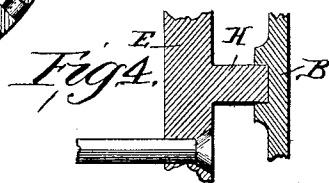
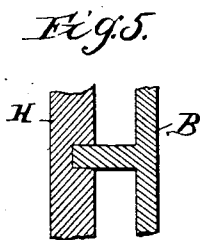
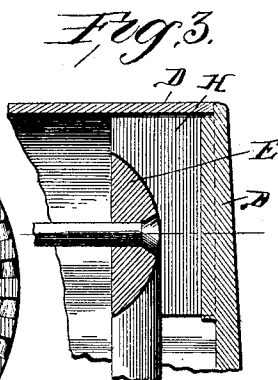
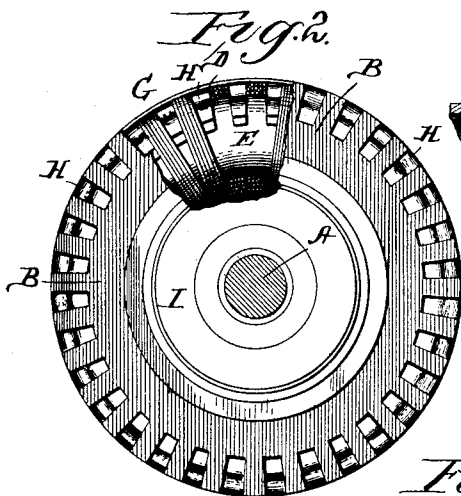
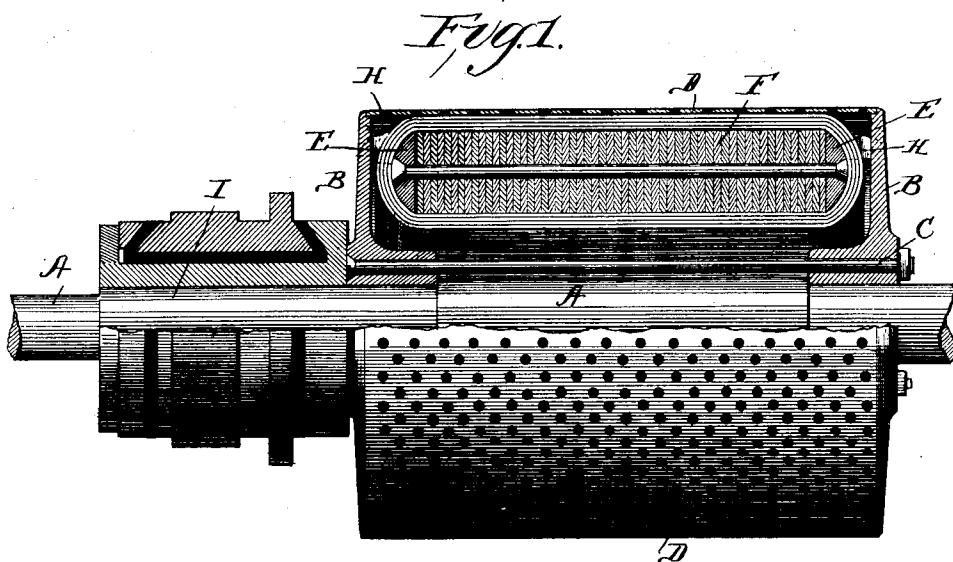


(No Model.)

E. C. MORGAN.
ARMATURE FOR ELECTRIC MOTORS.

No. 474,848.

Patented May 17, 1892.



Witnesses:
Wm. A. Sherry
W. H. Fort

Inventor
Edmund C. Morgan
Hall and Brown
Attys
BY

UNITED STATES PATENT OFFICE.

EDMUND C. MORGAN, OF CHICAGO, ILLINOIS.

ARMATURE FOR ELECTRIC MOTORS.

SPECIFICATION forming part of Letters Patent No. 474,848, dated May 17, 1892.

Application filed December 12, 1891. Serial No. 414,787. (No model.)

To all whom it may concern:

Be it known that I, EDMUND C. MORGAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Armatures for Electric Motors, of which the following is a specification.

This invention relates to improvements in armatures for electric motors, dynamos, and similar purposes; and it consists in the construction, substantially as hereinafter described, and shown in the accompanying drawings, and more particularly pointed out in the claims.

Like letters of reference are used to designate the same parts in the several figures of the drawings, in which—

Figure 1 is a side elevation of the armature with the upper part of the same in vertical section. Fig. 2 is an end view of the armature with a small portion broken away to show the interior construction. Figs. 3 and 4 are respectively detail views in vertical and horizontal section of a modified construction, and Fig. 5 is a detail sectional view of another modification.

The letter A designates the shaft, which is of usual construction, and is formed with an enlarged portion, which provides a shoulder against which the hubs of the ends or heads of the armature rest. These heads are arranged at suitable distances apart at the opposite ends of the large portion of the shaft and may be connected together by bolts C. The heads are rabbeted on their inside upper edges, and within such rabbet fits the cylindrical sleeve D, made of brass or other suitable material. In Fig. 1 this sleeve is shown as perforated to allow the admission of air to the interior of the armature; but this is not absolutely necessary, and accordingly in Fig. 3 the sleeve is shown as solid. Within the sleeve and heads is placed the usual series of soft-iron rings F, which in the present instance are formed with a series of longitudinal grooves, which are spaced apart a proper distance to receive the same number of coils G. These coils are wrapped longitudinally around the disks, and their ends pass over two metallic rings E, which are preferably of a plano-convex shape, and thence the coils pass under such disks. These plano-convex rings

E hold the disks between them and are firmly secured by rivets or bolts passing through the rings and disks. Projecting from the outer surface of these rings at suitable distances apart are lugs or teeth H, which in the construction shown in Fig. 1 are shouldered and rest in recesses or grooves formed through or in the ends or heads of the armature. In this manner the disks, rings, and coils are suspended and supported by the end plates or heads and inclosed by the same in connection with the cylindrical sleeve D.

Instead of having heads or end plates with grooves or recesses formed in their edges around their circumference, as shown in Figs. 1 and 2, such heads or end plates may be somewhat thickened and provided with deep vertical grooves terminating a short distance from the bottom of the thickened portion, so as to provide a lateral and bottom support for the vertical lugs or teeth H, as illustrated in Figs. 3 and 4 of the drawings; or the lugs H, which extend from the supporting-frame, may have vertical grooves and the end plates have projections or tenons resting in such grooves, as shown in Fig. 5.

The commutator is of the usual construction and need not be specially described; but it is illustrated in Fig. 1 of the drawings and designated by the letter I.

My invention is particularly adapted to machines of the Gramme type, and the armatures thereof may thereby be made very compact and of smaller size than is customary, and they can be readily taken apart and their elements inspected or replaced.

It is obvious that many variations may be made in the construction shown and described without departing from the spirit of my invention, and I therefore do not wish to be understood as limiting myself to such exact construction.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. An armature comprising a shaft, end plates or heads, a cylindrical sleeve clamped between said end plates or heads, soft-iron cores, and coils surrounding the same inclosed within the sleeve and end plates and supported by the latter, substantially as and for the purpose set forth.

2. An armature comprising a shaft, end plates or heads, cylindrical outer sleeve clamped between the end plates or heads, soft-iron cores, coils wrapped around such
5 cores, a frame for supporting the cores and coils, and lugs projecting from the frame and resting in recesses in the end plates, substantially as and for the purpose set forth.

3. An armature comprising end plates or
10 heads provided with recesses, a frame arranged between the end plates and provided with lugs adapted to be supported in the said recesses, and soft-iron cores and coils supported by such frame, substantially as and for the purpose
15 set forth.

4. An armature comprising end plates, a cylindrical sleeve clamped between the end plates, and soft-iron cores and coils wrapped
20 around such cores, both being inclosed by the end plates and sleeve, substantially as and for the purpose set forth.

5. An armature comprising end plates, a perforated sleeve clamped between the end plates and soft-iron cores, and coils wrapped
25 around such cores, both being inclosed by the end plates and sleeve, substantially as and for the purpose set forth.

6. An armature comprising a shaft, end plates or heads provided with recesses, a

frame provided with lugs adapted to be sup- 30
ported in such recesses, said frame consisting of two rings, coils wrapped around such rings and the soft-iron disks or cores, and clamping devices for securing the rings and cores to-
35 gether, substantially as and for the purpose set forth.

7. An armature comprising a shaft, end plates or heads provided with recesses, a frame provided with lugs adapted to be sup-
40 ported in such recesses, soft-iron disks clamped between the sides of the frame and having grooves formed across the peripheries of such disks, and coils passing through the grooves and around the disks and frame and supported thereby, substantially as and for
45 the purpose set forth.

8. An armature comprising a shaft, end plates or heads, and a frame supporting soft-iron cores and coils and itself arranged be-
50 tween and supported by the end plates, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two witnesses whose signatures are subjoined.

EDMUND C. MORGAN.

Witnesses:

E. C. MERRILL,

J. LAWRENCE GERRY.