

(No Model.)

W. M. FINK.
DYNAMO OR ELECTRIC MOTOR.

No. 460,125.

Patented Sept. 29, 1891.

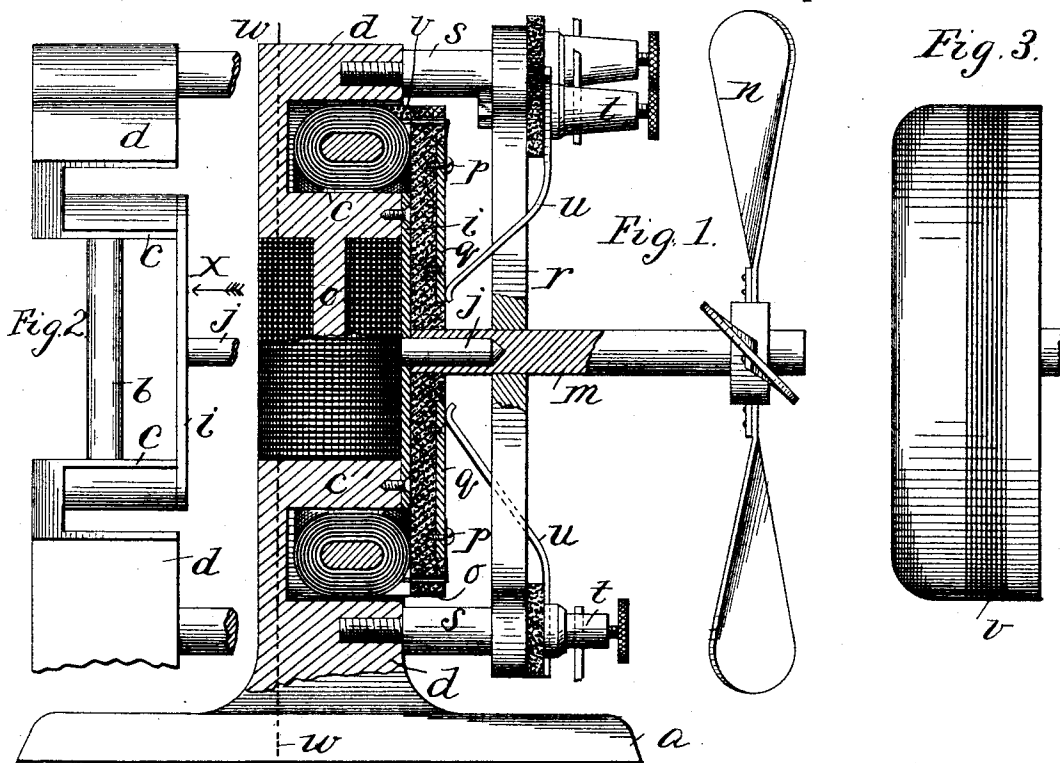


Fig. 5.

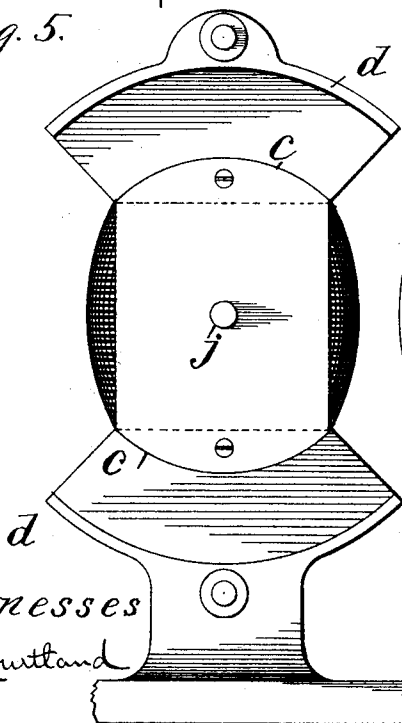
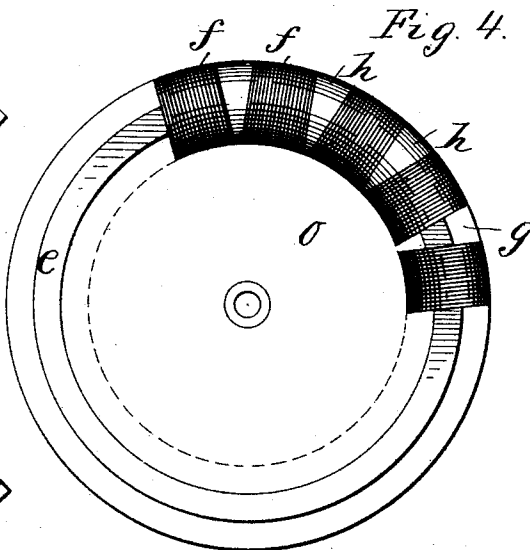


Fig. 4.



Witnesses
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Inventor.

WILLIAM M. FINK.

BY HIS ATTORNEY

Edward P. Thompson

UNITED STATES PATENT OFFICE.

WILLIAM M. FINK, OF ELIZABETH, NEW JERSEY.

DYNAMO OR ELECTRIC MOTOR.

SPECIFICATION forming part of Letters Patent No. 460,125, dated September 29, 1891.

Application filed October 7, 1890. Serial No. 367,322. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. FINK, a citizen of the United States, and a resident of Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Dynamos or Electric Motors, (Case 2,) of which the following is a specification.

My invention relates to the details of mechanical construction of an electric motor or dynamo.

The object of the invention is to obtain cheapness of manufacture and economy of space occupied.

The device embodying my invention is represented as to every feature in the accompanying drawings, in which—

Figure 1 is a vertical elevation, partly in section, showing one of the special applications of driving a ventilating-fan. Those parts in section are thus represented because the construction would not be clearly apparent if shown by an exterior view. Fig. 2 is a vertical elevation of the field-magnet with portions of certain other details. The base of the field-magnet is broken away, which serves as the base of the machine. That which is shown in Fig. 2 is mostly in section in Fig. 1, and the direction of observation is the same in both. Figs. 3 and 4 are respectively side and front elevations of the armature, some of the coils being omitted in Fig. 4 for the purpose of showing the exact construction of the armature. Fig. 5 is a front elevation of that portion of the device shown in Fig. 2, as looked at in the direction of the arrow X.

The device represented consists of the combination of a base-plate *a*, cast in one piece, with the field-magnet core *b* and grooved arc-shaped pole-pieces having interior polar projections *c* and exterior polar projections *d*, and a ring armature located within said groove between the exterior and interior pole-pieces in such a manner that diametrical portions of the armature or arc-shaped portions thereof are surrounded on three sides by the grooved pole-pieces, the said armature consisting of the ring core *e*, provided with coils *f*, the angular spaces *g* between the coils being filled with iron in the manner hereinafter described. A non-magnetic plate *i*, connecting the interior polar projections *c* and provided

with a spindle *j*, is located at the center and pointed at its outer end and projecting away from the core *b* and loosely into the rotary armature-shaft *m*, which carries the fan *n*. An insulating disk *o* of the same diameter as the armature is attached to the latter by screws *p*, which pass through commutator-plates *q* and into the disk *o*. The terminals of said coils are carried through the said disk and attached to said screws, whereby the disk and armature are held firmly to each other. The shaft *m* is rigidly attached to said disk and bears in a support or cross-piece *r*, mounted upon and screwed to posts *s*, which project from the exterior pole-pieces *d*, and which carry in an insulated manner the terminals *t* of the device, which terminals are connected to the commutator-plates *q* by brushes *u*, and other details, as described below.

Around the armature in the space between the outer periphery of the disk *o* and of the armature is wound a coil of wire *v*, which presses upon the terminals of the coils *f*, tending to draw the armature and disk closely together.

Between the coils *f* are triangular spaces *g*. It is preferable to fill these spaces with iron, in order to obtain greater efficiency. This space is of such a peculiar shape as to make it impracticable to fill it with disks or other rigid forms of iron. I mix together chemically-deposited iron or iron filings and shellac. The mixture should be of such a consistency as to be viscous. The mixture is applied so as to fill the space between every two coils. Of this mixture I construct the core *b* and polar extensions *c* and *d*, as well as the core *e*, in order to obtain greater cheapness of manufacture and higher efficiency. The material is hard and strong. Each particle of iron is insulated by the shellac from every other particle of iron, so that local and Foucault currents are impossible. By the nature of my construction the massive iron need not possess as great strength as in the ordinary field-magnet, because the cross-piece *r* tends to prevent the breaking of it and also the cross-piece *i*.

The terminals of the field-magnet coil are represented by the dotted lines *W*, which pass directly through holes in the pole-pieces.

I claim as my invention—

1. A dynamo or electric motor consisting of the combination of arc-shaped pole-pieces having polar extensions on the inner and outer periphery of the armature of said motor or dynamo, a rectilinear core provided with a coil joining the interior polar extension and passing through the center of said armature, a non-magnetic plate joining said last-named polar extensions and provided with a central spindle fitting loosely in the shaft of said armature, an insulating-disk applied to said armature and carrying said shaft and commutator-plates, screws passing through said commutator-plates and into said disk, the terminals of the coils of the armature passing through said disk and being connected to said screws, posts projecting from the exterior polar projections and connected by a cross-piece which bears the armature-

shaft, and brushes forming terminals of the motor or dynamo bearing upon said commutator-plates. 20

2. A dynamo or electric motor consisting of the combination of a ring armature, arc-shaped pole-pieces enveloping three sides, including the interior side of the ring armature, a rectilinear field-magnet joining the two pole-pieces, and a shaft for the armature, located and terminating upon one side of said field-magnet. 25

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 1st day of October, 1890. 30

WILLIAM M. FINK.

Witnesses:

EDWARD P. THOMPSON,
HAL BELL.