

(No Model.)

R. L. COHEN.
ARMATURE.

No. 423,026.

Patented Mar. 11, 1890.

Fig. 1.

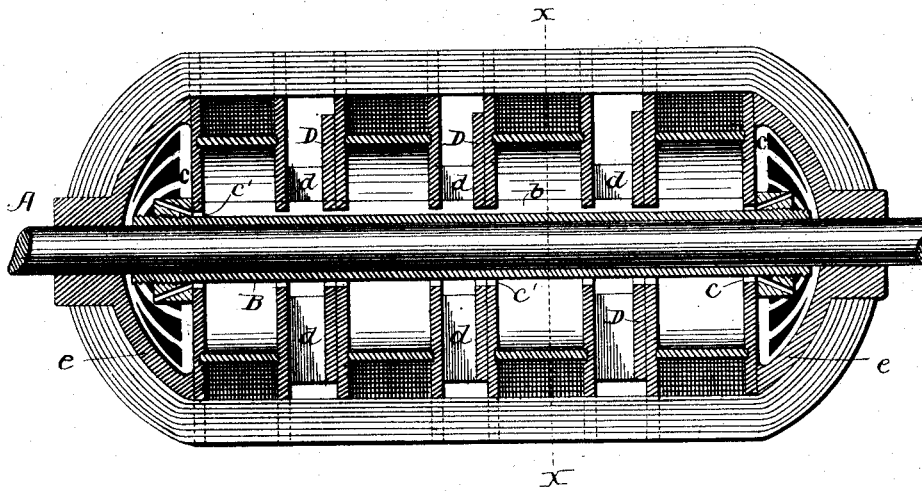


Fig. 2.

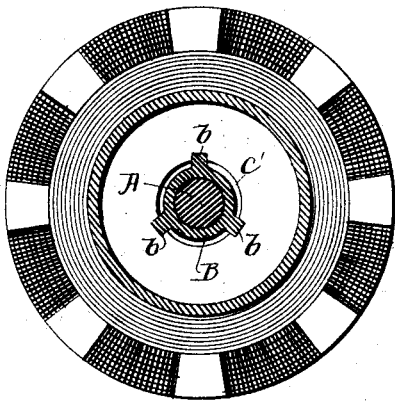
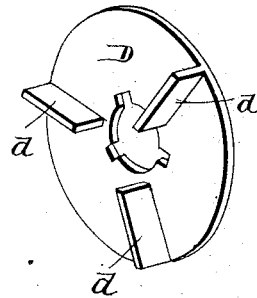


Fig. 3.



WITNESSES:

Frank S. Ober
Wm. A. Rumburg

INVENTOR

Robert L. Cohen

BY

W. B. Johnston
ATTORNEY

UNITED STATES PATENT OFFICE.

ROBERT L. COHEN, OF CAMDEN, NEW JERSEY.

ARMATURE.

SPECIFICATION forming part of Letters Patent No. 423,026, dated March 11, 1890.

Application filed June 19, 1889. Serial No. 314,793. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. COHEN, a citizen of the United States, residing in Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Armatures, of which the following is a specification.

This invention is designed as an improvement on the invention described in Letters Patent No. 397,340, granted to me February 5, 1889.

The object of this invention is to provide more efficient means for ventilation of the armature than is described in said Letters Patent, and to accomplish such object by less expensive apparatus.

The invention described in said Letters Patent consisted in building up an armature of a series of bobbins. Each bobbin was composed of two end disks with an interposed tubular or cylindrical shell forming the core of the bobbin upon which iron wire or wrought iron rings were placed, constituting the magnetic element of the armature. Any desired number of these bobbins was slipped over a hollow shaft and a spacing disk or device was inserted between each two bobbins in order to provide for an efficient cooling of the armature. The ventilation was secured by perforating the hollow shaft, so that air from the same might pass into the space within the bobbins and through lateral perforations into the spaces between the bobbins. This construction formed what might be termed a "honeycombed" or "cellular" structure through every part of which the air might permeate, thus preventing all liability of heating. This construction I have found to be more expensive than is desirable, in that the hollow shaft must be carefully manufactured, and also formed of more expensive material. My present design is therefore to maintain the ventilating properties of the armature, and at the same time utilize a construction which is less expensive of fabrication.

Broadly stated, my invention consists in the combination, with a solid shaft and a brass or other non-magnetic sleeve provided with longitudinal ribs, of a series of spools, above mentioned, the end plate of said spools being

cut away next to the sleeve, so as to leave a free space throughout the length of the sleeve for the passage of air. The air enters the space through the ends of the armature and communicates with the interior of the spools and the spaces between the same.

The construction in detail will now be described with reference to the accompanying drawings, in which—

Figure 1 represents a longitudinal section of the armature constructed in accordance with my invention. Fig. 2 is a transverse section of the same on line X X of Fig. 1, and Fig. 3 is a perspective view of one of the spacing plates or disks of the armature.

A represents the main shaft of the armature, which in this instance is solid. Upon the shaft is placed a brass or other non-magnetic sleeve B. This sleeve has formed upon it a number—say three—of longitudinal rectangular ribs *b*, which project some distance from the surface of the sleeve. The end disks *cc* are provided with a central opening of slightly greater diameter than the greatest diameter of the sleeve, so that when the said end plates are slipped upon the sleeve a space *c'* will be left between the sleeve and the edges of the opening in the disks. These openings in the disks are also notched at intervals to fit over the longitudinal ribs *b*. This construction prevents any movement of the plates with respect to each other and insures a rigid structure. The shells are placed between the disks in annular grooves therein in the manner described in the above-mentioned Letters Patent. Between each two spools is placed a brass spacing-disk D, having three or more wings or lugs *d* formed upon one side integrally therewith. The central perforation of these brass disks is of similar construction to the perforations in the end plates of the spools, so that a free space will be left for passage of air between the disk and the sleeve. The nuts or collars binding the spools and disks together are threaded over the ends of the sleeve up against the end spools of the armature. Ordinarily these nuts would cut off the supply of air to the air-space around the sleeve, and in order to obviate this difficulty I bore a series of holes through the nuts or collars,

which will communicate with the said space around the sleeve. The heads of the armature are formed by skeleton plates *e e*, which admit air to the armature from the outside.

5 It will thus be seen that I have secured the ventilating properties of the armature described in the aforesaid Letters Patent, in that all of the chambers within the armature communicate with one another and with the
10 common air-passage around the sleeve. I have thus done away with the expensive hollow perforated shaft and with the necessity of perforating the end plates and brass spacing-disks.

15 Having thus described my invention, I claim—

1. In a dynamo-electric machine or motor, the combination, with a solid shaft, of a sleeve of non-magnetic material thereon, said
20 sleeve being provided externally with longitudinal ribs and a series of hollow spools mounted upon the sleeve, said spools each being built up of a pair of end plates and an interposed cylindric shell, the end plates having
25 a central perforation through which the

shaft passes, said perforation being of a greater diameter than the external diameter of the sleeve, as set forth.

2. In a dynamo-electric machine or motor, the combination, with a solid shaft, of a
30 sleeve of non-magnetic material thereon, said sleeve being provided externally with longitudinal ribs and a series of hollow spools mounted upon the sleeve, said spools each
35 being built up of a pair of end plates and an interposed cylindrical shell, the end plates having a central perforation through which the shaft passes, said perforation being of a greater diameter than the external diameter
40 of the sleeve and provided with notches in which the longitudinal ribs extend, for the purpose described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ROBERT L. COHEN.

Witnesses:

A. P. RUTHERFORD,
J. CLAYTON ERB.