

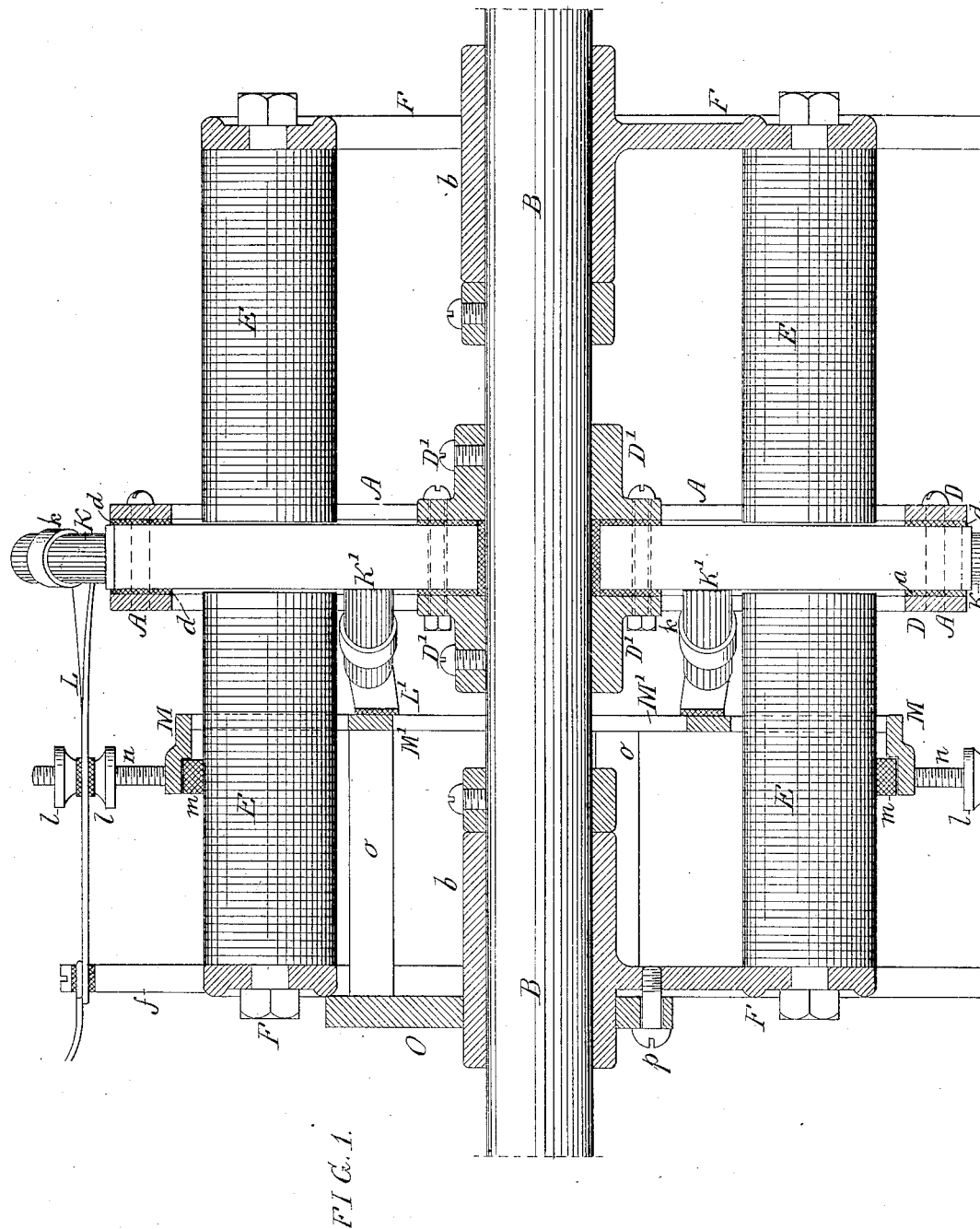
(No Model.)

3 Sheets—Sheet 1.

W. W. GRISCOM.
DYNAMO ELECTRIC MACHINE.

No. 307,388.

Patented Oct. 28, 1884.



WITNESSES:

John M. Gayton.
James F. Jobing

INVENTOR:

William W. Griscom
by his Attys
Howson & Sons

(No Model.)

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FIG. 3.

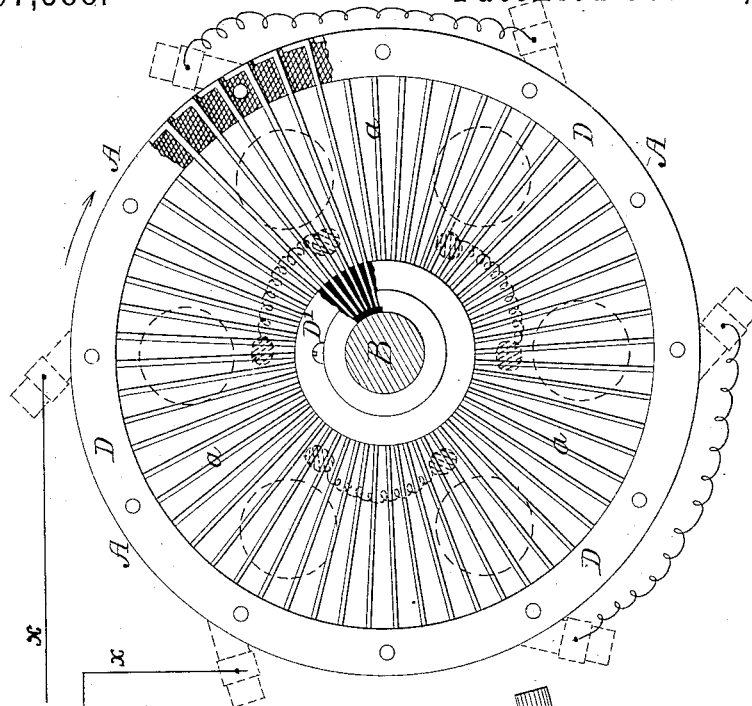
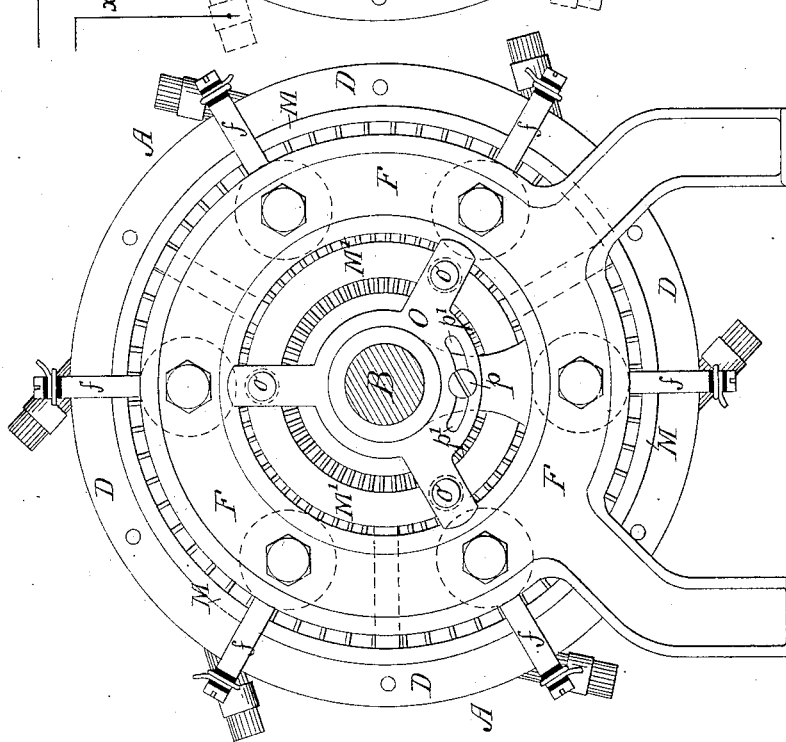


FIG. 2.



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James F. John

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(No Model.)

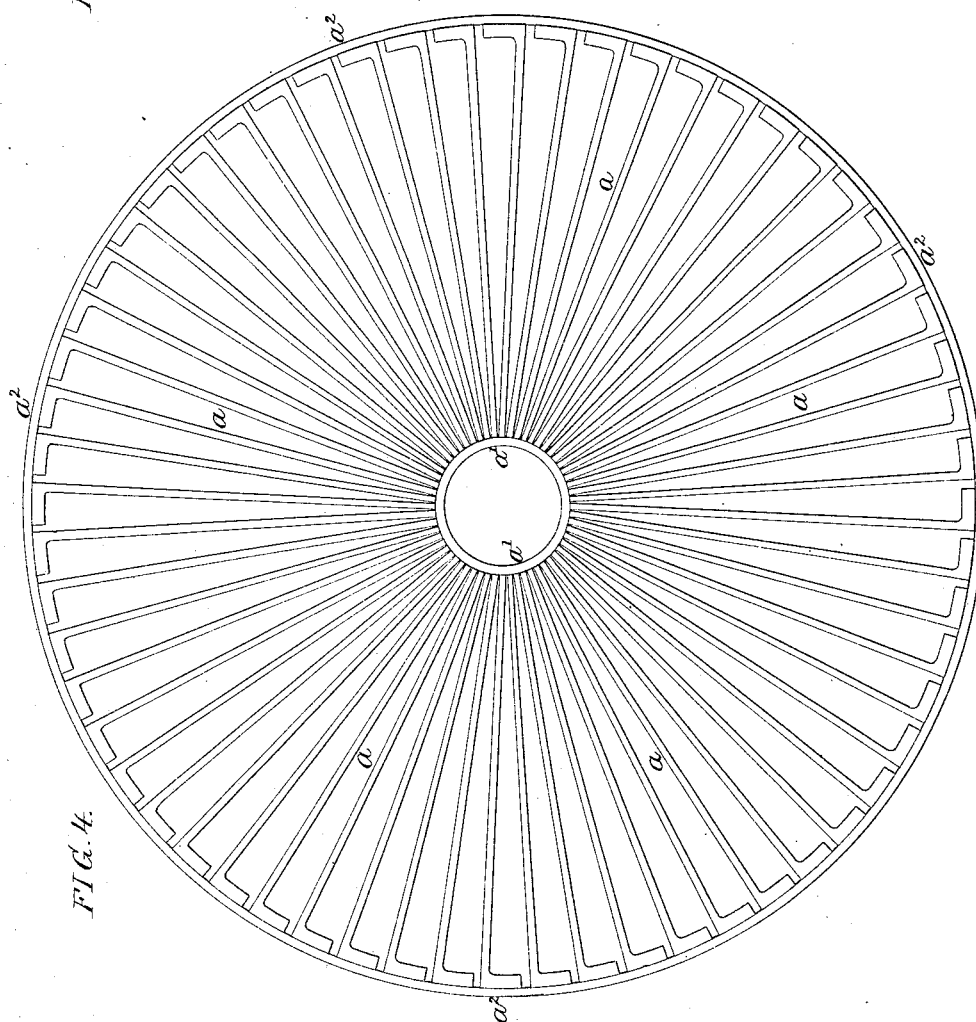
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W. W. GRISCOM.

DYNAMO ELECTRIC MACHINE.

No. 307,388.

Patented Oct. 28, 1884.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM W. GRISCOM, OF PHILADELPHIA, PENNSYLVANIA.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 307,388, dated October 28, 1884.

Application filed December 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. GRISCOM, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Dynamo-Electric Machines, of which the following is a specification.

My present improvements in dynamo-electric machines relate more particularly to the construction and method of making the armature and to the construction of the commutating devices, as more fully described hereinafter.

In the accompanying drawings, Figure 1 is a longitudinal section of the machine; Fig. 2, an end view; Fig. 3, a side view of the armature, partly in section, and illustrating in diagram the commutating-contacts; and Figs. 4 and 5, a side view and section, respectively, of the armature in process of manufacture.

Referring to Fig. 1, *EE* are the field-magnets, secured to the two end frames, *FF*, which may be suitably bolted together in any convenient way, which it has not been deemed necessary to illustrate.

In the drawings I have shown the machine as provided with six coils on each side of the armature-wheel *A*; but the number may be varied as circumstances may demand. The armature-wheel, whose conductors consist of a series of radial strips of copper constructed as hereinafter set forth, is mounted on an axis, *B*, adapted to turn in bearings *b b* in the end frames, *F F*, and provided with the usual driving-pulley.

In constructing the armature I proceed in the following manner: A copper casting is made of the form shown in Figs. 4 and 5, somewhat resembling a wheel, with a number of radial flat spokes, *a*, united at their inner ends by a ring, *a'*, and at their outer ends, where they are preferably L-shaped, by a ring, *a''*. The spaces between the spokes, near both the hub and the periphery of the wheel, or the entire spaces, are filled with insulating material, and then the wheel is clamped near its periphery between a pair of rings, *D D*, Figs. 1 and 3, with intermediate insulating-washers, *d*, and the wheel is similarly clamped between rings near its center. The connecting-rings *a'* and *a''*, which form temporary connections for the spokes, are then turned off or otherwise re-

moved until each spoke *a* becomes a separate strip electrically insulated from all the others. The inner clamping-rings are then removed and the inner portion of the wheel bolted to the two half-hubs *D' D'*, which are then secured to the central shaft, *B*, insulating-washers being provided between the wheel, hub, and shaft, as shown in Fig. 1. If the entire spaces between the spokes have in the first place been filled with insulating material, I prefer to remove so much of it as would lie between the outer clamping-rings and the hub, or, in other words, opposite the field-magnets, when the armature is in place, as indicated in Fig. 3.

In the arrangement of commutating devices illustrated in the drawings the armature itself forms the commutator, one set of commutator-brushes, *K*, being in contact with the periphery of the wheel, and the other, *K'*, with the side of the wheel within the ring of field-magnets. There are as many pairs of these inner and outer brushes as there are coils *E* on each side of the armature, and the inner set of brushes are connected in pairs, while the outer set are also connected in intermediate pairs, as shown in Fig. 3, so as to form with those spokes *a* of the armature which are in circuit at any particular moment a zigzag circuit through the armature with terminals *x x*. I prefer to make the brushes *K K'* of bundles of copper wires, rods, or strips, with the interstices filled with amalgam of mercury, and each bundle held in a clamping-ring, *k*, carried by an arm, *L L'*. The arm *L* of each of the outer set of brushes is pivoted to a post, *f*, on one of the end frames *F*, so as to allow the brushes to be adjusted with reference to the poles of the field.

In order that all the brushes may be adjusted simultaneously and equally, the inner brush-carrying arms, *L'*, are secured to a ring, *M'*, connected by arms to an outer ring, *M*, mounted on a support, *m*, secured to the ring of field-magnets *E*, as shown in Fig. 1, the rings being adjustable on the piece *m* or other support. The outer ring carries a series of radial screw-rods, *n*, passing through openings in the arms *L* and secured thereto by adjustable jam-nuts *l*, so that when the rings *M M* are turned all the brushes will be moved simultaneously. The rings may also be carried by arms *o o*, projecting from a spider, *O*, mounted on the

bearing *b* on one of the end frames, so as to be adjustable on that center and adapted to be secured, after adjustment, by a screw, *p*, passing through a segmental slot, *p'*, Fig. 2, in the spider.

5 I claim as my invention—

1. An armature for a dynamo-electric machine, having its conductors made of radial copper bars with L-shaped outer ends and mounted in the form of a wheel on a shaft.

10 2. The method herein described of making an armature, said method consisting in first making a casting of radial bars united by temporary connections, separating the bars by insulating material, mounting the whole in clamps, and then removing the said temporary connections, substantially as described.

3. A commutator-brush consisting of a bundle of wires or strips having the interstices filled with an amalgam of copper, substantially as set forth.

4. The combination of the frame of a dynamo-electric machine with arms *L*, pivoted thereto and carrying commutator-brushes, and an adjusting-ring, *M*, connected to the said arms, substantially as described.

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

W. W. GRISCOM.

Witnesses:

HARRY SMITH,
HUBERT HOWSON.