

(No Model.)

A. L. PARCELLE.

ARMATURE FOR DYNAMO ELECTRIC MACHINES.

No. 580,889.

Patented Apr. 20, 1897.

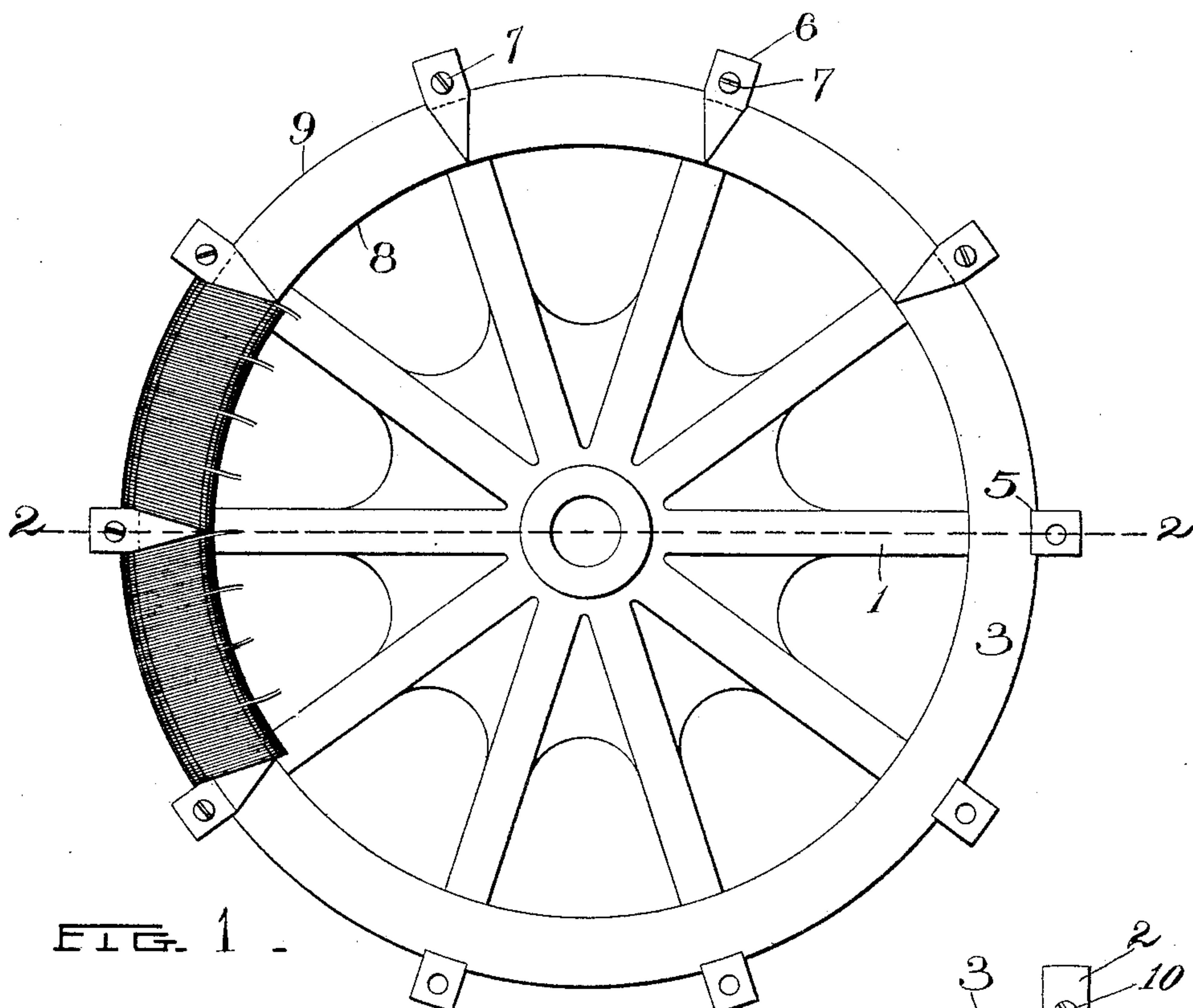


FIG. 1.



FIG. 3.

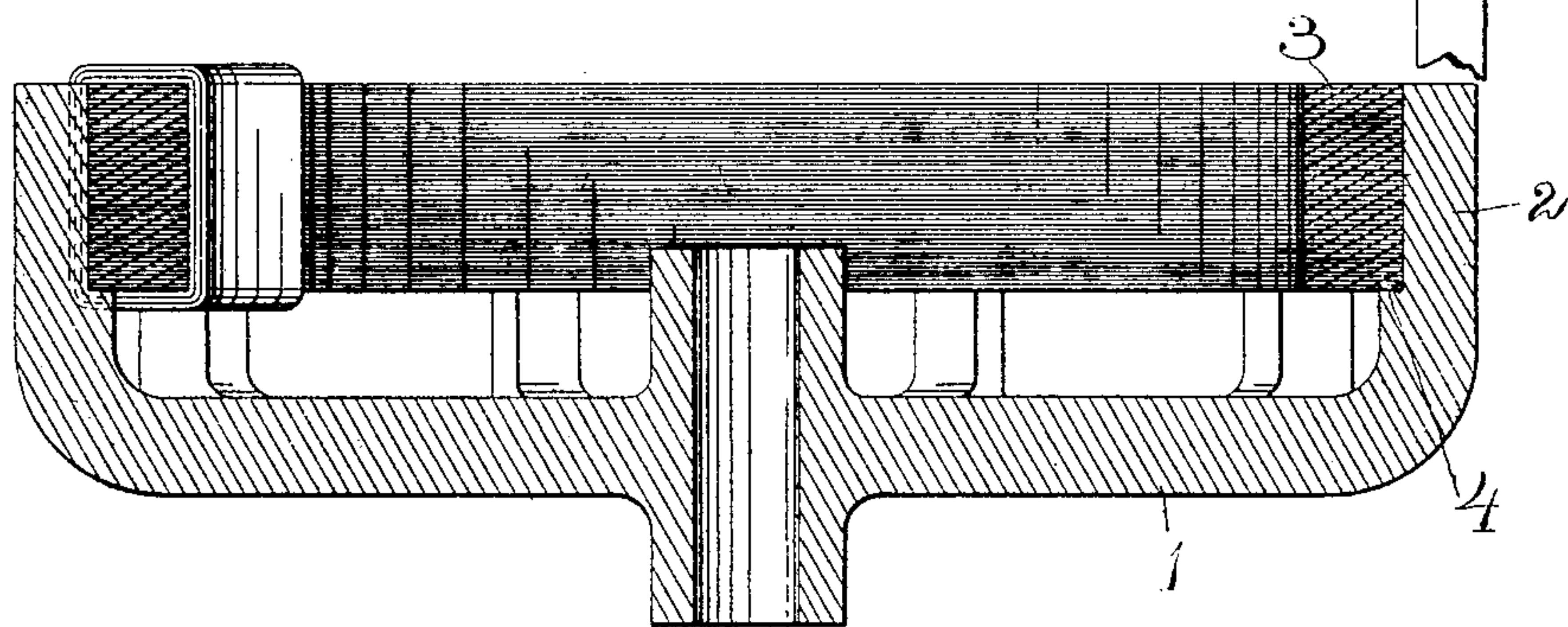


FIG. 2.

Witnesses.

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ALBERT L. PARCELLE, OF BOSTON, MASSACHUSETTS.

ARMATURE FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 580,889, dated April 20, 1897.

Application filed October 9, 1893. Renewed September 24, 1896. Serial No. 606,881. (No model.)

To all whom it may concern:

Be it known that I, ALBERT L. PARCELLE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Armatures for Dynamo-Electric Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

In the construction of dynamo-electric machines of that class which employ armatures located externally to the field the armature, so far as known to me, is wound prior to being secured in place on its support. Since the cores of such armatures commonly are made from laminæ or thin plates of proper shape, the said laminæ or plates require to be secured together, temporarily at least, before the winding is done. Furthermore, after the core is wound it necessarily is subjected to more or less handling before it is secured in place on its support. This handling of the core after it is wound is very liable to result in injury to the winding, and, again, it is very difficult to properly and securely mount such a wound armature in its support.

My invention has for its object to obviate the difficulties aforesaid; and accordingly it consists in an improved method of constructing armatures for dynamo-electric machines of the class named, the characteristic feature of the said method being that the armature is wound after it is secured in its permanent support.

The invention consists also in an improved armature and support for the said armature in which the coils are so placed as to obviate the use of wedges, blocks, or other supports between the coils, all as is hereinafter more fully set forth, and the novel features of which are pointed out in the claims, which are appended hereto and made a part hereof.

I have shown my invention in the best form now known to me in the accompanying drawings, in which—

Figure 1 is a view in side elevation of an armature-core and its supporting-frame, two sections of said core being shown wound with four coils each. Fig. 2 is a view in section on line 2 2, Fig. 1. Fig. 3 is a detail view showing a modification hereinafter referred to.

Dynamo-electric machines employing ring-armatures which are placed outside of or external to the field-poles have had their armatures mounted in various ways. In no case, so far as known to me, have the armatures of such machines as now constructed been wound after they are mounted, and this is objectionable since the winding of the armature before mounting it not only subjects it to liability to injury but very considerably increases the expense of construction.

Referring to the drawings, the armature support or frame is shown at 1 and is of the wheel or spider shape shown. The ends of the spokes or arms of the wheel or spider which engage the armature-core are turned at substantially right angles, as shown at 2. The core is shown at 3. The portions 2 of the said arms which engage the core are cut away slightly, as shown in Fig. 2, thereby forming shoulders 4, on which the core is firmly seated. Preferably the core is grooved where it comes in contact with the portions 2 of the arms, so that the said portions 2 will fit into the grooves in the periphery of the core, as shown at 5 in Fig. 1. This method of fitting the core to the arms serves to secure the core firmly in place and prevents it from shifting. After the core is secured in the arms the end of each of the portions 2 has applied thereto a wedge-shaped clip 6, which is firmly secured to the arm by means of a screw 7. The inner end of the clip, which is wedge-shaped, extends across the face of the core, as shown in Fig. 1. These clips serve to retain the laminæ of the core in place and prevent their lateral displacement. After the core is thus firmly secured in place in its supporting-frame it is wound, and this may be readily accomplished by passing the wire around the core between the supports or arms of the wheel or spider 1. In the armature shown there are ten spaces between said arms, and each space is adapted to receive four coils. As will be clear, the inner circumference 8 of the core is shorter than the outer circumference or periphery 9, and since the winding just covers the inner circumference 8, which is the working face of the armature, if the winding is evenly applied there will be spaces between some or all of the coils at the periphery of the core in

consequence of the periphery 9 being longer than the inner circumference 8. Heretofore these spaces have usually been filled by means of blocks or wedges which serve to support the coils and prevent their displacement. These blocks or wedges are troublesome and objectionable and increase the expense of construction. I obviate the use of the said supporting wedges or blocks by making the arms or spokes 1 of such a width at the point where they engage the periphery of the core that they will serve to take up the difference in length between the periphery 9 and the inner circumference 8, so that the periphery 9, less the width of all of the arms, is equal or substantially equal in length to the inner circumference 8. This arrangement enables the coils to be laid evenly and closely on the core between the arms, as shown in Fig. 1, said arms serving to keep the coils from shifting, and when the armature is wound the inner circumference 8 will be entirely covered by the winding, as is desirable. The spokes or arms of the supporting-frame all project from the central hub through which the shaft passes. The number of coils employed should be a multiple of the number of spokes of the support. In the armature shown in the drawings ten arms are employed, and the core is intended for forty coils. By this arrangement a very strong construction is obtained at a minimum of expense. Greater detail of description of the construction of the core is unnecessary, since the core in other respects than those above specified may be constructed in any well-known manner.

At Fig. 3 I have shown a modification of the means employed for securing the core in

the supporting-frame 1, which consists in substituting a screw 10 for the clip 6 as a means of securing the core firmly in place in the support 1. The screw 10 fits partly in the core and partly in the portion 2 of an arm of the support, as will be clear from Fig. 3.

What I claim is—

1. An armature for dynamo-electric machines consisting of a laminated core, a supporting-frame which engages the periphery of the said core, and coils on said core, the portions of the periphery of said core between the engaging portions of the frame equaling in length the length of the inner circumference of the core, whereby the use of the wedges or blocks between the coils is obviated, substantially as set forth.

2. An armature for dynamo-electric machines having a core, and a supporting-frame provided with arms which engage the periphery of said core, said periphery being recessed at the point of engagement of each of said arms to receive the same, substantially as set forth.

3. An armature for dynamo-electric machines having a laminated core, a supporting-frame provided with arms which engage the periphery of said core, and enter grooves therein to keep the core from shifting and clips secured to said arms for keeping the laminæ of the core in place, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT L. PARCELLE.

Witnesses:

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ROBERT WALLACE.