P. F. GERDING.

CORE FOR ELECTROMAGNETS.

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1,142,034. Patented June 8, 1915.

Fig. 1.

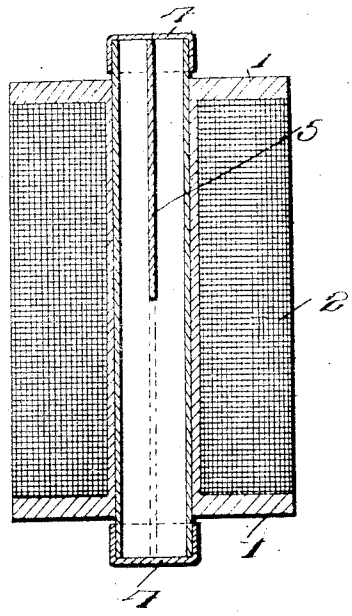
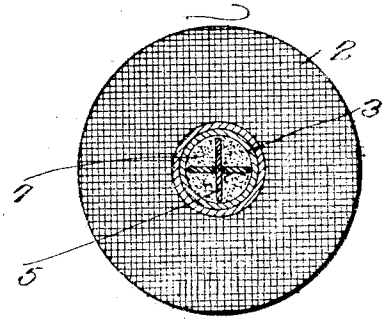




Fig. 3.



Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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CORE FOR ELECTROMAGNETS.

1,142,084. Specification of Letters Patent. Patented June 8, 1915.

Application filed April 9, 1912. Serial No. 689,662.

To all whom it may concern:

Be it known that I, PLUMB F. GERDING, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cores for Electromagnets, of which the following is a specification.

This invention relates to electromagnets, and has as its object to provide an improved core for an electromagnet.

One aim of the invention is to provide a core for an electromagnet which will be less expensive to manufacture than the ordinary solid iron core, or a core of that type consisting of a number of assembled iron wires.

Another aim of the invention is to provide an electromagnet the core of which is so constructed that a magnetic field will be immediately established upon the passage of an electric current through the winding of the magnet, the core furthermore possessing the property of becoming immediately demagnetized upon breaking of the circuit.

For a full understanding of the invention reference is to be had to the following description and accompanying drawing, in which:—

Figure 1 is a vertical longitudinal sectional view through an electromagnet having its core constructed in accordance with the present invention. Fig. 2 is an end-view in elevation of the magnet, the core thereof being shown in transverse section. Fig. 3 is a perspective view showing two members of the core about to be assembled.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawing by the same reference characters.

In the drawing, the heads of the electromagnet are indicated by the numeral 1 and the winding is indicated by the numeral 2.

The core of the magnet includes, in its structure, a tubular body 3 which, while it may be of any material suitable for the purpose, is preferably formed from paper. This body projects at its ends beyond the heads 1 and is closed at its said ends by means of caps 4 which are also of paper, and which after being applied to the said ends of the body are glued, or otherwise secured in place.

Arranged within the tubular body 3 is a pair of metallic strips preferably of soft iron, each of these being indicated by the numeral 5 and each being formed with a slit 6 extending from one end to a point midway between the ends of the strip. In assembling the strips they are arranged in the manner shown in Fig. 1 with the slit of each strip receiving the integral mid portion of the other strip in a line with its slit. These strips 5 when assembled as stated, form a body which is cruciform in cross-section and which extends the entire length of the tubular body 3. The core is completed by a mass of iron filings, or other small bits of iron 7 which fill the space between the wings of the said cruciform member and the wall of the tubular body 3.

It will be seen from the foregoing that the core embodying the invention is practically a solid core, but the fact will be appreciated that it is not as expensive to produce as would be a solid soft iron core, or a core made up of a number of wires or small rods. Due to the provision of the filling of iron filings, or the like, the magnetic field is immediately established when an electric current is passed through the winding 2, and when the circuit is broken, this field is for the same reason immediately destroyed, so that there will be no residual magnetism.

The strips 5 are provided so as to establish clearly defined paths for the magnetic circuit so that the poles will be definitely and properly established when the magnet is energized.

Having thus described the invention what is claimed as new is:—

1. A core for electromagnets, comprising a tubular body, a strip of magnetic material extending lengthwise within the body and bearing by its edges against the inner face thereof, and a filling of magnetic particles surrounding the strip.

2. A core for electromagnets, comprising a tubular body, a cruciform conductor of magnetic material equal in width to the width of the body extending longitudinally within the body, and a filling of particles of magnetic material in which the said conductor is embedded.

3. A core for electromagnets, comprising a tubular body, a magnetic conductor comprising interlocked strips fitted within and extending longitudinally of the body, and a filling of magnetic material in which the conductor is embedded.

4. A core for electromagnets, comprising

a tubular body, a filling of particles of magnetic material inclosed within the body, and magnetic conductor embedded in the filling extending lengthwise of and engaging the body to hold it against collapsing.

5. A core for electro-magnets including a tubular body, a magnetic conductor strip extending diametrically across the body and throughout the length thereof, and a filling of magnetic material between said strip and body.

In testimony whereof I affix my signature in presence of two witnesses.

PLUMB F. GERDING. [L. S.]

Witnesses:
JAMES ROGERS,
LEROY RIFE.