

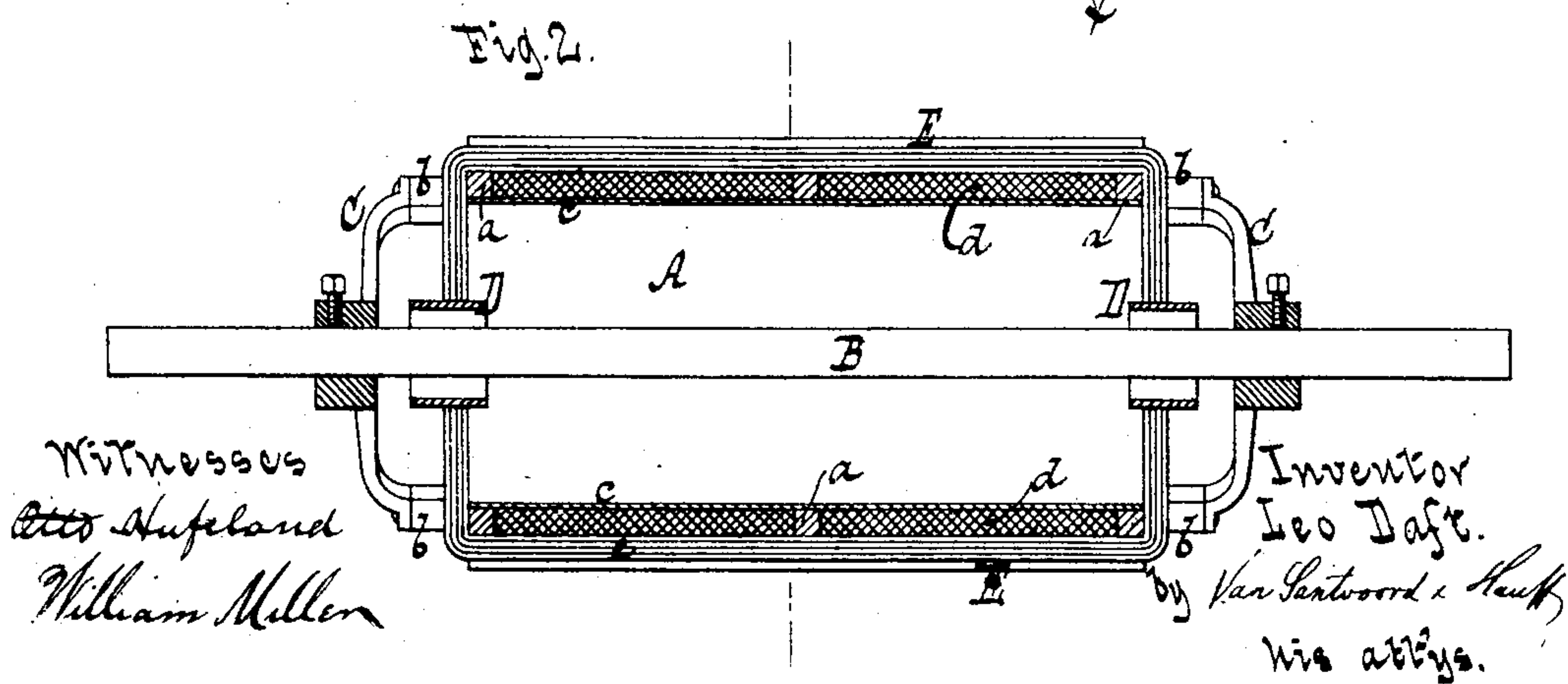
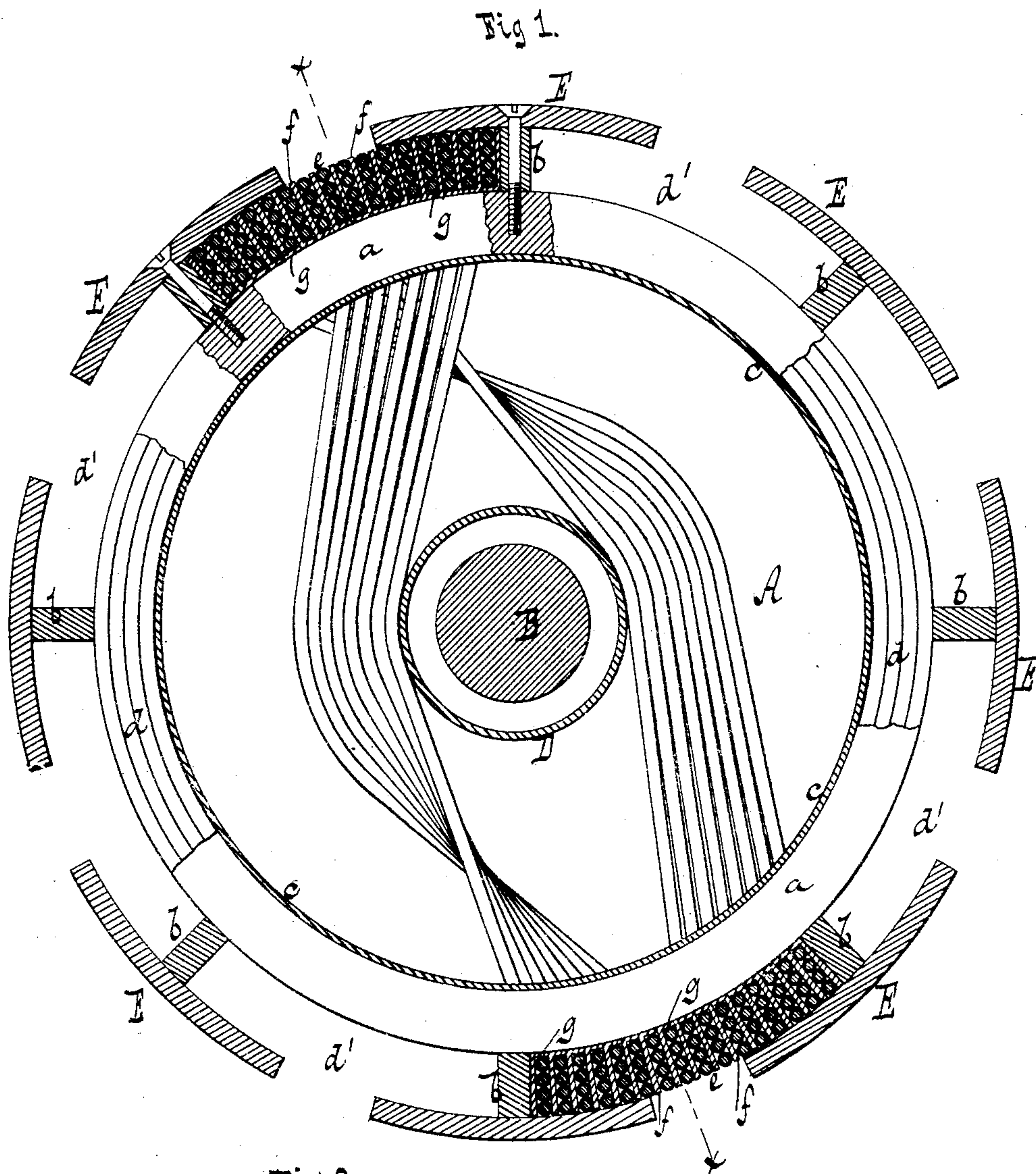
(No Model.)

L. DAFT.

ARMATURE FOR DYNAMO ELECTRIC MACHINES.

No. 277,119.

Patented May 8, 1883.



Witnesses
Otto Hufeland
William Miller

Inventor
Leo Daft.
by Van Santwoord & Huff
his attys.

UNITED STATES PATENT OFFICE.

LEO DAFT, OF GREENVILLE, NEW JERSEY.

ARMATURE FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 277,119, dated May 8, 1883.

Application filed September 3, 1881. Renewed March 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, LEO DAFT, a subject of the Queen of England, residing at Greenville, in the county of Hudson and State of New Jersey, have invented new and useful Improvements in Armatures for Dynamo-Electric Machines, of which the following is a specification.

This invention relates to that class of armatures which are composed of a cylinder of soft iron having insulated copper wire wound thereon in sections parallel to its axis.

The object of my invention is to provide means for saturating each and every coil of the helix with the same electro-motive force, usually confined to the first layers next to the iron core or cylinder, thereby permitting me to obtain a current of high tension, which materially increases the efficiency of the armature. This object I attain by the construction and arrangement of parts hereinafter described, and illustrated in the accompanying drawings, in which—

Figure 1 represents a transverse section. Fig. 2 is a longitudinal section in the plane x , Fig. 1, on a smaller scale than the previous figure.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates a cylinder, which is composed of two or more rings, a a , which are fastened together by a series of longitudinal ribs, b b , while in their interior is secured a sheet-metal tube, c , which serves to support a coil, d , of soft-iron wire, that is wound upon the sheet-metal tube c , and the outer diameter of which is equal to the outer diameter of the rings a a . The ribs b b are so arranged that they form an even number of compartments d' d' , which receive the insulated copper wire e , which is wound parallel to the axis of the cylinder, either in separate sections for each pair of diametrically-opposite compartments or in one continuous length for all the compartments, the former method being employed if electricity of large quantity and less tension is required—as, for instance, in electroplating—while for producing high tension the wires of all the compartments are connected in series. The armature is mounted on a shaft, B, which has its bearings in spiders C, that are firmly secured to

the opposite ends of some of the ribs b b , and, in order to prevent the copper wire e , while being wound, from stopping the passage of the shaft B through the armature, short tubes D are introduced, (see Fig. 2,) which prevent the wire e from reaching the center of the armature and allow the shaft to pass freely.

Between the successive layers of the copper wire e , I place thin magnetic plates f , preferably made of soft iron. In the example shown in the drawings these plates are placed between the radial layers of the wire, and in this case I provide the same with ledges or feet g , so that each plate is held in position by the first layer of wire, which rests upon the ledge or foot. Said thin plates f may, however, be interposed between the successive circumferential layers of the wire e , and in this case no ledges are required. The plates f , being composed of magnetic soft-iron plates, act to saturate each and every coil of the helix with the same electro-motive force or inductive current, which is usually confined to the first layers next to the iron core or cylinder, thereby permitting me to obtain a current of high tension, which obviously renders the armature very efficient.

On the ribs b b are secured metal strips E, preferably of soft iron, which form caps exposing a large area of a strongly-magnetic surface, so as to increase the effect of the armature. The sheet-metal tube c , and also the ribs b b , are perforated, so as to allow the air to circulate through the armature and thus prevent overheating.

I am aware that U-shaped copper plates have been attached to an electro-magnetic armature to receive the coils of the helix for the purpose of rapidly conveying the heat generated in the helix to the armature, where it is carried off by a stream of flowing water. Such, however, does not constitute my invention, and is not claimed by me.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, substantially as described, of the magnetic plates—such as soft iron—with the coiled wires e , said magnetic plates being interposed between the successive layers of the wire in the act of winding the latter, and serving to saturate each and

every layer of the coil with the inductive current in the manner and for the purpose set forth.

2. The combination of the rings *a*, the longitudinal connecting-ribs *b*, forming compartments *d' d'*, the tube *c*, the coil *d* around the tube, the wire *e*, wound around the rings, as described, and the magnetic plates *f*, interposed between the successive layers of the wire *e* and resting on the coil *d*, substantially as and for the purpose described.

3. The combination, substantially as hereinbefore described, of the wire *e*, its successive radial layers, and the separating-plates provided with feet or ledges.

4. The combination, substantially as described, of the rings *a*, the longitudinal con-

necting-ribs *b*, provided with caps *E*, the tube *c*, and the wire *d*, wound around the tube, as and for the purpose set forth.

5. The cylinder *A*, composed of the rings *a*, the longitudinal ribs *b*, connected with the outside of the rings, the tube *c*, arranged within the rings, and the wire *d*, coiled around the tube, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

LEO DAFT. [L. S.]

Witnesses:

W. HAUFF,
CHAS. WAHLERS.