

(No Model.)

C. D. JENNEY.
DYNAMO ELECTRIC MACHINE.

No. 424,065.

Patented Mar. 25, 1890.

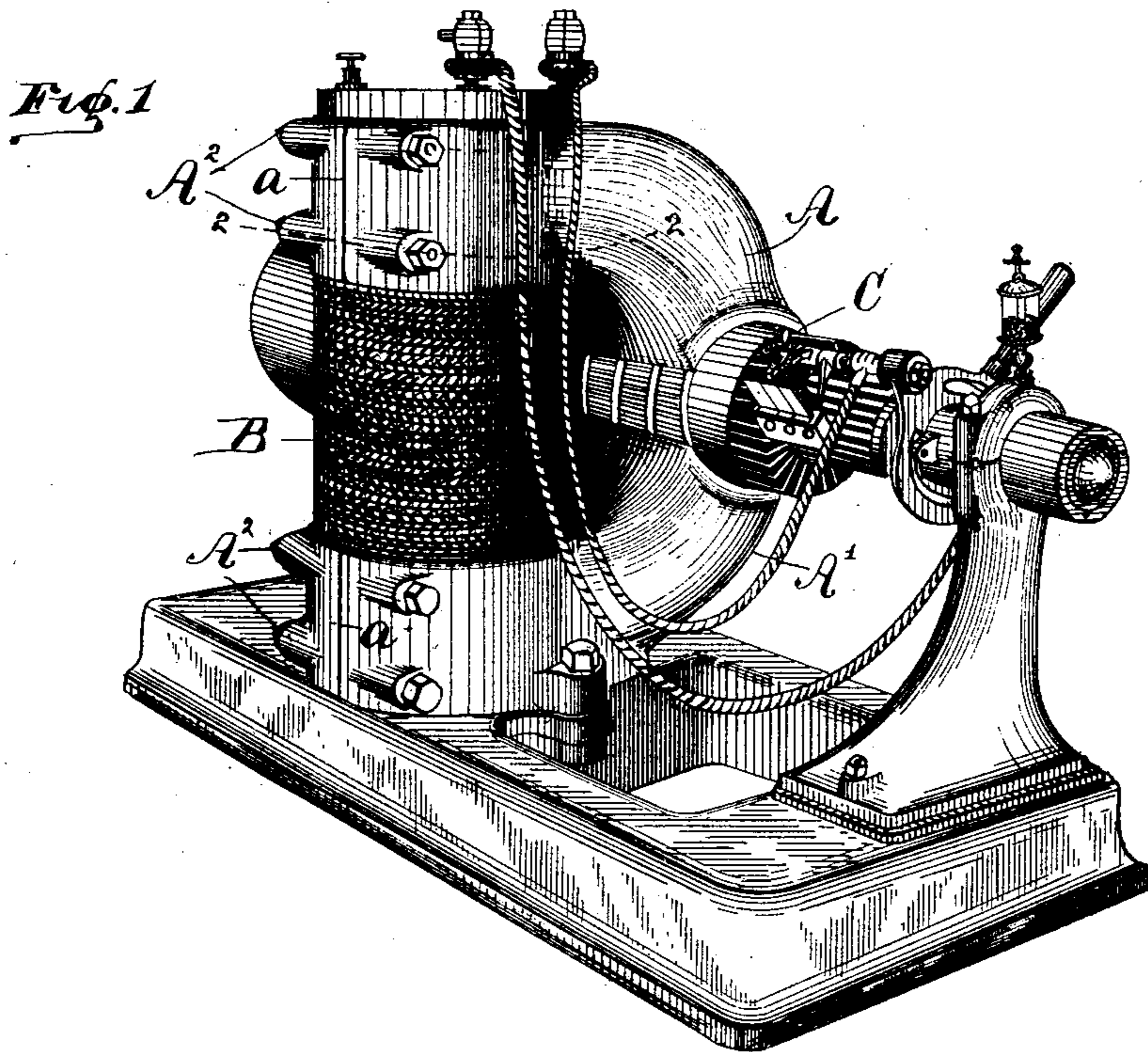
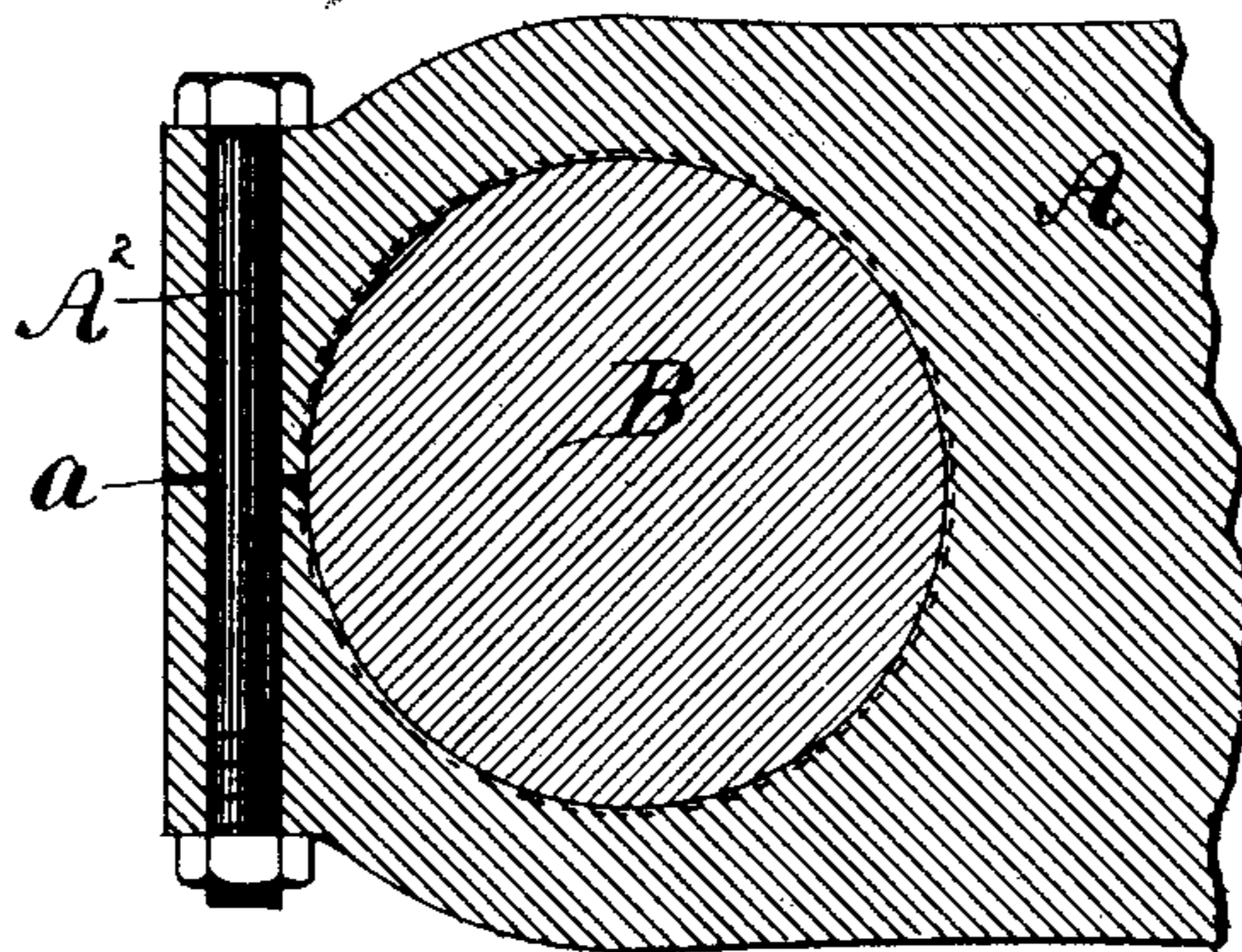


Fig. 2.



WITNESSES.

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CHARLES D. JENNEY, OF INDIANAPOLIS, INDIANA.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 424,065, dated March 25, 1890.

Application filed April 16, 1889. Serial No. 307,431. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. JENNEY, 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.

The object of my said invention is to provide an improved construction of dynamo-electric machine, by which construction much of the labor usually employed to secure a perfect magnetic union between the core of the field-magnet and the pole-pieces is saved, the efficiency of the machine is increased, its construction simplified, and its cost materially lessened, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a perspective view of a dynamo-electric machine embodying my said invention, and Fig. 2 a horizontal section through a portion thereof on the dotted line 2 2.

In said drawings, the portion marked A A' represent the two pole-pieces of the dynamo, B the core of the field-magnet, and C the armature. The pole-pieces A and A' are of cast-iron and are formed curved from the point of contact with the magnet-core outward and toward the armature, the line of curvature being that which practical experiment has proven to be the natural curve of the principal lines of magnetic force in their circuit from end to end of a straight magnet. Thus the least possible resistance to said force is provided and any leakage thereof is practically-obviated, it being given its own natural direction in which to travel through the magnetic circuit, and a greater power is secured. At the rear sides these field-pieces are cast with holes for the ends of the magnet-core, which holes are bored out to a diameter substantially the same as or slightly less than the diameter of said core. At the rear side slots *a* are formed and bolt-holes extend through bosses cast thereon transversely of the slots. In these bolt-holes heavy bolts A² are inserted, by which, when desired, said pole-pieces can be firmly clamped upon said magnet-core, and a very close and perfect magnetic union be thus effected. As will be noticed by an ex-

amination of Fig. 1, the ends of the pole-pieces are expanded as they approach the armature, and thus enable a proportionally longer armature to be used in connection therewith, while presenting a greater surface thereto.

The core B of the field-magnet is in this machine a large round bar of wrought-iron. It is carefully turned from each end back a distance equal to the width of the pole-pieces to substantially the size of the holes in said pole-pieces, which are formed to receive them. This usually results in the formation of shallow shoulders on said core, against which the inner faces of the pole-pieces will rest, leaving the central portion of said core of a somewhat greater diameter than its ends, as indicated by the dotted lines in Fig. 2.

The armature C is of any usual or desired construction, being illustrated only to show a complete machine and the relative position of the parts.

By the usual methods of securing an efficient magnetic union between the magnet and pole-pieces much expensive labor is required in scraping and rubbing the surfaces, so that they will fit accurately and closely together; or when, as is sometimes done, the holes in the pole-pieces are made a trifle smaller than the magnet-core and forced thereon by hydraulic or other powerful pressure much expensive machinery is made necessary, and the construction of such machines has thus been very expensive. By means of my invention the surfaces can be turned and bored sufficiently smooth, so that by means of the heavy bolts operated by powerful wrenches they can be forced into such close contact that a perfect union is secured with but comparatively a small amount of labor and without extra machinery, thus saving a great portion of the usual expense.

In practice after the parts have been finished they are put together by first inserting thin wedges in the slots, thus opening the holes in the pole-pieces slightly and permitting the ends of the core to enter without any unusual application of force. After the parts are together the pole-pieces are accurately adjusted in their proper relative positions, the wedges removed, and the bolts inserted and turned up with powerful wrenches, forcing the surfaces

very closely together. It will be understood, of course, that in the turning up of the ends of the core of the field-magnet and the boring of the holes in the pole-pieces to fit over said
5 ends the difference in size between said ends and said holes is made very slight—only sufficient to make a substantially perfect magnetic union when the wedges are removed from the slits and the sides of the pole-pieces
10 clamped onto the ends of the core—for if the holes were made perceptibly smaller than the ends of the core the variation in curvature thus produced would defeat the object of the invention.

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

1. In a dynamo-electric machine, the combination of the field-magnet core having its
20 ends turned to fit into holes in the pole-pieces, said pole-pieces having holes bored therein of a slightly less diameter than the ends of said core, with slits extending out from the holes in said pole-pieces to one side, whereby said
25 holes may be slightly expanded and the pole-pieces be permitted to be slipped onto the ends of the core, and bolts by which said pole-pieces may be clamped tightly onto said core when in position, and a firm magnetic union
30 thus effected.

2. In a dynamo-electric machine, the combination of a round straight field-magnet core having its ends turned off to fit into holes
35 in the pole-pieces, said pole-pieces bored out to fit tightly over the ends of said core and

divided or slitted at one side of the holes, whereby said holes are adapted to be expanded slightly, ears on said pole-pieces alongside said slits, bolt-holes in said ears, and bolts
40 passing through said holes, whereby said pole-pieces may be clamped tightly on said core and a good magnetic union of the parts thus secured without the usual expensive and tedious hand-fitting, substantially as set forth.

3. The combination, in a dynamo-electric
45 machine, of a round straight field-magnet core, pole-pieces fitted tightly over the ends of said core and extending out therefrom to one side and expanding in the direction of the axis of the armature and extending in curves from
50 the end of the core in substantially the natural direction of the principal lines of force of the field-magnet.

4. The combination, in a dynamo-electric
55 machine, of the field-magnet core, an armature located to one side of said core, and pole-pieces secured to the ends of said core, expanding in the direction of the axis of the armature, and extending from the ends of said
60 core in substantially the natural direction of the principal lines of force of the field-magnet to near said armature, substantially as shown and described.

In witness whereof I have hereunto set my hand and seal at Indianapolis, Indiana, this
10th day of April, A. D. 1889.

CHARLES D. JENNEY. [L. S.]

Witnesses:

E. W. BRADFORD,
C. W. H. BROWN.