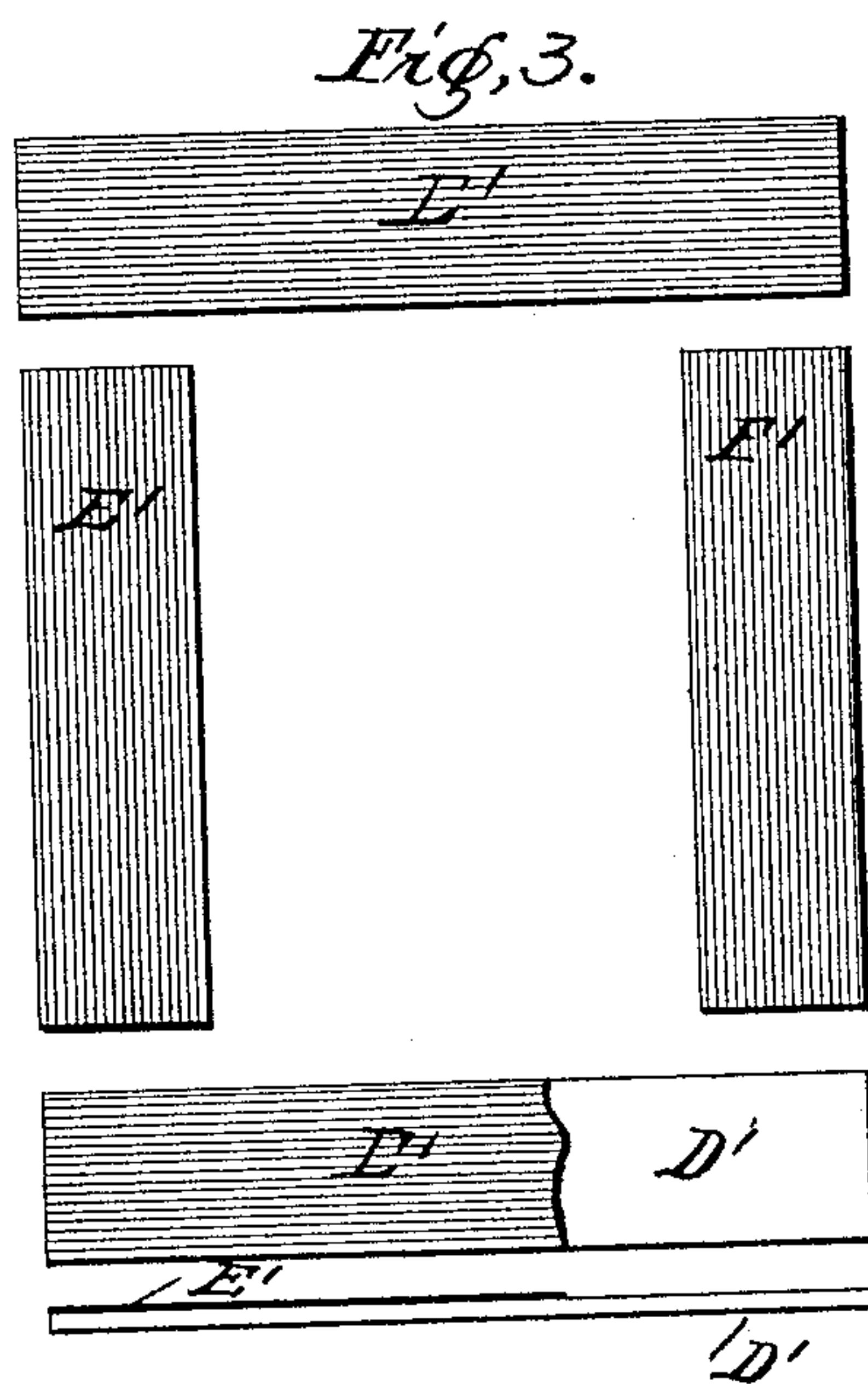
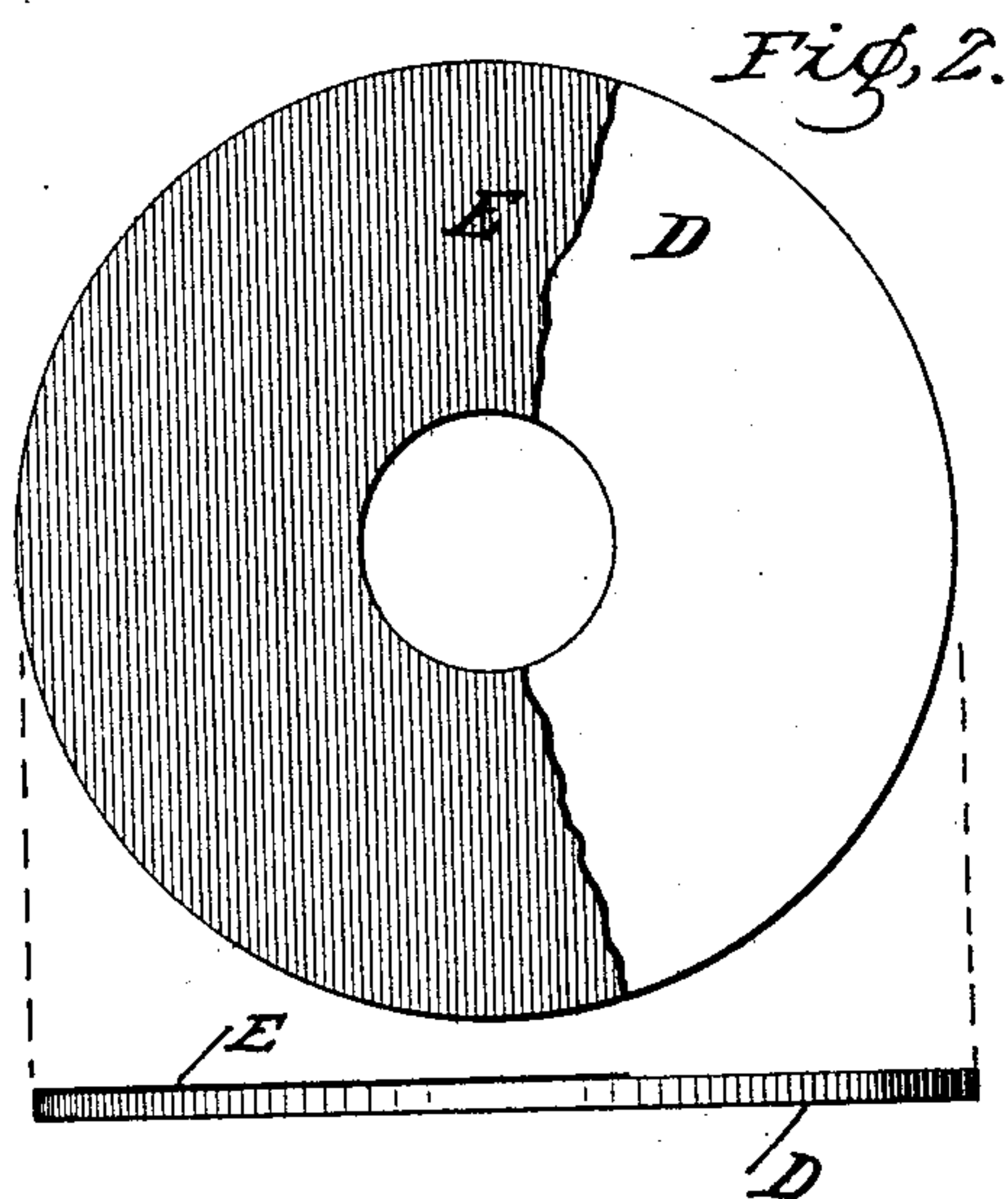
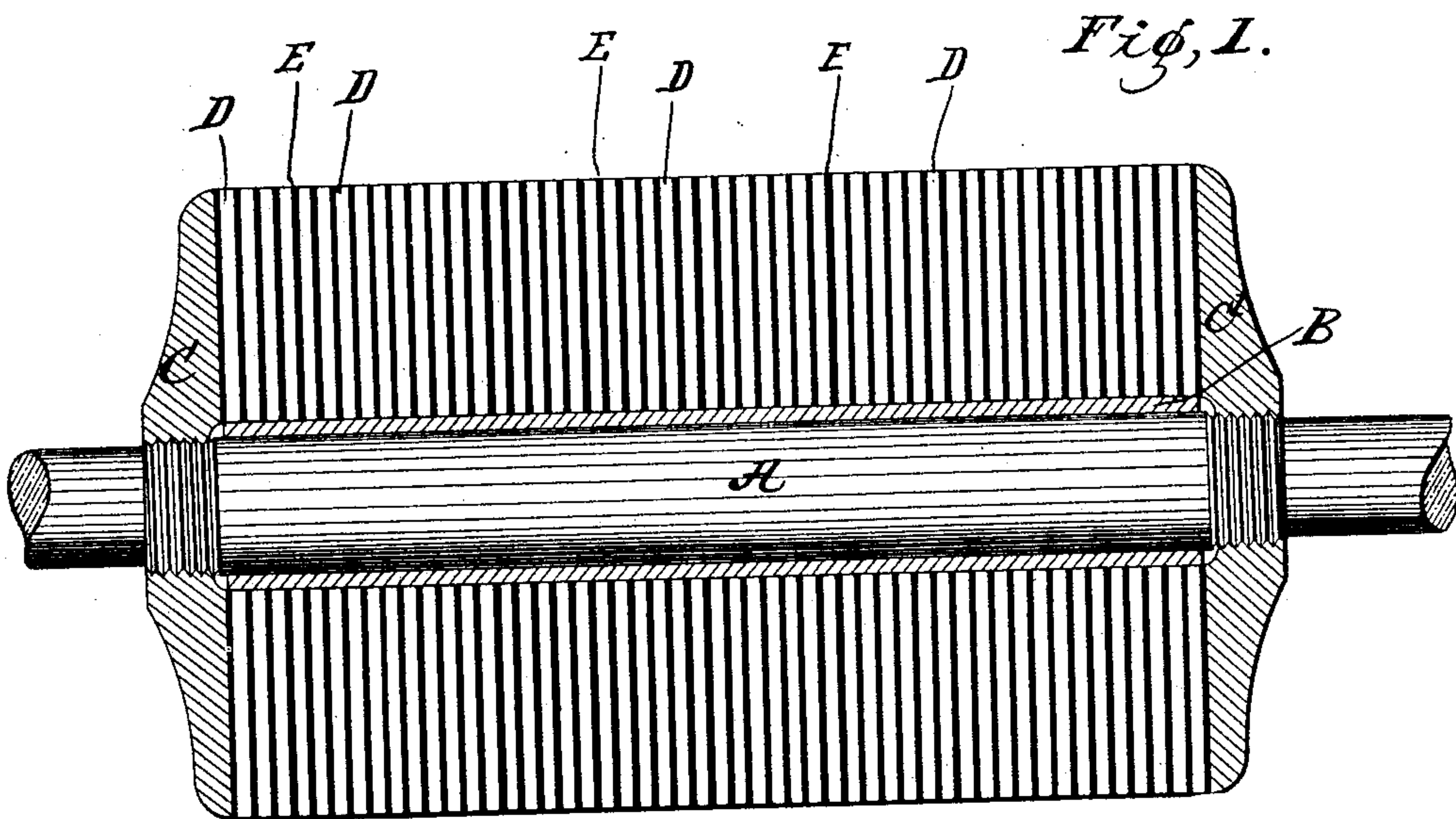


(No Model.)

C. E. KAMMEYER.  
TRANSFORMER AND ARMATURE CORE.

No. 464,026.

Patented Dec. 1, 1891.



Witnesses:

*Charles R. Chapman.*

*H. M. Day.*

Inventor

*Carl E. Kammeier*

by

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# UNITED STATES PATENT OFFICE.

CARL E. KAMMEYER, OF EAU CLAIRE, WISCONSIN.

## TRANSFORMER AND ARMATURE-CORE.

SPECIFICATION forming part of Letters Patent No. 464,026, dated December 1, 1891.

Application filed May 7, 1891. Serial No. 391,920. (No model.)

*To all whom it may concern:*

Be it known that I, CARL E. KAMMEYER, a citizen of the United States, residing at Eau Claire, in the county of Eau Claire and State of Wisconsin, have invented a new and useful Improvement in Transformers and Armature-Cores, of which the following is a full, clear, and exact specification.

My invention relates to the construction of magnetic cores for armatures for transformers, converters, dynamo-electric machines, and the like, more particularly such cores as are composed of laminated iron, plates, disks, or strips of magnetic material; and its object is to provide a simple and convenient armature and in which there shall be the least possible waste on account of heat.

My invention is illustrated in the accompanying drawings, wherein the same is shown as applied to the armature-core of a dynamo-electric machine and to the strips of iron or other metallic material of which the core of a transformer or induction-coil may be made.

Figure 1 is a cross-section through the armature-core. Fig. 2 is a detail view of one of the plates. Fig. 3 is a detail view of the plates from which a transformer-core can be made.

Like parts are indicated by same letters in all figures.

A is a shaft carrying an insulated sleeve or bushing B of paper or paper-wood fiber or other suitable material.

C C' are two iron flanges serving to hold the plates or disks D D D in position. Both the flanges C C', as well as the disks or plates D D D, are coated on one or both sides with the insulating-varnish or other suitable composition, as described. I have shown such coating by means of the heavy black lines E E E. The same letters apply to Fig. 3, the magnetic strips or plates being shown at D', the flexible insulating coating being indicated by E'.

The use and operation of my invention are as follows: Heretofore it has been and still is the practice to separate such plates, disks, or strips by means of insulating-disks of paper, fiber, or other non-magnetic material. I have found that all of these methods are more or

less defective and inadequate to accomplish the desired end. By using paper or other similar insulation the same is apt to char or become carbonized from any long-continued heating of the magnetic core of the transformer or armature. The use of shellac or other varnishes which become hard in drying is also objectionable because the varnish is apt to scale off or blister, leaving parts of the iron surfaces exposed. The difficulty last mentioned is especially encountered in the manipulation of the plates when prepared and in their application in the building up of the armature. These armatures are very solidly built, the plates being forced together under great pressure. Lateral movement of the plates one upon the other or slight bending, such as results from such manipulation, and, perhaps especially in the construction of transformers, very often carries away or tears off the comparatively unyielding ordinary insulations. In my invention I apply a coating of varnish to the surface intended to be insulated, such varnish having the property of retaining its toughness and flexibility after having become dry on the surface to which it was applied. In other words, I coat the plates of which such armatures are made with a thin flexible insulating-varnish or other liquid. This liquid is applied to one or both sides of the plates, and when dried is still yielding and flexible, so as not to easily come off from abrasion or break off when the plate is bent or struck.

The insulating-varnish used in carrying out my invention may be made in a number of ways, the essential points being that the varnish or coating is a good insulator, and retains sufficient flexibility after drying to permit the handling, bending, &c., which the magnetic plates or bars may be subjected to in assembling.

I have used the following formula:

No. 1.—Gutta percha, one part; oil of turpentine, five parts; hot linseed-oil, eight parts. Dissolve the gutta-percha in the turpentine and add the hot oil, stirring till the mixture cools.

No. 2.—Gutta-percha, one-fourth pound; oil of turpentine, one pound; resin, ten ounces;

boiled linseed-oil, eight ounces. Dissolve the gutta-percha in the turpentine and the resin in the oil, then add one mixture to the other under constant stirring.

5 I claim—

An armature-core consisting of a series of plates, said plates provided with permanent-

ly-flexible insulating-coats of varnish or the like applied permanently to the plates, which are then built together to form such core.

CARL E. KAMMEYER.

Witnesses:

W. EMMERSON SMITH,

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