

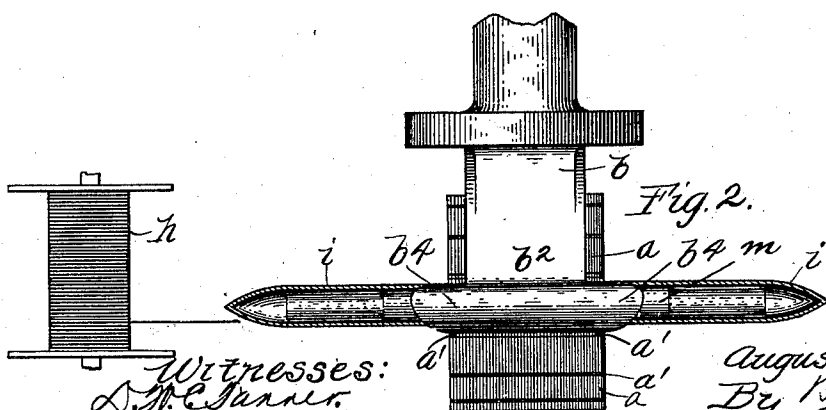
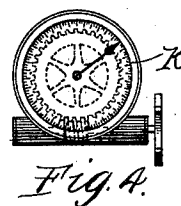
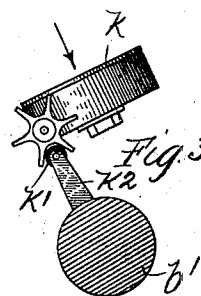
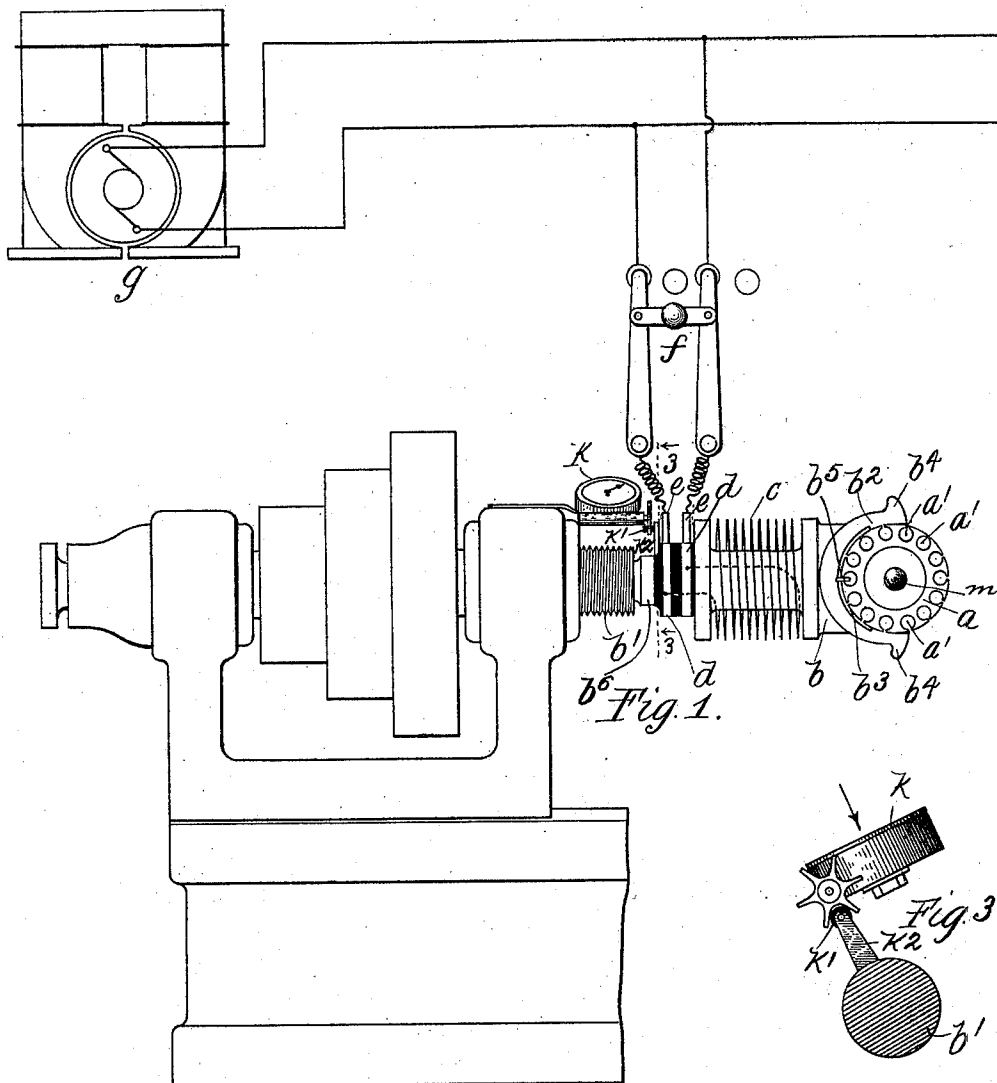
(No Model.)

2 Sheets—Sheet 1.

A. J. OEHRING.
INSTRUMENT WINDING DEVICE.

No. 598,272.

Patented Feb. 1, 1898.



Witnesses:
A. J. Oehring
G. L. Cragg

Inventor:
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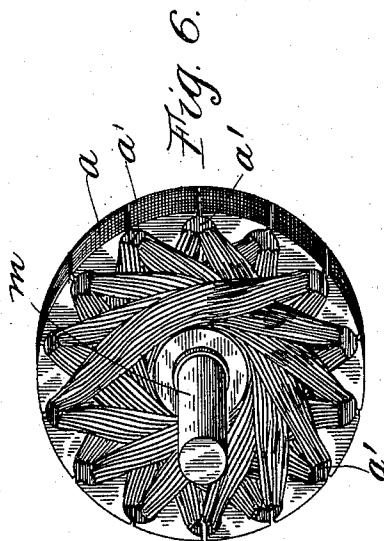
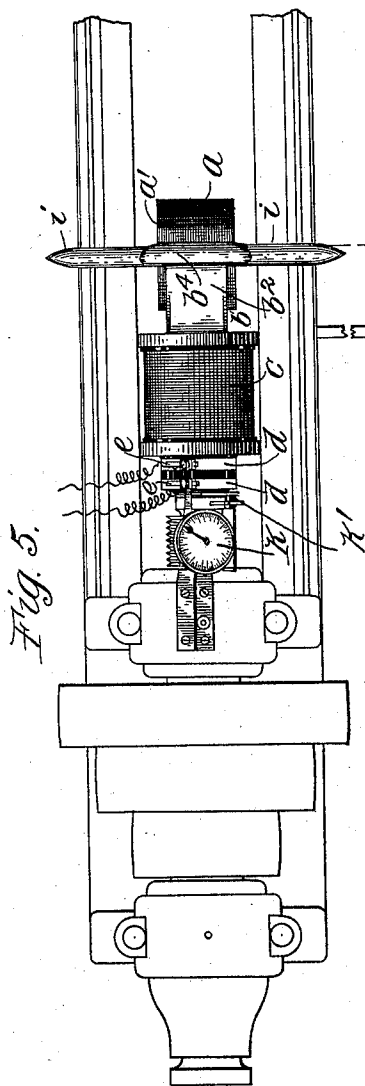
(No Model.)

2 Sheets—Sheet 2.

A. J. OEHRING.
INSTRUMENT WINDING DEVICE.

No. 598,272.

Patented Feb. 1, 1898.



Witnesses:
L. M. C. Tanner,
George L. Cragg

Inventor:
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UNITED STATES PATENT OFFICE.

AUGUST J. OEHRING, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

INSTRUMENT-WINDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 598,272, dated February 1, 1898.

Application filed October 12, 1896. Serial No. 608,605. (No model.)

To all whom it may concern:

Be it known that I, AUGUST J. OEHRING, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Instrument-Winding Devices, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to electrical instruments, and has for its object the provision of improved means for winding electrical conductors about the cores of electromagnets.

In an application of Henry H. Wait, filed December 14, 1896, Serial No. 615,707, is shown and described a device for winding the cores of electrical instruments, consisting in its preferred form of a rotatably-mounted chuck adapted to secure a core in position, provided with guiding-lips to direct the conducting-wire upon the core or within recesses provided in the core. My invention relates particularly to the device shown and described in said application, and will be described in connection with the accompanying drawings, in which—

Figure 1 is an elevation of a head-stock of a lathe with the device of my invention in position, a source of electricity for magnetizing the chuck being diagrammatically shown. Fig. 2 is a plan view of the chuck with the armature-core in position. Fig. 3 is an enlarged view of a portion of the mechanism on line 3 3 of Fig. 1. Fig. 4 is a view of the same portion of mechanism, taken in the direction of the arrow 4, Fig. 3. Fig. 5 is a plan view of the apparatus shown in Fig. 1. Fig. 6 is a perspective view of a drum-armature wound by the apparatus of my invention.

Like letters refer to like parts throughout the different figures.

The core *a* is constructed of laminæ of sheet-iron, each sheet having circular holes near the peripheries thereof, the peripheries being provided with slots communicating with said holes. In assembling the core-plates these slots and holes are alined, longitudinal recesses *a'* being thus provided in the core, in which the armature-coils are disposed.

An iron chuck *b* is secured by a brass ex-

tension *b'* to the live-spindle *b'* of a lathe, the chuck being provided with a curved jaw *b²*, adapted to receive the armature-core. The stem of the chuck is surrounded by magnetizing-coil of wire *c*, the terminals whereof are connected to two insulated collecting-rings *d d*. Brushes *ee* contact with said collecting-rings. A switch *f* is provided, which is adapted to include a source of electricity *g* in circuit with said brushes, rings, and coil to magnetize the chuck-jaw, which is thus enabled to secure the core *a* in position by magnetic attraction. The face of the chuck-jaw opposing the core is preferably recessed at *b³*.

The armature-core is disposed within the chuck with opposite recesses in which a coil of wire is to be disposed placed adjacent to the lips *b⁴ b⁴* of the chuck-jaw. A lug *b⁵*, extending from the chuck-jaw, is adapted to enter another of said recesses to prevent the core from rotating after it is adjusted. While the core is being inserted within the chuck, current through the magnetizing-coil *c* should be broken. The surfaces of the lips *b⁴ b⁴* recede from the contiguous recesses in the core and are rounded, as shown in Figs. 1 and 2.

In winding the armature the live-spindle of the lathe is rotated, the armature-core being thereby revolved in a plane coincident with its shaft *m*. The armature-wire is attached at one end to the core and is unwound from its bobbin *h* as the core is rotated and disposed within the opposite recesses in the core. The wire is held in the hand of the operator in a manner to cause its engagement with the lips of the chuck-jaw which guide the wire into the adjacent recesses *a'*.

The laminæ composing armature-cores are frequently assembled upon the armature-shafts. In adapting my invention to cores thus constructed I provide means for keeping the wire clear of the armature-shaft, consisting, preferably, of guards *i i*, composed, preferably, of rubber, which are placed over the projecting ends of the armature-shaft. These guards are preferably provided with conical ends, as shown in Fig. 2. In winding the armature upon the machine illustrated the wire is held to the right of the axial plane of rotation sufficiently to escape the points of the ends of the guards *i i*, the wire being

thrust to one side by said guards and thereby directed against the lips $b^4 b^4$, which guide the wire into the contiguous recesses $a' a'$. When the first armature-coil has been wound, current through helix c is interrupted by switch f , the armature-core is withdrawn sufficiently to clear lug b^5 , and the core rotated to bring the next succeeding empty recesses into position to receive armature-wire, current through the helix c being again restored to secure the armature-core in its newly-adjusted position.

To insure an equal number of windings in each coil of the armature, I provide an instrument for measuring the number of rotations of the chuck and contents, which may consist in a cyclometer k , which is actuated by a roller k' , mounted upon an arm k^2 , projecting from the stem of the chuck. When the cyclometer indicates the predetermined number of revolutions, the lathe-belt is shifted to stop the rotation of the chuck, the core being thereupon readjusted for the winding of the next coil.

It is clear that the details of this invention may be modified without departing from the principles involved.

I have purposely omitted the enumeration of modifications which may be made without departing from the spirit of my invention, because to set these forth at length would obscure rather than make clear the more essential features.

Having, however, fully set forth one form of mechanism embodying my invention, I claim, and desire to secure by these Letters Patent, the following:

1. The combination of a rotatably-mounted chuck having a curved receiving-jaw adapted to receive a body of curved cross-section having a recess, and a lug b^5 projecting from said jaw adapted to enter said recess, substantially as and for the purpose described.

2. In an instrument-winding device, the combination with a chuck adapted to support a core having a projection or projections, and a guard i adapted to be mounted at one end upon said projection, the opposite end of said guard being tapered, whereby wire may be readily laid about said projection upon said core, substantially as described.

3. In an instrument-winding device, the combination with a chuck adapted to support a core having a shaft, of guards $i i$ each adapted to be mounted at one end upon an end of

said shaft, the opposite ends of said guards being tapered, and guides $b^4 b^4$ carried by the chuck adapted to direct wire upon said guards which in turn direct wire upon the core about the shaft, substantially as described.

4. The combination of a rotatably-mounted chuck adapted to secure a core in position, said core being adapted to receive two or more distinct windings of wire or other material by the rotation of said chuck, and an instrument adapted to number the rotations of said chuck, substantially as and for the purpose described.

5. The combination with a chuck composed of magnetic material in whole or in part, of a helix of wire surrounding a portion of said chuck, a collector-ring forming one terminal of said helix, a brush forming a terminal of a source of electricity adapted to rest in contact with said ring, means for connecting the other terminal of said helix with the remaining terminal of the source of electricity, and means for rotating said chuck about an axis substantially coincident with the center of the collector-ring; substantially as described.

6. The combination with a chuck formed in whole or in part of magnetic material, of a helix of wire surrounding a portion of said chuck, collector-rings forming the terminals of the helix, and brushes forming the terminals of a source of electricity adapted to rest in contact with said collector-rings to include said source of electricity in circuit with the helix, substantially as described.

7. In an armature-winding device, the combination of a chuck adapted to support a magnetic core having a shaft, and a guard i adapted to be mounted at one end upon said shaft, the opposite end of said guard being tapered whereby wire may be readily laid about said shaft upon said core, substantially as described.

8. The combination with a chuck, of an armature-core secured in position thereby, and a shaft projecting from said armature-core, said shaft having a tapered guiding portion at an outer end thereof whereby wire may readily be guided into position upon the core about the shaft, substantially as described.

In witness whereof I hereunto subscribe my name this 17th day of September, A. D. 1896.

AUGUST J. OEHRING.

Witnesses:

GEORGE L. CRAGG,
A. L. LAWRENCE.