

(No Model.)

W. H. KNIGHT.  
ARMATURE WINDING.

No. 555,216.

Patented Feb. 25, 1896.

FIG. 1.

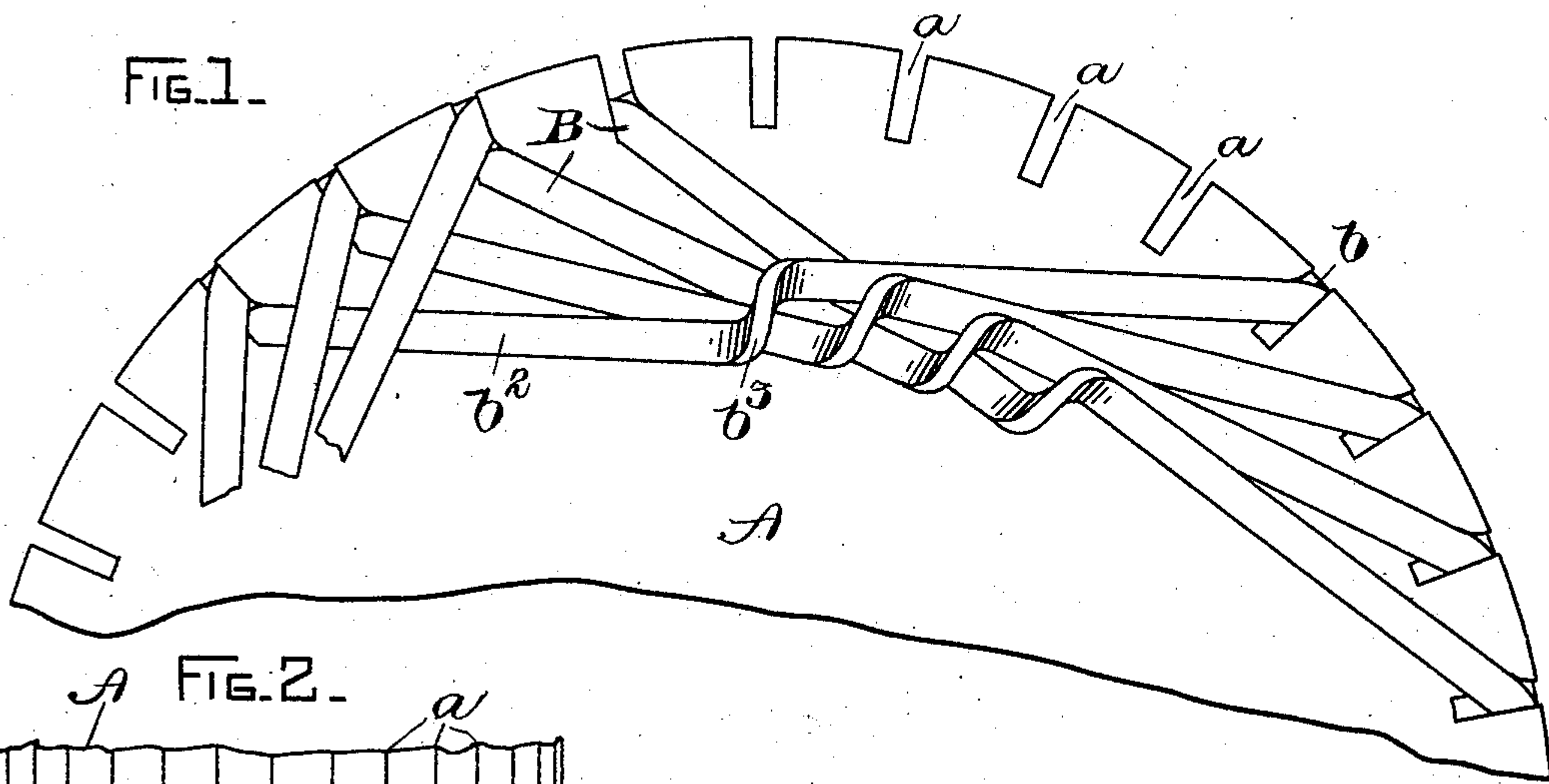


FIG. 2.

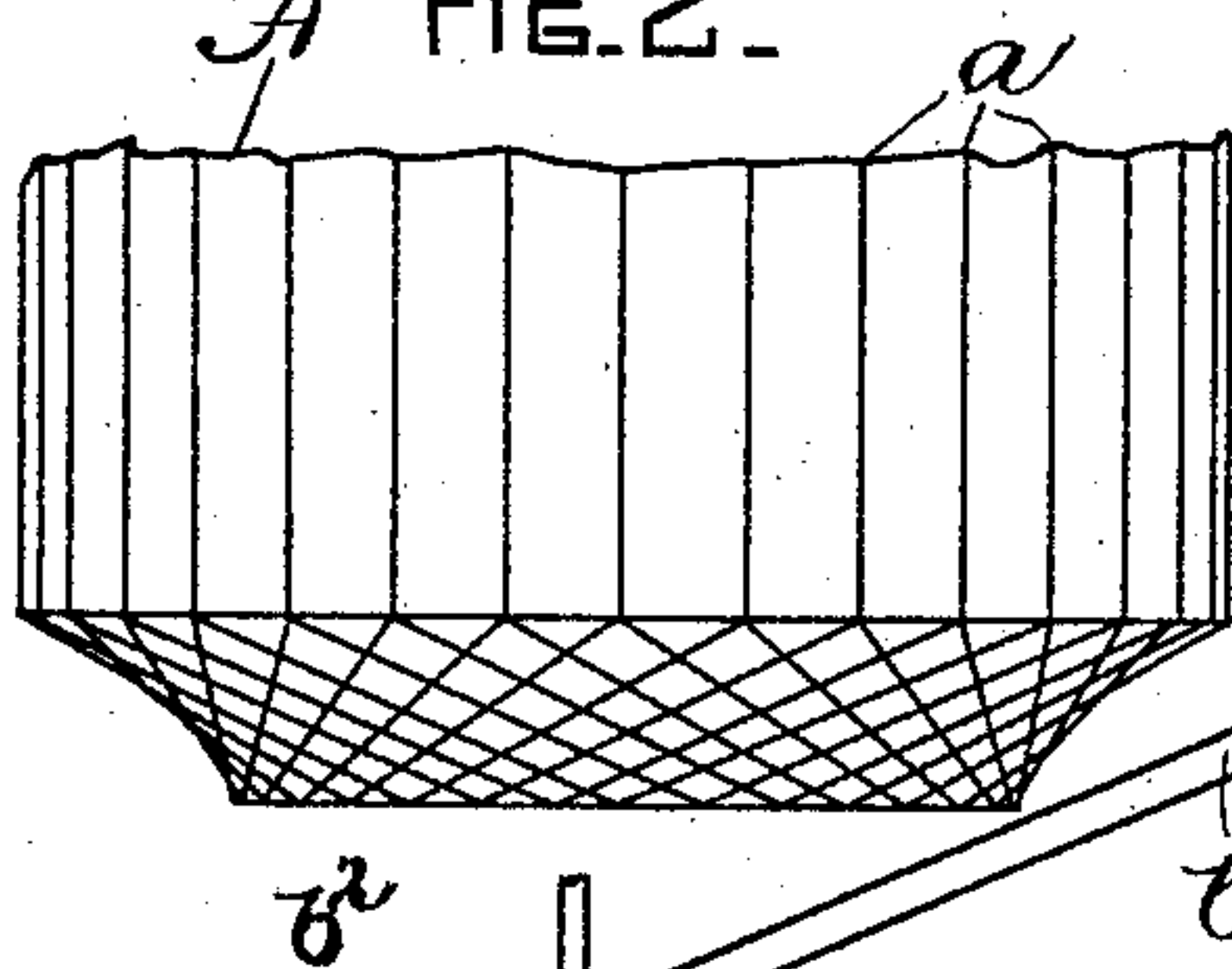
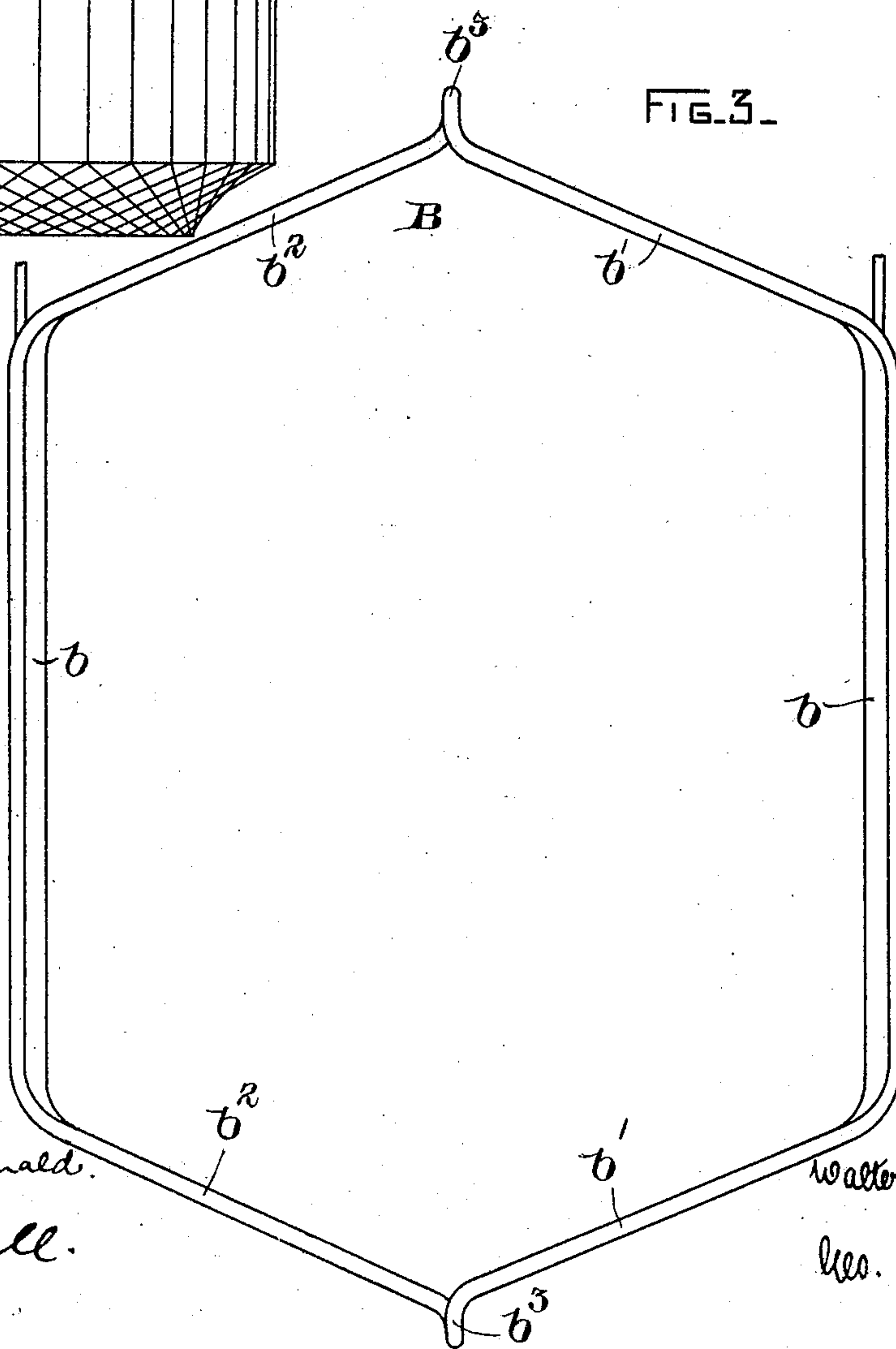


FIG. 3.



WITNESSES.

A. F. Macdonald.

B. B. Hill.

INVENTOR

Walter H. Knight  
by  
Geo. R. Blodgett,  
Att'y.

# UNITED STATES PATENT OFFICE.

WALTER H. KNIGHT, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE  
GENERAL ELECTRIC COMPANY, OF NEW YORK.

## ARMATURE-WINDING.

SPECIFICATION forming part of Letters Patent No. 555,216, dated February 25, 1896.

Application filed April 13, 1895. Serial No. 545,568. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER H. KNIGHT, a citizen of the United States, residing at Schenectady, in the county of Schenectady and State of New York, have invented certain new and useful Improvements in Armature-Windings, of which the following is a specification.

My invention relates to windings for the armatures of dynamo-electric machines or motors, and particularly to the individual coils of which such armature-windings are composed; and has for its object to provide a coil adapted for use upon an armature-core having slots, which may be readily manufactured by methods making the coils interchangeable and greatly facilitating repairs to the winding should any of the coils become damaged, at the same time being otherwise economical in the length of wire and in the facility of manipulation.

Nearly all armature-coils are now wound separately and separately insulated, but most of the forms of such coils with which I am acquainted have been troublesome to make on account of their peculiar shapes, and still more troublesome to put in place on account of the curvilinear distortion on the ends of the drum, which is rendered necessary by the peculiar overlapping in armatures of this description. I have discovered, however, that I may wind my armature-coil in an open figure of six sides, all the sides being straight during the process of winding. The longer sides of the two trapeziums having a common open side, of which the coil is composed, are adapted to be inserted in the slots of the armatures, while the shorter sides span the space on the end of the drum, and when seen in end elevation form what I call a "chordal" winding. The approximately radial portion of the coil joining the two shorter sides is drawn down in the process of applying the coil to the armature, so that the ends of the armature present a somewhat peculiar appearance, a plan of the completed structure being a cylinder with two short parabolic curves at its ends.

The accompanying drawings show an embodiment of my invention, Figure 1 being a side elevation of a portion of an armature-

core having some of the coils applied thereto, Fig. 2 being a plan view, upon a smaller scale, of a drum-armature constructed according to my invention, and Fig. 3 being a plan view of one of the coils.

Referring by letter, A is the body of the armature provided with slots *a a*.

B B are the coils, each composed, as seen in Figs. 1 and 3, of the sides *b b* passing through the slot to the sides *b' b'*, which pass across the end of the armature. A radial portion *b<sup>3</sup>* is formed in the process of manufacture and permits the peculiar arrangement seen in Fig. 1. The two parts of the coil thus lie in different but parallel planes, and the two trapeziums having their common side missing, which form these two parts of the coil, are united by portions approximately radial to the circumference of the core to which the coil is to be applied.

In Fig. 2 the peculiar shape of the winding as a whole which I have described in my statement of invention is illustrated, the parts being lettered as before. The parts of the winding which I have lettered *b<sup>2</sup>* in the lower part of the figure form in plan a portion of a paraboloid of revolution or approximate parabolic curve of that nature, and the winding as a whole is quite distinctive in appearance as applied to the armature.

As indicated in Fig. 3, it is designed to wind the coils separately, and they are, as is usual in such constructions, afterward wound with tape and dipped in shellac or suitably insulated in any other desirable manner; and the further mechanical details of the construction will not be pointed out, inasmuch as they are well known in the art.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. As a new article of manufacture, an armature-coil for a dynamo-electric machine or motor, made in the shape of a six-sided figure composed of two trapeziums having their common side missing, and lying in different but parallel planes, the two trapeziums united by portions of the coil approximately radial to the circumference of the core to which it is to be applied.

2. As a new article of manufacture, an armature-coil for a dynamo-electric machine or



motor, composed of a six-sided figure, the two halves of which lie in different but parallel planes and are united by a portion approximately radial to the circumference of the armature-core.

3. As a new article of manufacture, an armature for a dynamo-electric machine, having a slotted core and windings disposed in the slots upon the face of the armature, the windings consisting of individual coils, each being in the shape of a six-sided figure composed of two trapeziums having their com-

mon side missing and lying in different but parallel planes, the two trapeziums united by portions of the coil approximately radial to the circumference of the core to which it is to be applied.

In witness whereof I have hereunto set my hand this 6th day of April, 1895.

WALTER H. KNIGHT.

Witnesses:

B. B. HULL,

A. F. MACDONALD.