

(No Model.)

M. O. SOUTHWORTH.
DYNAMO ELECTRIC MACHINE.

No. 581,089.

Patented Apr. 20, 1897.

Fig. 1.

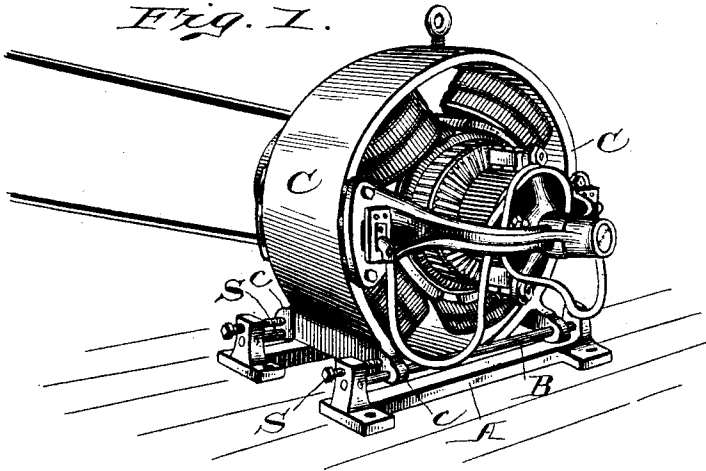


Fig. 2.

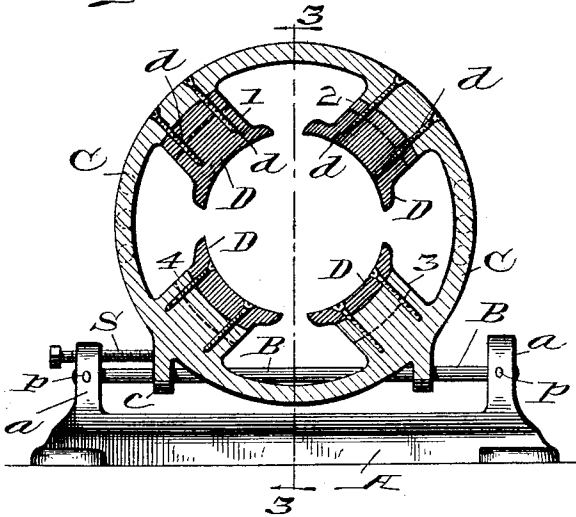


Fig. 3.

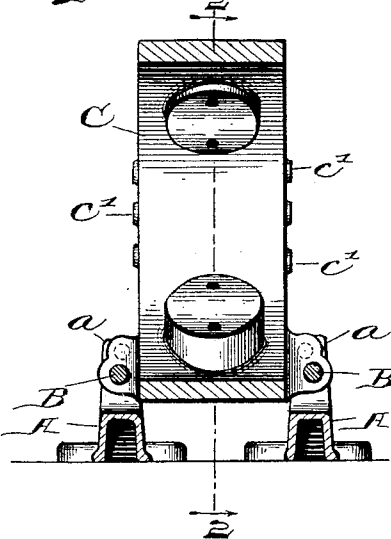
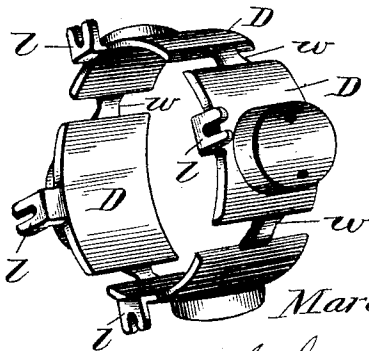


Fig. 4.



WITNESSES:

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MARTIN O. SOUTHWORTH, OF INDIANAPOLIS, INDIANA.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 581,089, dated April 20, 1897.

Application filed September 22, 1896. Serial No. 606,603. (No model.)

To all whom it may concern:

Be it known that I, MARTIN O. SOUTHWORTH, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Dynamo-Electric Machines, of which the following is a specification.

My invention has for its object certain improvements in the construction of the frames of dynamo-electric machines whereby the work incident to such construction can be economically performed, accuracy of fitting secured, and ease of adjustment provided for, all as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof and on which similar letters and numerals of reference indicate similar parts, Figure 1 is a perspective view of a dynamo embodying my present improvements; Fig. 2, a central longitudinal sectional view through the frame therefor on the dotted line 2 2 in Fig. 3, the electrical parts being removed; Fig. 3, a transverse sectional view on the dotted line 3 3 in Fig. 2, and Fig. 4 a perspective view of a set of the "shoes" separately as they appear when first cast before being fitted up and separated.

In said drawings the portions marked A represent the base of the frame; B, rods mounted in said base and carrying the main frame; C, said main frame, and D the shoes forming the inner ends of the field-coil cores.

The base A consists of suitable castings having pillars *a*, through which the rods B may pass, where they are fixedly secured by any desired means, such as pins *p*. Through the upper ends of that pair of these pillars against which the pull of the belt comes adjusting-screws S are also inserted.

The rods B are plain smooth rods, the ends whereof are mounted and secured in the pillars *a* and at intermediate points pass through ears on the frame C and thus serve to support said frame.

The frame C is shown as annular in form and is provided with ears *c*, by which it is mounted on the rods B. At the sides it is provided with small bosses *c'*, which are adapted to be turned off and serve as "spots," upon which the bearing-arms supporting the bear-

ings for the armature-shaft may be secured. Internally it is adapted to carry the field-coil cores. There may be any desired number of these cores, according to the character of the machine. In the form of machine illustrated four are shown. These cores may be either formed wholly upon the frame, like the one marked 3, wholly upon the shoe, like the one marked 1, or partly (and to a greater or less extent) both upon the frame and the shoe, like those marked 2 and 4. In either case these cores are adapted to receive the field-coils, and I prefer to make them round, as I have found that to be the most economical form, although they may be of any form desired.

It will be understood that in a machine the dividing-line which separates the parts, while it may be at either of the points shown in connection with the cores 1, 2, 3, and 4, or at any other point desired, should be uniform throughout the machine, as indicated by the dotted line running through the middles of the field-coil cores, and not variable in any one machine, although in the drawings for purposes of illustration such variations are shown, each field-coil core being shown as divided at a different point from that at which the others are divided. The dividing-lines being on a uniform circular plane, the surfaces, at whatever point they come, can be made true on a turning-machine, such as a boring-mill, and at a single operation instead of, as has heretofore been the case, forming these surfaces on a planer and each at a separate operation. Thus I am enabled to perform the work much more expeditiously and much less expensively than by the planer method. The dividing-points being intermediate the surface of the frame and the rear sides of the shoes are covered by the coils, and magnetic leakage is thus prevented. As will be observed also, the labor of making these surfaces smooth is much less than if the interior of the frame had to be turned throughout.

The shoes D are secured to the inner ends of the field-coil cores 1 2 3 4 and form the pole-pieces for the armature. These shoes are provided, as is well understood, so that the said pole-pieces may have a greater surface than the area of the ends of the field-coil cores

alone. Such shoes, broadly speaking, are common and well known. Pursuant to my plan of producing an inexpensive construction, however, I prefer to cast all these shoes in a single casting, as shown in Fig. 4, after which I secure said casting to a face-plate on a turning-machine, such as a lathe or boring-mill, by means of the lugs *l*, when, as is obvious, said shoes may be turned up true both inside and out and at a single operation. The connecting-webs *w* being then broken out and holes being drilled into the shoes they are put in place, as shown in Fig. 2, and secured by means of bolts *d*, which connect them to the adjacent portion of the frame structure. By means of my invention all planer-work is obviated and the machine made at much less expense than where such work is required, while the parts can be fitted and adjusted easily and expeditiously.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a dynamo-electric machine, of the frame thereof, field-coil cores and shoes therefor extending inwardly from said frame, the joints being formed by convex and concave surfaces struck from the axial line of the machine, said joints being located at a point intermediate the inner surface of the frame and the back sides of the shoes where it will be covered by the coils, substantially as and for the purposes set forth.

2. A casting embodying a set of shoes *D* for dynamo-electric machines united by webs and provided with lugs whereby they may be secured to the face-plate of a turning-machine and thus finished altogether before separation, substantially as shown and described.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 17th day of September, A. D. 1896.

MARTIN O. SOUTHWORTH. [L. S.]

Witnesses:

CHESTER BRADFORD,
JAMES A. WALSH.