

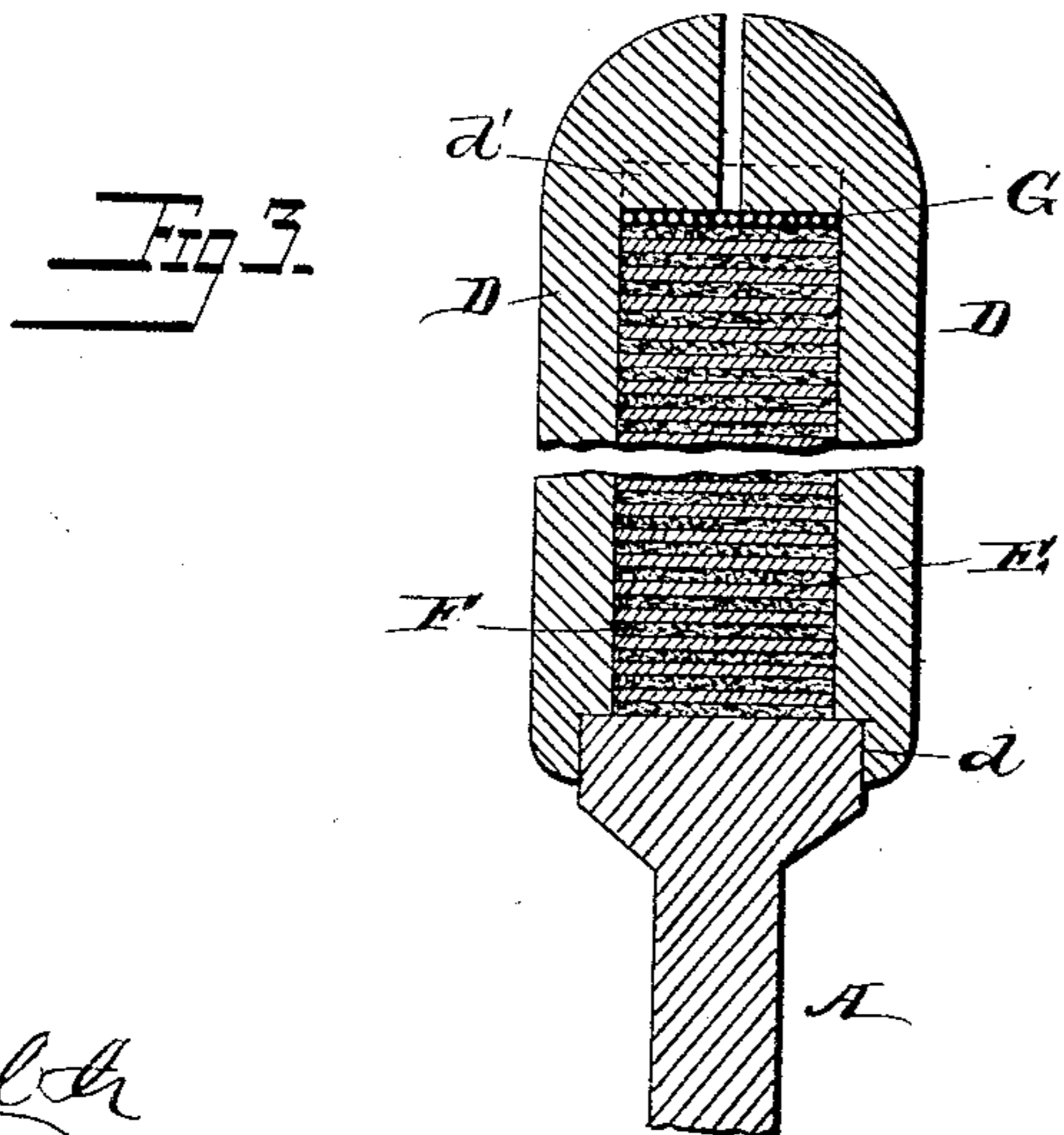
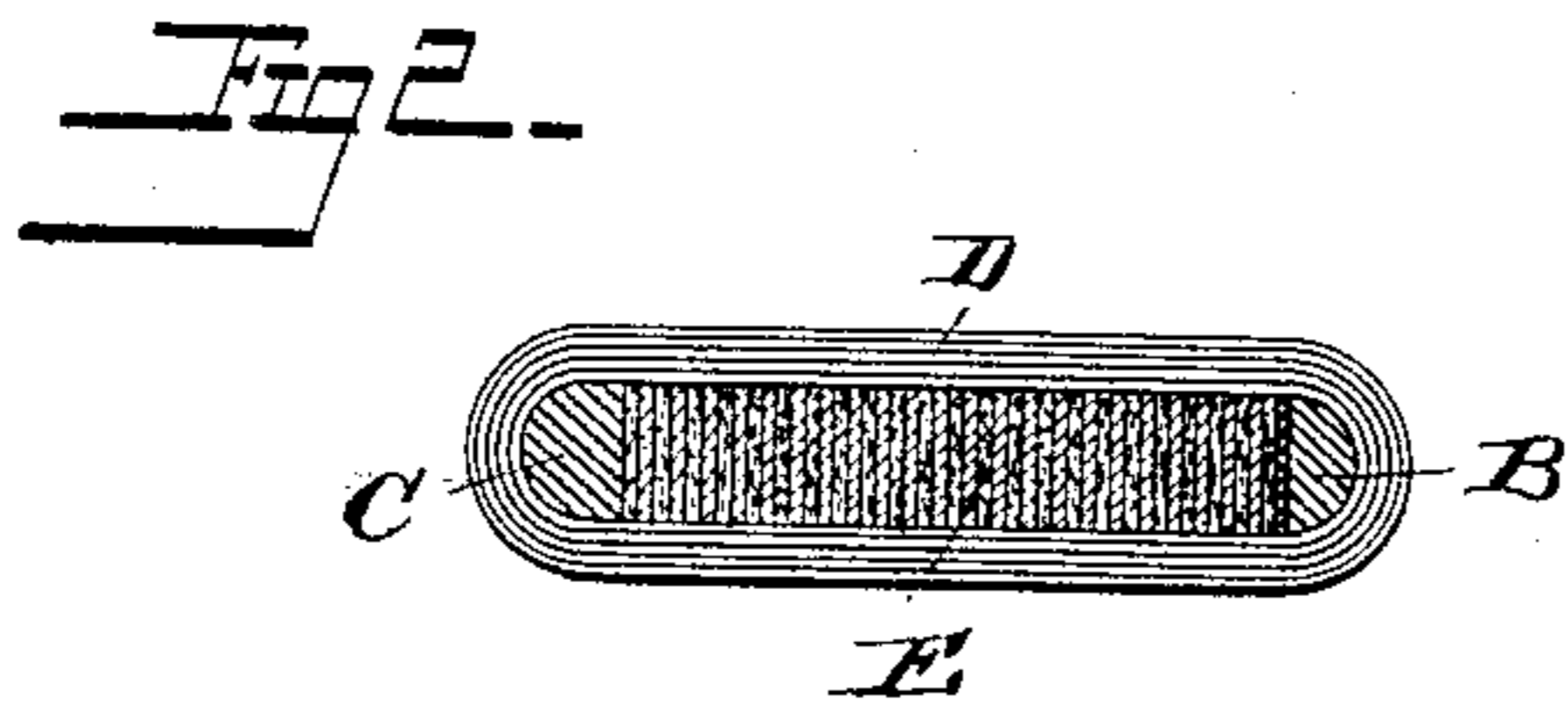
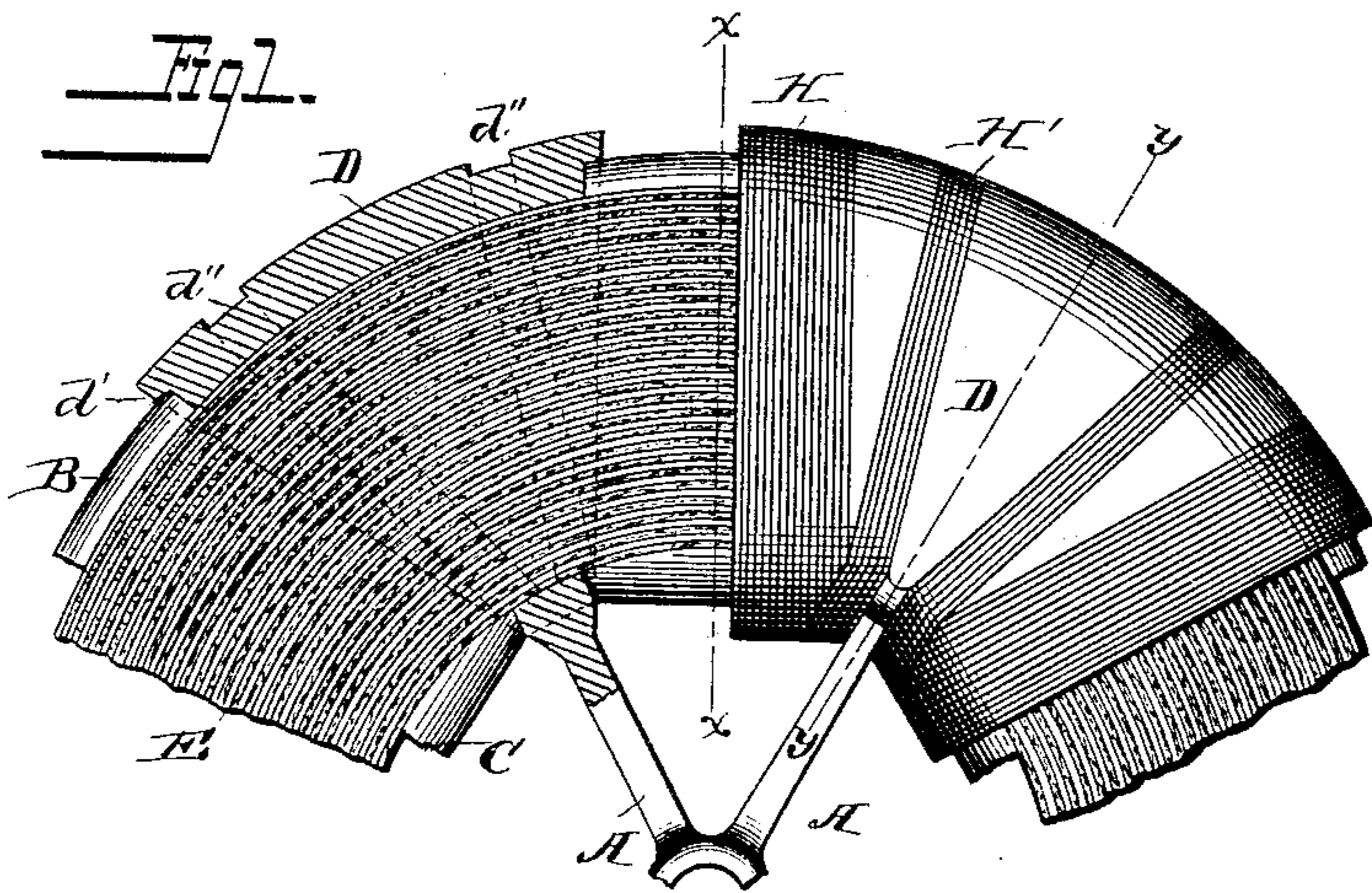
(No Model.)

F. BAIN.

ARMATURE FOR DYNAMO ELECTRIC MACHINES.

No. 337,042.

Patented Mar. 2, 1886.



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UNITED STATES PATENT OFFICE.

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ARMATURE FOR DYNAMO-ELECTRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 337,042, dated March 2, 1886.

Application filed September 25, 1885. Serial No. 178,139. (No model.)

To all whom it may concern:

Be it known that I, FORÉE BAIN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Armatures, of which the following is a specification.

My invention relates to the construction of armatures for dynamo-electric generators; and it has for its object to produce an armature that shall be effective in operation, durable, and cheap, and in which the disturbing humming noise which is heard to proceed from armatures heretofore constructed is suppressed. This humming noise is caused, in a great measure, by the air rushing through the large air-spaces provided in modern generators between the structural elements of the armature. In the older forms of generators the hum is hardly perceptible; but in these forms the armature-core is made solid, and is greatly heated by the continuous shifting of the magnetic axis.

In my armature the core is made of a spiral of flat iron ribbon, as in other modern armatures, whereby the heating effect due to the changes of magnetic condition is greatly reduced, and the large air-spaces bounded by sharp-edged surfaces are suppressed by the insertion of fibrous diamagnetic substances between the layers of the spiral coil forming the core, and the spaces between the generating-coils are filled with blocks of wood, so that the whole armature presents the appearance and in effect is a solid structure, while at the same time the core is laminated to prevent the heating of the same, and the disturbing-hum is effectively suppressed.

Of the numerous forms which may be given to my invention, the accompanying drawings illustrate one, as follows:

Figure 1 shows a side view, partly in section, of a portion of the armature. Fig. 2 represents a section on line *x x*, Fig. 1, and Fig. 3 represents a section on line *y y*, Fig. 1.

Between the arms *A A* of the spider are fitted blocks of wood *C*, which extend between the outer ends of said arms and flush with the same. Their outer surfaces are curved upon the arc of circle of which the arms of the spider are radii. A band of soft iron, *E*,

with a tape of some fibrous material, like cotton or silk, applied to one or both sides, is wound in a continuous spiral coil upon the circumference of the wheel produced by the combined spider and blocks *C*. This band or ribbon constitutes the core of the armature. Its outer end is temporarily secured to the layer below it, and then the permanent binding device is applied. The latter consists of a layer of strong bare wire, *G*, which may be of any suitable material, and the adjacent turns of which are connected and secured together by a suitable solder. Upon the binding-wire, and shaped to conform to the curvature of the same, are applied segmental blocks of wood *B*, corresponding in length and number with the length and number of blocks *C*. The armature-coils *H* are wound over the core in the spaces marked by the blocks *B* and *C*, and over the same, whereby these blocks are well held in place and all other fastening devices may be dispensed with. Between the coils, and separating each from the others, are cheeks *D D*, shaped to embrace the portions of the core between the coils, and provided with rabbets *d*, for the reception of the ends of arms *A*, and with recesses *d'*, for the reception of the ends of blocks *B*. The inner sides of the cheeks are so shaped as to embrace the core sparingly—that is to say, the two cheeks do not touch when applied to the core, but leave a small space uncovered, as is clearly seen in Fig. 3. Recesses *d'' d''* are made upon each cheek, and a portion, *H'*, of the adjacent coils *H* is tightly wound in these recesses upon the cheeks, whereby the latter are securely held in place without additional or special fastenings. This part of my invention, which enables me to apply the spacing-blocks without special appliances for fastening the same, while it is particularly adapted to my armature; will be found advantageous in all kinds of ring or cylinder armatures, whether the core be laminated or solid.

I claim as my invention—

1. In combination with an armature for dynamo-electric generators, spacing blocks or cheeks secured in place by portions of the generating-coils, substantially as described.
2. In an armature for dynamo-electric generators, spacing-blocks, each composed of two

cheeks which sparingly embrace the core, in combination with distinct sections of the generating-coils wound upon the cheeks, whereby the latter are held in place without additional fastening devices, substantially as described.

5 3. An armature for dynamo-electric generators, consisting of a laminated core with fibrous material between the laminæ, in combination with spacing-blocks between the generating-

coils, held in place by portions of said coils, so substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FORÉE BAIN.

Witnesses:

JAS. CRAIG,
B. G. COWAN.