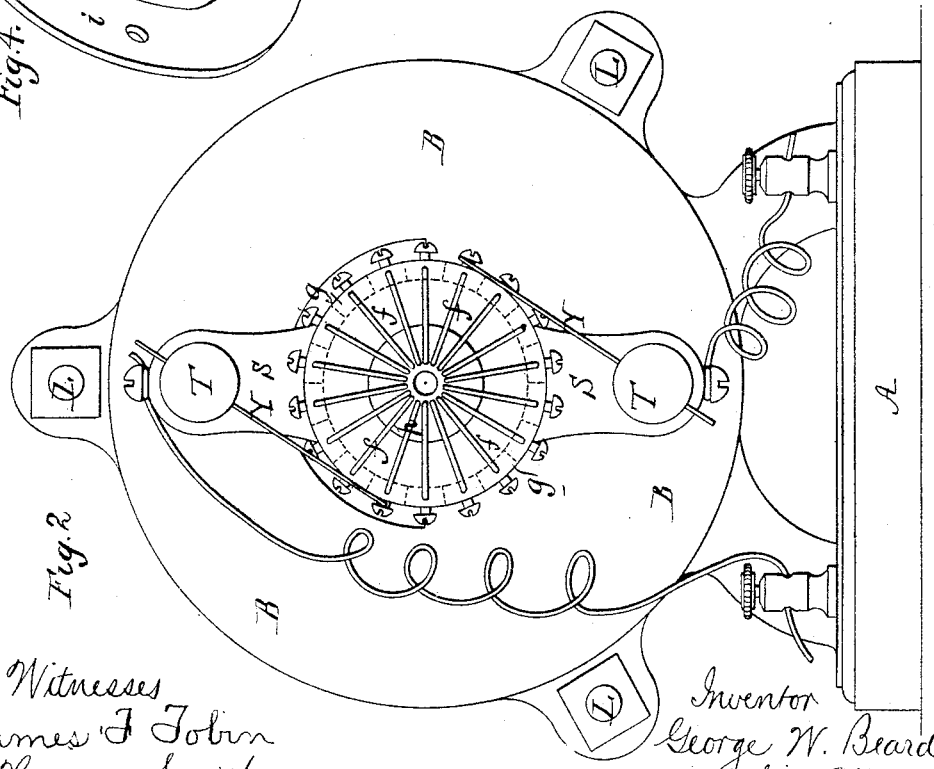


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE W. BEARDSLEE, OF BROOKLYN, NEW YORK, ASSIGNOR TO WILLIAM F. JOBBINS, OF EAST ORANGE, NEW JERSEY.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 264,228, dated September 12, 1882.

Application filed June 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. BEARDSLEE, a citizen of the United States, and a resident of Brooklyn, New York, have invented certain Improvements in Dynamo-Electric Machines, of which the following is a specification.

My invention relates to certain improvements in the construction of the dynamo electric machines for which I applied for Letters Patent of the United States, May 19, 1882, Serial No. 61,788, and May 29, 1882, Serial No. 62,813.

In the accompanying drawings, Figure 1 is a longitudinal section of the machine; Fig. 2, a view of the commutator end of the machine; Fig. 3, a transverse section on the line 1 2, Fig. 1; and Fig. 4, a perspective view, on a smaller scale, of the connecting-pole piece for the electro-magnets.

A is the base or bed plate of the machine, and to this are bolted the end plates or standards, B B, which are connected and held in position by brass rods L and suitable nuts and washers. To these end plates, B, are bolted the iron rings K, on which are secured or cast the cores of the electro-magnets F.

One of the features of my present invention consists in employing a connecting-pole piece, G, for several of the spools F, instead of having a separate pole for each, as in the machines described in my former application. In the present instance I have shown six spools on each ring, Fig. 3, having their cores connected in sets of three each by pole-pieces G, each consisting of a thin flat portion, *i*, secured to the cores by screws, and a projection, I, at one end, forming the narrow concentrating-pole at the point where the generating-wheel leaves the polar field, for the purpose described in my said application No. 61,788.

In bearings B′ in the end frames, B, is mounted the shaft C, carrying the two generating-wheels or armatures and commutator. These wheels consist of circular disks D D′, of iron, carrying the electro-magnets E, and fastened to the shaft by a nut, M, and washers bearing against a shoulder on the shaft, the disks being separated by a washer, N, for the purpose of allowing free ventilation, as more fully described hereinafter.

The cores of the spools E are cast on or fixed to their respective disks D D′ in rings, with their poles opposite the polar pieces G.

The wires of the electro-magnetic coils of the two generating-wheels are connected to the plates of one commutator; but the latter, instead of being arranged between the wheels, as in the machine described in my application No. 62,813, is attached to one end of the shaft, as shown in Fig. 1. The wires *e* from the several spools E of the wheel D′ pass through insulated passages *d* in the two wheels, and are then joined to the wires *e* from the corresponding spools of the wheel D. Each pair of wires thus joined is connected to a larger conductor, *f*, which passes through an opening in an insulating-disk, *g*, and thence through the hollow portion P of the shaft C, which has a non-conducting lining. The wires are then threaded through openings in an insulating-plug, *h*′, and in an insulating-disk, *g*′, and are thence connected to the respective commutator-plates V, to which they are electrically connected. These commutator-plates are insulated from each other and from the shaft by suitable material, *a*, and are held between insulating-disks *a*′, fixed between a collar, W, screwed to the shaft, and a nut, X, screwed on the end of the shaft.

The holes in the disks *g* and *g*′ and plug *h* are numbered to correspond with the number of wires *f* and plates V, eighteen in the present instance, there being thirty-six spools on the two wheels. By thus connecting up the coils of the electro-magnets of the two wheels to the same conductor *f*, I am enabled to obtain a current having the double volume given by the two wheels with the same intensity as would be given by only one wheel.

The commutator-brushes Y are carried by insulated studs T, secured to the arms of a holder, S, which is fixed on a collar on a cross-piece, R, bolted to the end frame, B.

I prefer to connect up the wires of the several spools F, as indicated in Fig. 3—that is to say, they are connected in series, the three spools with same pole-piece, G, having the outside coil of the first connected with the inside coil of the second and the outside of the second with the inside of the third, while the adjoining spools of the two series on each wheel have

their outside coils connected together, as at Fig. 3, and the terminal wires 1 and 2 of the adjoining spools at the diametrically-opposite side of the wheel lead to binding-posts. The connections of the several spools are carried outward toward the periphery, so as to permit changes to be readily made in the connections when desired.

The iron plates D D′, arranged back to back, are separated from each other by the washer N on the shaft, so that when the machine is in operation there is a constant current of cool air passing from within the rings of the electro-magnets E and F, out through the openings *d*, and between the plates D, the air being drawn in at each end of the machine by the fan-like action of the wheels D D′, with their spools.

I claim as my invention—

1. The combination of a series of electro-magnets with a pole-piece, G, secured to the cores of the several electro-magnets, and having a narrow concentrating polar face at one end, substantially as described.

2. A dynamo-electric machine having one commutator, two sets of field-magnets, and two sets of generating-wheels, the coils of the two wheels being connected to one set of conductors, *f*, leading to the commutator-plates, substantially as set forth.

3. A dynamo-electric machine having an armature with a hollow shaft lined with non-conducting material, and having all the insulated terminals of the armature passing freely through it.

4. The combination of the field-magnets and two rotary armature-disks arranged near to each other, and having ventilating-openings through them, substantially as and for the purpose described.

5. The combination of the shaft and armature-wheel, carrying spools E, with a non-conducting disk, *g*, having openings for the wires of the said spools.

6. The combination of the hollow shaft having a non-conducting lining, disks *g* and *g′*, with a plug, *h′*, all having corresponding openings for the wires, substantially as set forth.

7. The combination of the two sets of field-magnets with two armature-wheels, D D′, mounted on the shaft back to back, and a washer, N, separating the two wheels, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEO. W. BEARDSLEE.

Witnesses:
WALTER K. FREEMAN,
EUGENE F. BARNES.