

(No Model.)

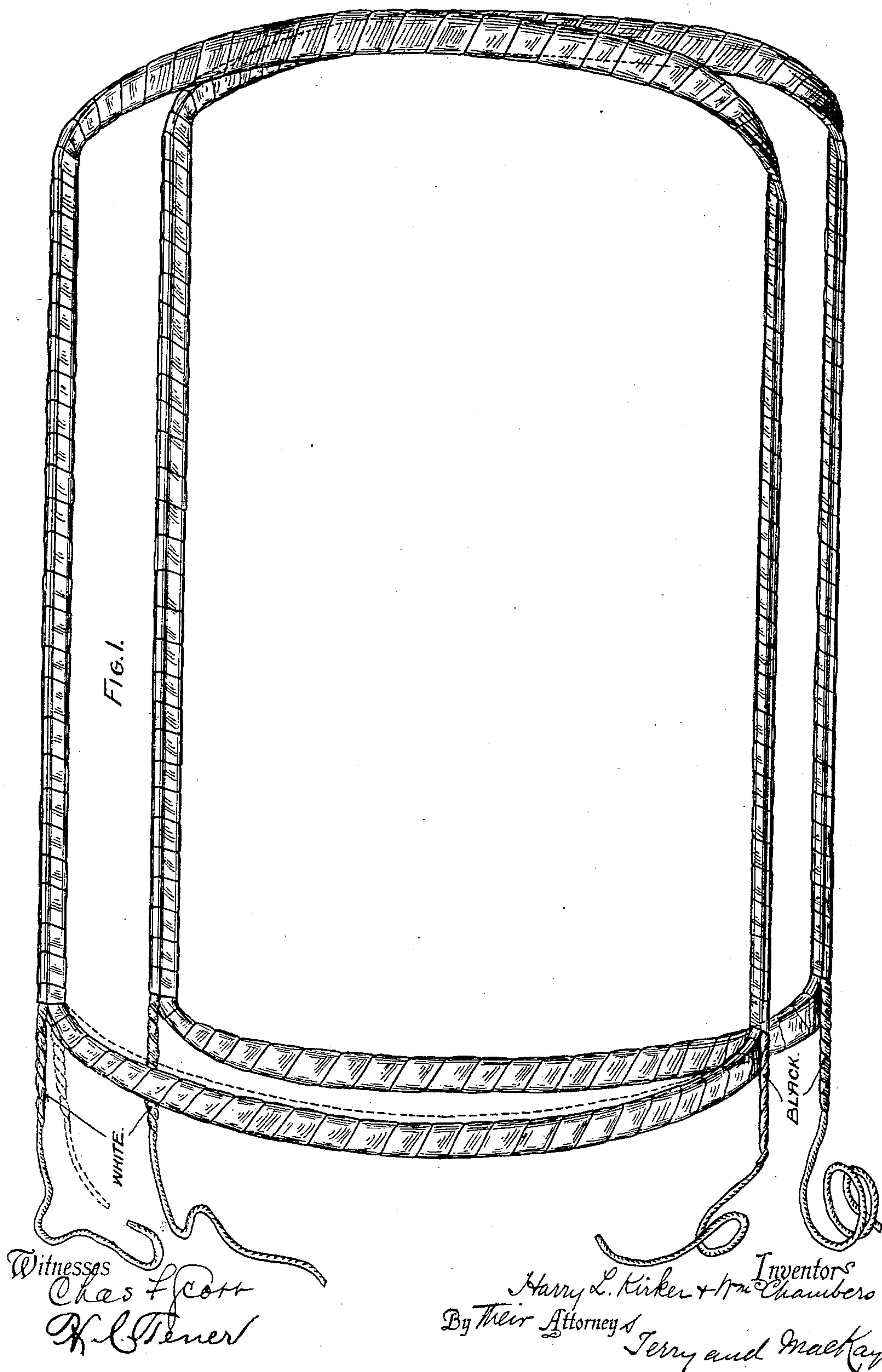
3 Sheets—Sheet 1.

H. L. KIRKER & W. CHAMBERS.

FORMER FOR WINDING ARMATURE COILS.

No. 520,143.

Patented May 22, 1894.



(No Model.)

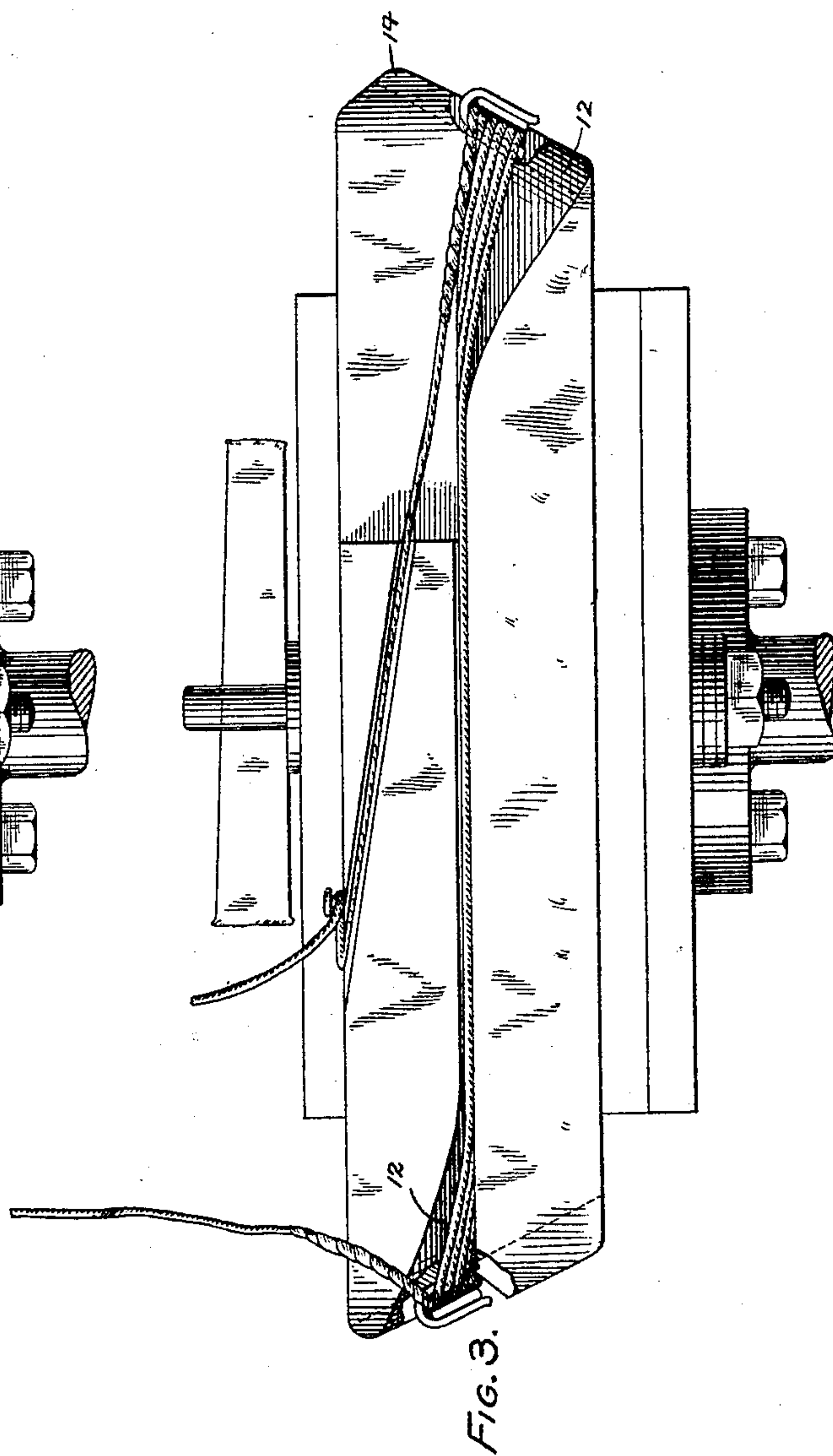
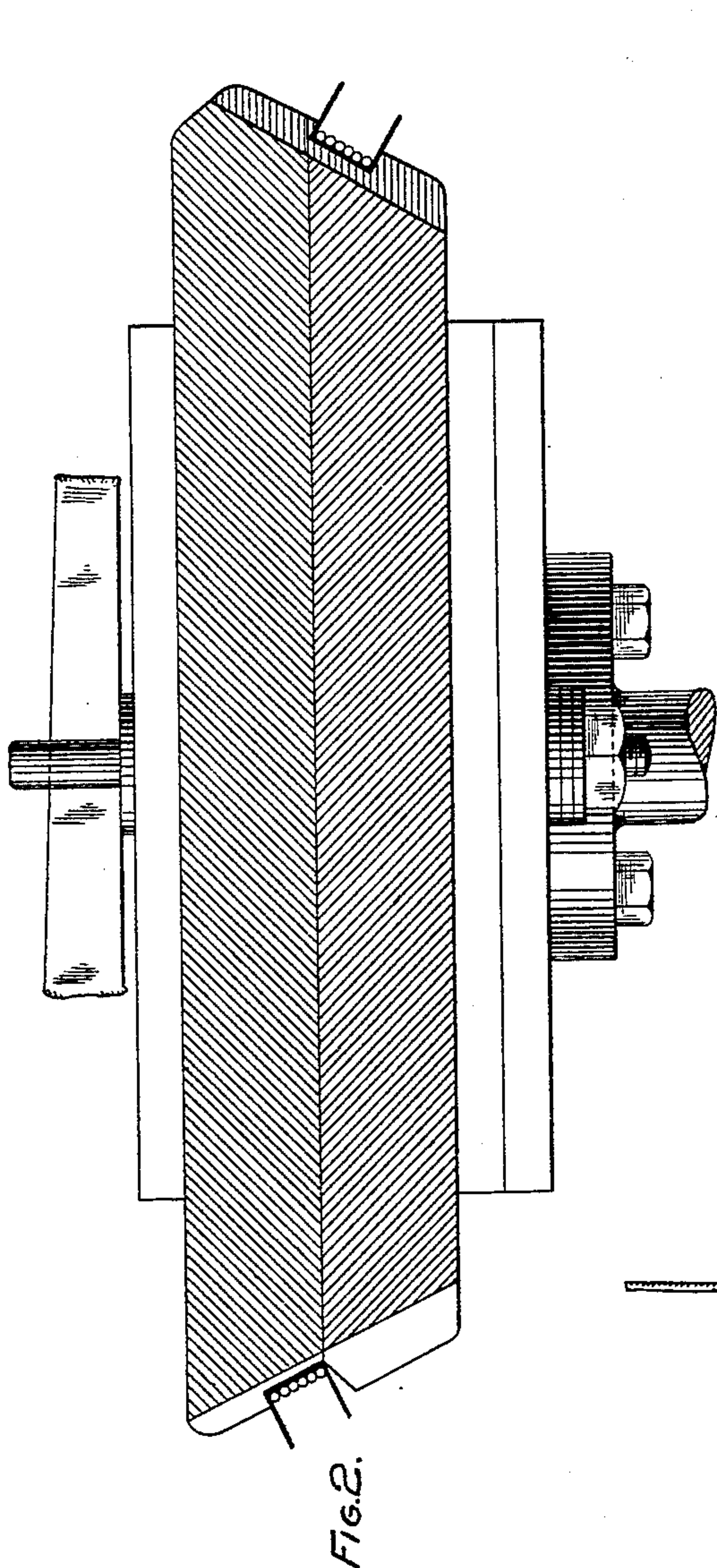
3 Sheets—Sheet 2.

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Witnesses
Chas. F. Carr
H. B. Tener

Inventors:
Harry L. Kirker & Wm. Chambers
By Their Attorneys
Terry & MacKay

(No Model.)

3 Sheets—Sheet 3.

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FORMER FOR WINDING ARMATURE COILS.

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Patented May 22, 1894.

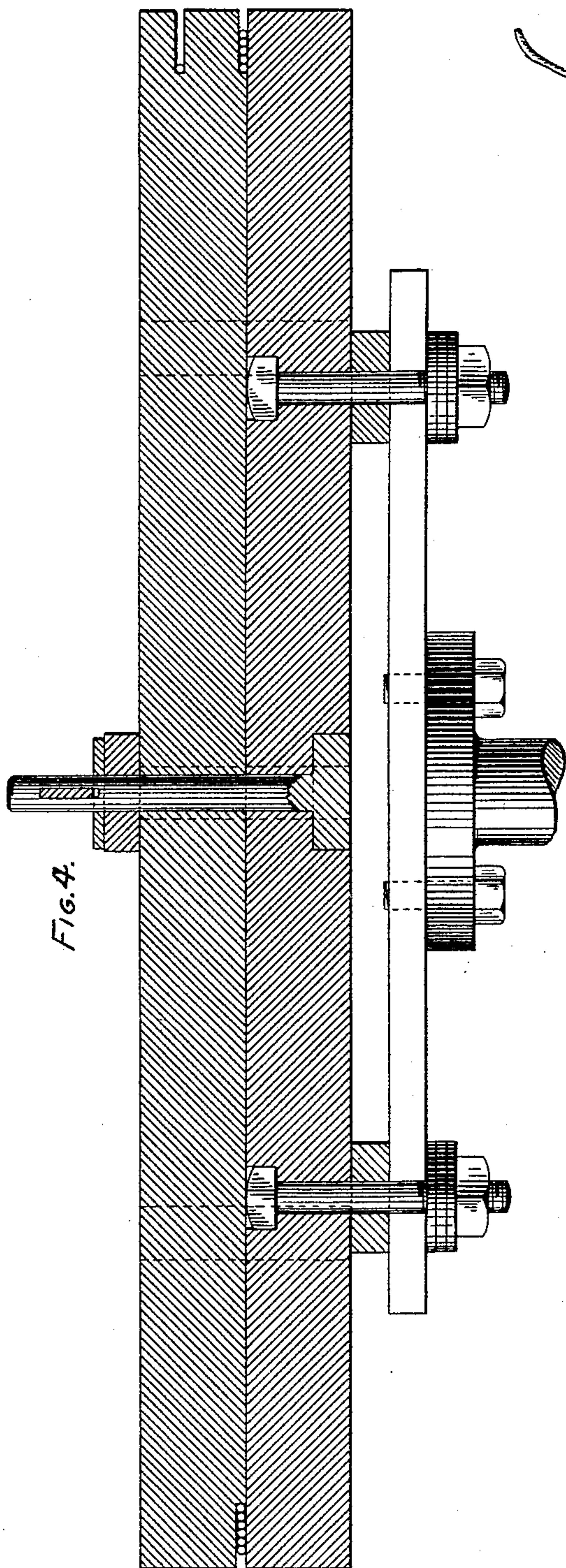


FIG. 4.

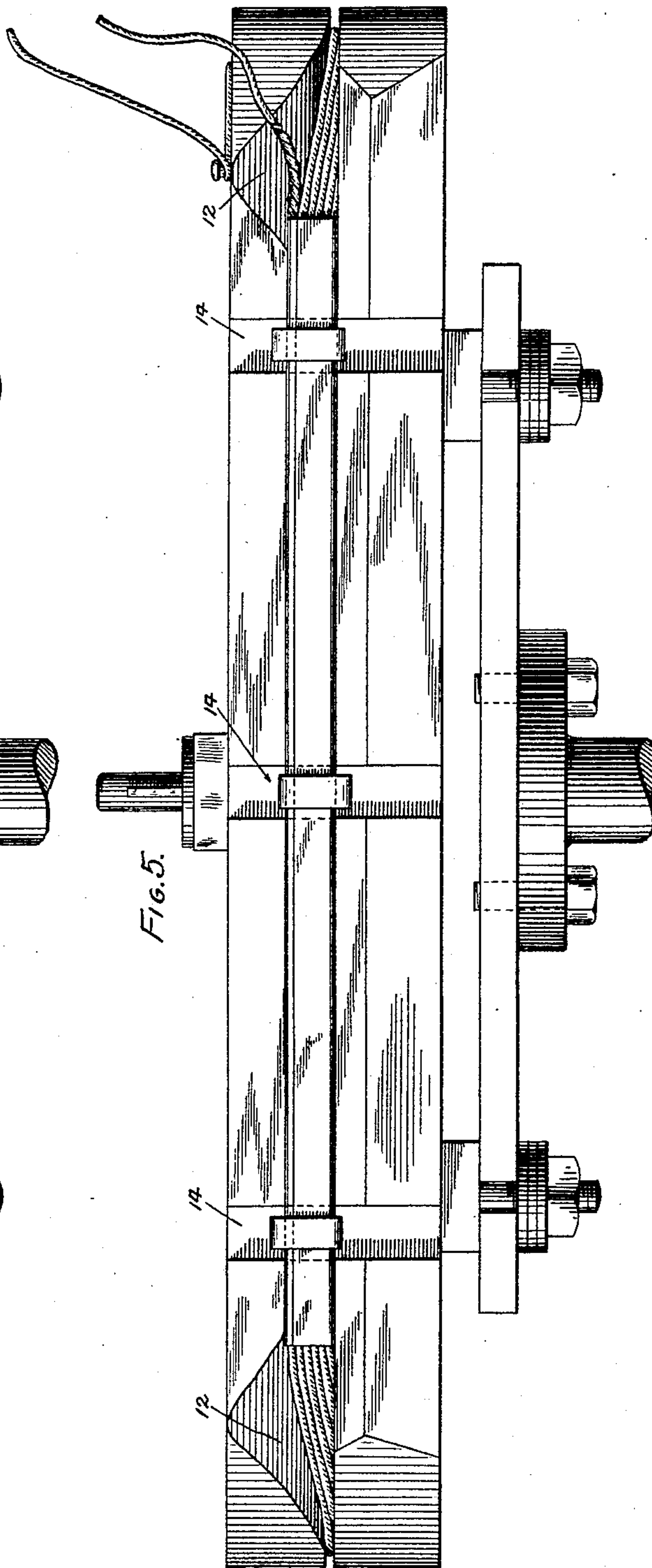


FIG. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

HARRY L. KIRKER AND WILLIAM CHAMBERS, OF PITTSBURG, PENNSYLVANIA, ASSIGNORS TO THE WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, OF SAME PLACE.

FORMER FOR WINDING ARMATURE-COILS.

SPECIFICATION forming part of Letters Patent No. 520,143, dated May 22, 1894.

Application filed November 26, 1892. Serial No. 453,202. (No model.)

To all whom it may concern:

Be it known that we, HARRY L. KIRKER and WILLIAM CHAMBERS, citizens of the United States, residing in Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Formers for Winding Armature-Coils, (Case No. 530,) of which the following is a specification.

10 Our invention relates to devices for the machine winding of coils for various purposes, but particularly for winding armature coils for electric machines.

15 The object of our invention is to provide a device whereby coils of the type shown in patent to Benjamin Lamme, dated December 13, 1892, No. 486,016, may be wound.

20 Our invention is illustrated in the accompanying drawings, wherein Figure 1 shows two finished coils wound upon one former. Fig. 2 is a transverse section of one former, having the coils in place thereon. Fig. 3 is an end view. Figure 4 is a longitudinal section, and Fig. 5 is a side view of the same.

25 On inspecting Fig. 1 it will be seen that the coils to be wound are given a half turn on each end, so that, as finished the plane passing through the two end lengths of wire would not intersect the coil itself. This is a desirable feature in this form of coil as explained in the Lamme patent heretofore al-
30 luded to. This coil forms in itself no part of our invention.

35 Our former is made in two parts A' and A^2 , as shown, adapted to be brought together as illustrated, being preferably held in place by means of the bolt a and key a' , plainly shown in Fig. 4. By means of the frame a^2 and spindle a^3 , the whole former may be turned
40 in a lathe, and the winding operation properly carried on. In the side of the portion A' is cut a wire way c^2 , while on the opposite side of the former, in the side edge of the portion A^2 , is cut a wire way c^3 . These wire
45 ways are preferably placed in planes at an angle to each other, and communicate at the two ends of the former by means of the narrow deep space between the two portions shown at B. The curved surfaces 12 are pro-
50 vided at alternate angles of the two portions

for the support of the wire as it turns from the way c^2 or c^3 into the way B. At intervals the ways c^2 and c^3 are intersected by grooves 14 for the admission of clamps d , which are passed over the coil when finished in order to
55 hold it in place. This is preferably accomplished by the intervention of flat strips, preferably of metal, shown at 16.

At one end of the former any form of fastening c may be employed, near which a
60 groove c' may extend for the purpose of holding the wire in place.

The method of winding with one former is then as follows: The end of the wire is at-
65 tached at c and the wire is carried through c' to one edge of the wire-way c^3 . By turning the former and following this edge, and following the side of the previous convolution as each turn is completed, the ways and
70 grooves are made to guide the wire into its proper position to produce the form of coil desired. When the coil is completed, the strips 16 are applied to the sides, the clamps
75 d are applied, and the former is taken apart by removing the key a' . The coils being held stiff by the strips 16, can be hung up or otherwise disposed of until it is necessary to use them.

In practice it is usual to lay strips of fuller board D, or other insulating material, into
80 the ways c^2 and c^3 . These being bent over the wire and glued down, dry in place under the strips 16, and hold the coils in place when the strips are removed.

The part A^2 is usually bolted to the frame
85 a^2 as shown, but any other mode of fastening would answer the purpose.

It will be seen that our former is made up of two equivalent parts, that is, the two parts which are clamped together have each the
90 same function, each being provided with its own wire-way and each supplementing the other to the same extent in producing a completed wire-way of the requisite form.

What we claim is—

95 1. A former for winding coils, consisting of two similar parts each having wire ways around its edges intersected by one or more grooves; and means for holding said parts together, substantially as described.
100

2. The combination in coil forming means of the two similar parts, having wire ways around their edges intersected by one or more grooves, fasteners adapted to fit said
5 grooves, and means for fastening together said parts, substantially as described.

3. The combination in coil forming means of the two similar parts each having wire ways around its edges intersected by one or
10 more grooves, clamps adapted to enter said grooves, a bolt passing through said two parts, and a key passing through said bolt, substantially as described.

4. The combination in a coil former of two
15 portions adapted to be fastened together, having broad and shallower wire ways at their sides and communicating deep and narrow ways at their ends, substantially as described.

5. The combination in a coil former of two
20 portions adapted to be fastened together, having broad and shallower wire ways at their sides and lying in converging planes, and communicating deep and narrow ways at their ends, substantially as described.

25 6. A coil former having broad and shallow wire ways at its sides and deep and narrow

ways communicating therewith at its ends, substantially as described.

7. A coil former having broad and shallow wire ways at its sides merging by curved sur- 30
faces into deep and narrow ways at its ends, and means, as a spindle shaft, for rotating the same substantially as described.

8. The combination in a coil former of two parts, each having a broad and shallow wire- 35
way in one edge, and a deep and narrow way in one end, substantially as described.

9. The combination in coil forming means of a reel provided with wire ways around its edges, said wire ways being intersected by 40
one or more grooves; one or more stiffening strips fitting the wire ways, and one or more clamps adapted to slide in said grooves, substantially as described.

In testimony whereof we have hereunto 45
subscribed our names this 22d day of November, A. D. 1892.

HARRY L. KIRKER.
WILLIAM CHAMBERS.

Witnesses:

JAMES WM. SMITH,
HAROLD S. MACKAYE.