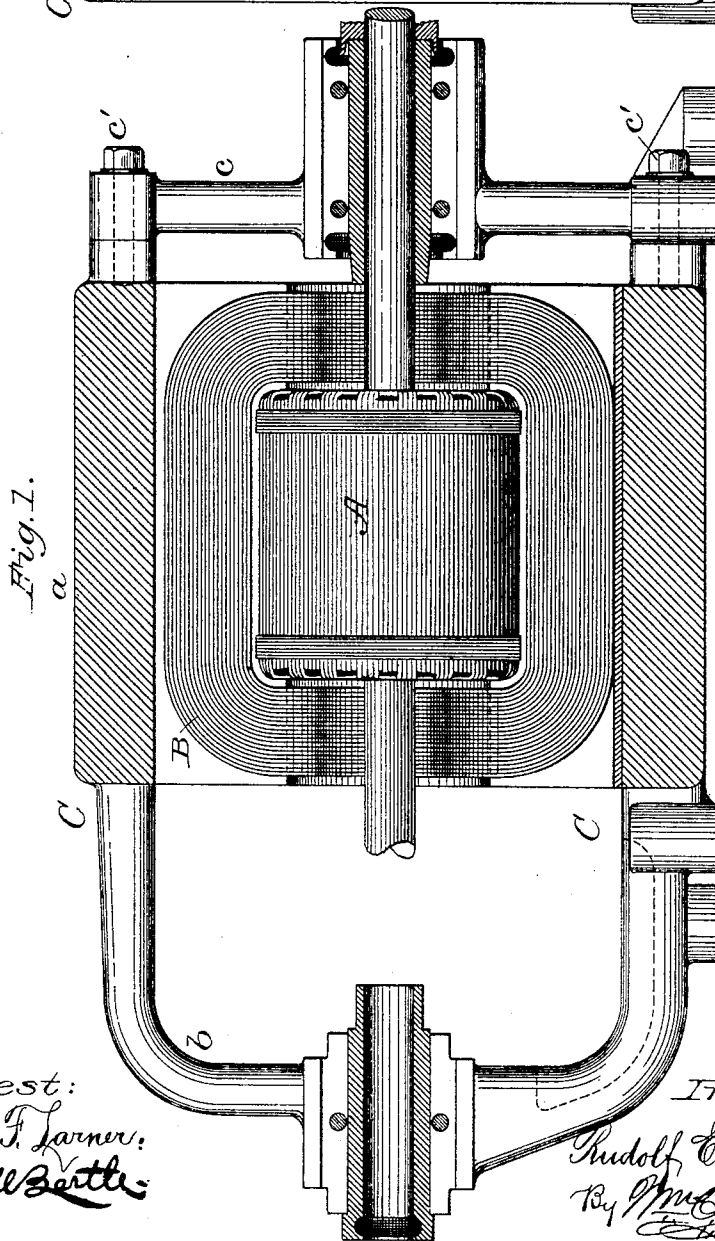
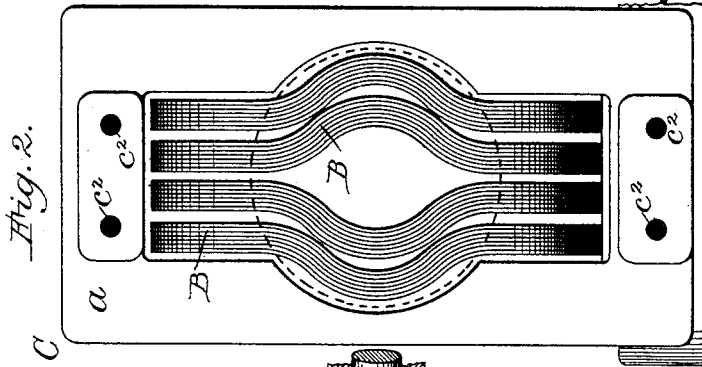


R. EICKEMEYER.
DYNAMO ELECTRIC MACHINE.

No. 479,118.

Patented July 19, 1892.



Attest:
Philip F. Larner:
Notary Public

Inventor:
Rudolf Eickemeyer
By *Wm. M. Ward*
Attorney

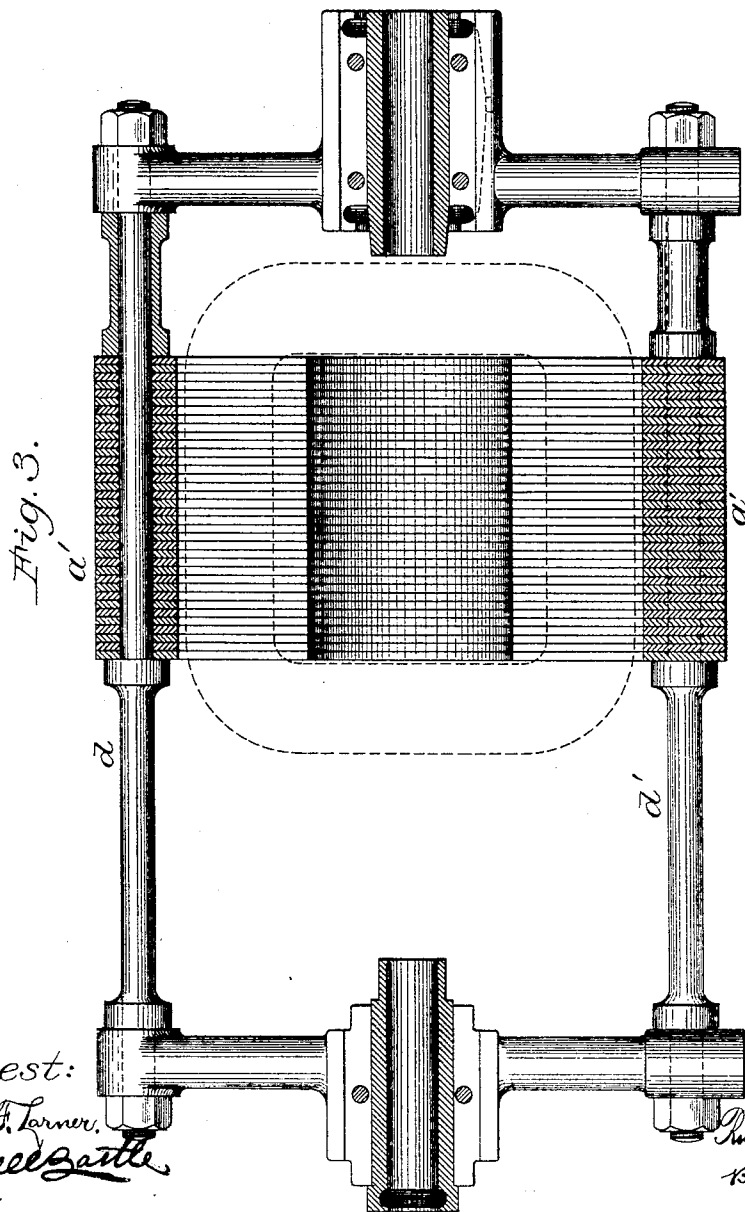
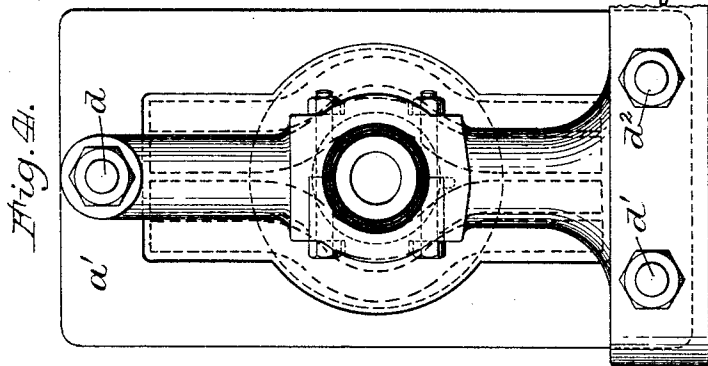
(No Model.)

2 Sheets—Sheet 2.

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Attest:
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Howell Battle

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UNITED STATES PATENT OFFICE.

RUDOLF EICKEMEYER, OF YONKERS, NEW YORK.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 479,118, dated July 19, 1892.

Application filed December 21, 1889. Serial No. 334,488. (No model.)

To all whom it may concern:

Be it known that I, RUDOLF EICKEMEYER, of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Dynamo-Electric Machines; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of my invention.

My said improvements relate to that type of dynamo-electric machines which was disclosed in my Letters Patent No. 358,340, dated February 22, 1887, and to that variety thereof which embodies a cylindrical or drum armature having an iron core, a field-coil which surrounds the armature longitudinally, and an iron casing or shell which so surrounds the field-coil and the armature as to secure completed magnetic circuits diametrically through the armature-core and within the metal of the shell. As heretofore constructed and organized by me, these machines have been found to be well suited for medium and large sizes, wherein a considerable resistance in the magnetic circuit is involved as an incident to the construction of large and heavy shells or casings. The objects of the herein-described improvements are to secure the least possible resistance in the magnetic circuit and to simplify construction with special reference to the economic production of highly-effective small-sized dynamo-electric machines.

After describing the machines illustrated in the drawings the features deemed novel will be specified in the several clauses of the claim hereunto annexed.

Referring to the drawings, Figure 1 illustrates the main portions of one of my improved machines, partially in side elevation, but with its cast-iron shell or casing shown in longitudinal vertical section. Fig. 2 illustrates the shell or casing of Fig. 1 and the field-coils without the armature and also without one end of the frame. Fig. 3 illustrates a frame and casing of one of my improved machines, the shell or casing being shown in longitudinal vertical section and as when composed of wrought-iron and with the field-coil indicated in dotted lines. Fig. 4 illustrates said frame and casing in end view,

with the armature and field-coils indicated in dotted lines.

The armature A has a winding, which enables the ends of the armature to be rectangular to the axis, so that they may be closely overlaid by the field-coils B, which surround the armature longitudinally and diametrically, as far as the latter is possible in view of the presence of the shaft of the armature, as is shown in Figs. 1 and 2. The frame C of the machine shown in said Figs. 1 and 2 is constructed in two parts, the shell or casing portion *a* being solid and integral with the end yoke *b*, on which is located one of the bearings for the armature-shaft. Said yoke *b* may, however, be constructed separately and bolted to the end of the shell or casing without departure from my invention, the gist of which consists in having the metal in the shell or casing continuous or unbroken in planes at right angles to the axis of the armature, or, in other words, constructing the shell without any parting lines or joints parallel with the axis of the armature, and thereby materially reducing resistance in the magnetic circuit, as compared with all other machines heretofore disclosed by me, in each of which the casing or shell has been complex in its structure, and hence involved several breaks or joints parallel with the axis of the armature, each of which served more or less to augment resistance in the magnetic circuit. By constructing the shell or casing in one piece composed of well-selected cast-iron but little, if any, labor need be involved in fitting it to receive the field-coils and armature, which is a matter of material consequence in the production of small dynamos. This solid casing necessitates the simultaneous introduction thereto of the armature and field-coils by an endwise movement, the coils after insertion being wedged or otherwise blocked in the casing for maintaining them in proper position with relation to the armature. This mode of jointly inserting the coils and armature renders it necessary that at least one end of the frame should be detachable from the shell, and hence the end piece *c* is separately constructed and secured in position by bolts *c'*, which occupy tapped holes *c²* in one end of the casing at top and bottom. The matter

of economy in the cost of small machines is, however, sometimes made subordinate to the matter of efficiency, and although a cast-iron casing is generally used by me the best results will accrue from the use of wrought-iron, and although such casings or shells can be developed by forging operations upon one mass of metal it is far more economical to construct them of many parts arranged side by side but without any joints or parting lines parallel with the axis of the armature— as, for instance, in the frame and shell illustrated in Figs. 3 and 4, wherein the shell or casing *a'* is composed of numerous solid seamless wrought-iron plates, each cut to the desired outline and having the interior contour of the space or chamber for the reception of the field-coil, as clearly indicated. Each plate has at its upper end a hole for the reception of a bolt *d*, which serves as the top of the frame, and two similar holes near the bottom for the reception of the bolts *d'* and *d''*, all of these bolts being coupled to appropriate end pieces having their lower ends so shaped as to afford a suitable base for the frame. In the construction of small machines in this manner the finest plate-iron can be used, and if suitable dies be employed the plates can be cut out at low cost and with but

little waste of metal, because most of the central cut-away portions will afford the best material for use as disks in the construction of the armature-cores.

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

1. In a dynamo-electric machine, the combination, with a cylindrical or drum armature having an iron core and field-coils surrounding said armature longitudinally, of an iron shell or casing which surrounds the field-coil and armature and is solid or continuous in planes at right angles to the axis of the armature, substantially as described, and for the purposes specified.

2. In a dynamo-electric machine, the combination, with a cylindrical or drum armature having an iron core and field-coils surrounding said armature longitudinally, of a casing or shell surrounding said field-coils and armature, composed of solid seamless soft-iron plates, each continuous in a plane at right angles to the axis of the armature, substantially as described.

RUDOLF EICKEMEYER.

Witnesses:

R. EICKEMEYER, Jr.,
E. P. MOFFAT.