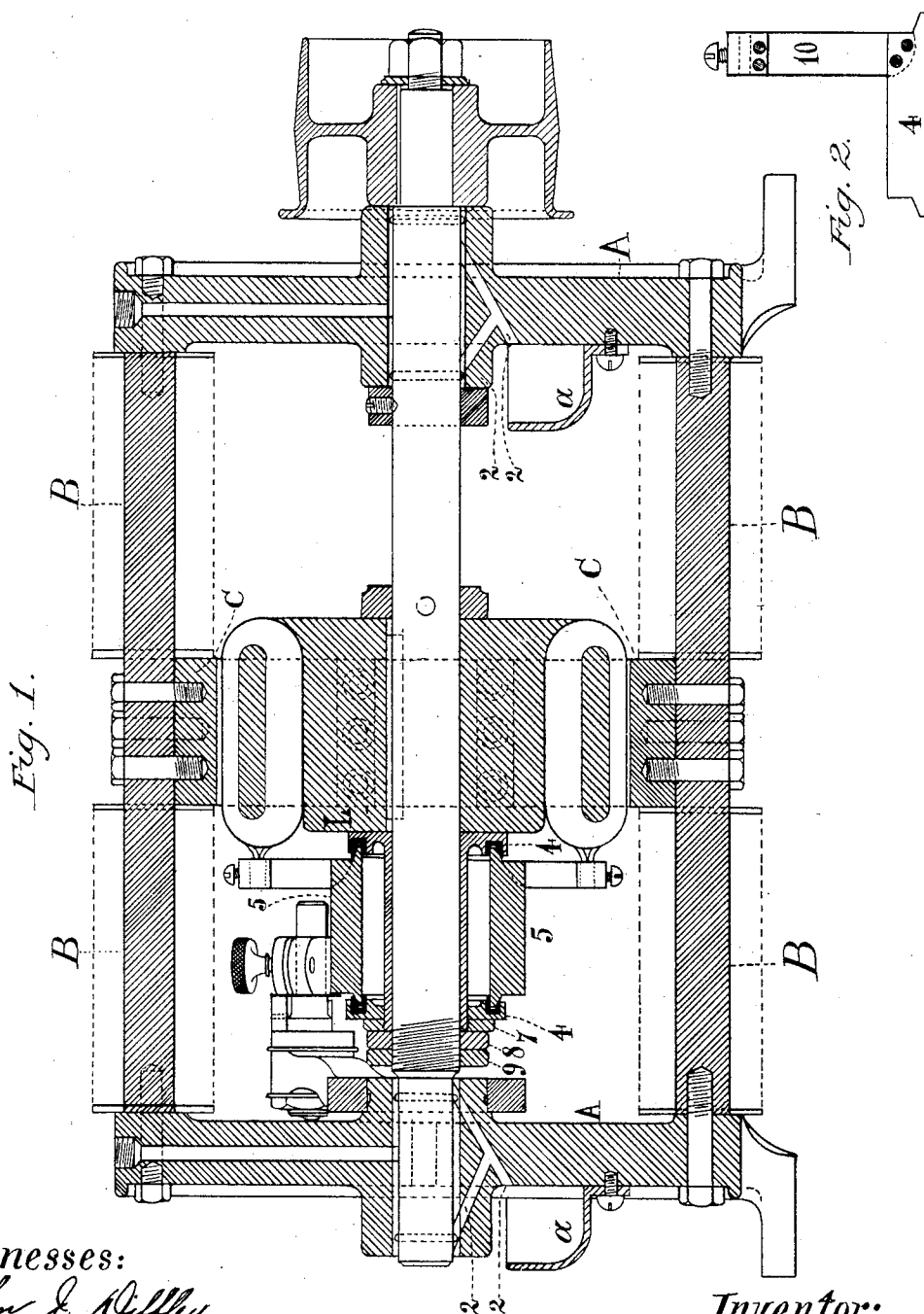


(No Model.)

J. J. WOOD.
MAGNETO ELECTRIC MACHINE.

No. 245,040.

Patented Aug. 2, 1881.



Witnesses:
John J. Riffley
Ernest Harris

Per

Inventor:
James J. Wood
W. B. Townsend
Attorney.

UNITED STATES PATENT OFFICE.

JAMES J. WOOD, OF BROOKLYN, NEW YORK.

MAGNETO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 245,040, dated August 2, 1881.

Application filed February 4, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. WOOD, of the city of Brooklyn, county of Kings, and State of New York, have invented certain Improvements in Dynamo or Magneto Electric Machines, of which the following is a specification.

My invention is designed to improve certain details of construction in machines of the character named.

The improvements will be hereinafter described, and then pointed out in the claims.

Figure 1 is a longitudinal vertical section through the axis commutator and field-of-force magnets of a Gramme dynamo-electric machine, and Fig. 2 is a detail view, showing a commutator plate or strip of improved construction, designed for use in commutators made up of a series of such strips firmly secured together to form a cylinder and connected with the bobbins or coils of the ring or armature.

A A designate the standards or uprights of the frame, in which is journaled the shaft carrying the armature of the machine. To these standards are secured the oil-drip cups *a a*, designed to catch the drip or waste conducted from the journal-boxes and bearings of the machine through the inclined passages 2 2 drilled diagonally through the standards or uprights. As these machines are ordinarily constructed no provision of this kind is made for conducting the waste or overflow to the drip-cups, but it is allowed to escape from the ends of the journals or bearings.

The plan above described has obvious advantages in point of cleanliness.

The cores of the field-of-force magnets are shown at B. They consist of continuous bars of uniform cross-section, and, in this particular instance, in general shape are of considerably greater width (in a horizontal plane) than thickness. In contour they are substantially rectangular. To the inner sides of these plates or bars are secured the field-of-force poles C, which are of the ordinary shape, and curved or bent to embrace the ring-armature. These pole-pieces are preferably cast-iron, and are in one solid piece.

As will be seen, the space above the polar pieces in the opposite side of the core plate or

bar is not filled with metal, (as is ordinarily the case,) which, as I believe, adds only to the weight of the machine without increasing its efficiency.

By my improvement the field-of-force magnets are easily constructed, are of few pieces, and will give a maximum strength in the field-of-force with a minimum weight of material.

In constructing the commutator I make use of clamping-rings, which hold the conducting strips or plates firmly in position by embracing their beveled or inclined ends. I also construct each strip with an attached arm provided with a perforation and binding-screw for receiving and holding the connections from the armature-coils. The plates or strips and their attached arms are separately removable; but the construction is such that when any strip is replaced and the whole secured by the clamping-rings each strip will fall or be forced into its proper position, and the whole will form a true cylinder, with no strip projecting beyond or receding below the others. I am thus enabled to obviate the necessity of turning down the commutator to form a true cylinder, either in the original construction or when portions of the commutator are renewed.

The clamping rings or plates 4 4 are shown as each provided with an annular groove, which contains a filling of hard rubber or vulcanized fiber to insulate the commutator-strips from the ring or plate. In these annular grooves are seated the commutator plates or strips 5 5, insulated from one another in any suitable well-known manner, and each provided with inclined or beveled ends, upon which bear the inclined inner faces of the annular grooves in plates 4 4.

The ring or plate 4, which rests against the armature-carrier L, is formed in one piece with a sleeve shown as embracing the shaft of the machine and encircled at the other end by the other ring 4, and by a clamping-nut, 7, which serves to force and hold the plates 4 4 together, with the commutator-strips between them.

Nuts 8 and 9 upon the shaft of the machine hold the commutator firmly against the armature-carrier L.

From this construction it will be readily seen that the commutation-plates are forced into proper position by the clamping-rings bearing

upon the inclines on their ends, are held firmly in their seats, and that if the parts are accurately made there is no necessity for turning off a portion of the commutator to form a true cylinder. One of the commutator-strips is shown in detail in Fig. 2. The attached arm 10 is provided at its outer end with a binding-screw, constructed or attached in any suitable manner. The end of strip 4 is slotted by means of a circular cutter, and the arm 10, whose end forms the arc of a circle of the same radius as that of the circular cutter, is seated in the slot and secured by riveting. The base of the slot and the form of the arm 10 are shown by the dotted curved line. The construction gives strength and good conductivity at the joint.

I do not limit myself to any particular device for holding the beveled commutator-strips in place, as others may be used instead of that described.

My improvements are obviously applicable to other forms of machine besides the Gramme machine.

I am aware that it is not new to hold the commutator-strips in place by two flanged disks or plates overlapping at their circumference the ends of the commutator-strips.

My commutator differs from previous forms in that the clamping-disks are provided with annular grooves, in which grooves the commutator-strips are seated and supported, and in that the ends of the commutator-plates are inclined or beveled.

What I claim as my invention is—

1. A commutator-strip formed with beveled or inclined ends, substantially as described.

2. A commutator strip or plate provided with beveled ends, in combination with clamping rings or plates having annular grooves, substantially as described.

3. The combination of commutator-strips beveled at their ends, and clamping rings or plates provided with annular grooves filled with insulating material, substantially as described.

4. The combination, with the metallic commutator plates or segments, of two clamping rings or heads of metal, each provided with an annular groove containing insulating material, in which grooves the ends of the commutator-plates are seated, a metallic sleeve or tube encircling the shaft of the machine and attached at one end to one of said grooved heads, and a clamping-nut engaging with the other end of said tube and bearing against the other metallic grooved head.

5. Commutator strips or plates slotted at one end, in combination with connecting arms or rods seated in said slots and secured therein by riveting, substantially as described.

JAMES J. WOOD.

Witnesses:

JOHN J. DIFFLEY,
ENOCH HARRIS.