

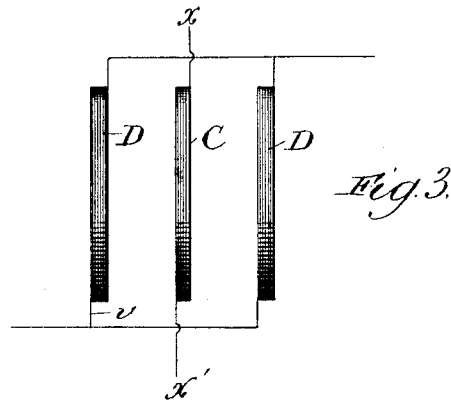
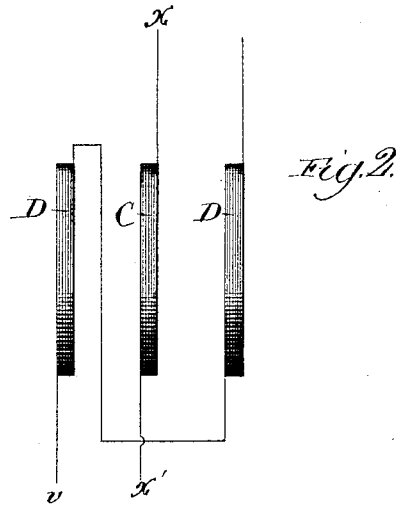
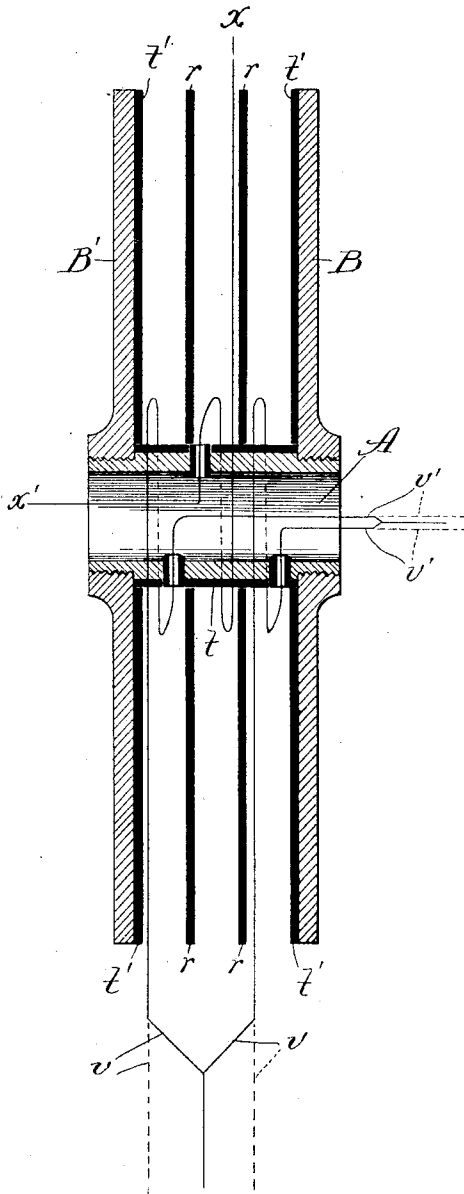
(No Model.)

A. F. W. MEYER.
INDUCTION COIL.

No. 535,917.

Patented Mar. 19, 1895.

Fig. 1.



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UNITED STATES PATENT OFFICE.

ALBERT F. W. MEYER, OF BLUE ISLAND, ILLINOIS.

INDUCTION-COIL.

SPECIFICATION forming part of Letters Patent No. 535,917, dated March 19, 1895.

Application filed November 27, 1894. Serial No. 530,123. (No model.)

To all whom it may concern:

Be it known that I, ALBERT F. W. MEYER, a citizen of the United States, residing at Blue Island, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Induction-Coils, of which the following is a specification.

The object of my invention is to provide an induction-coil of improved construction whereby the advantage shall be attained, among other advantages, of an extensive iron surface for the radiation of the primary current, causing a greater and more powerful induced current to be produced in the secondary coil or coils; and whereby, also, the advantage shall be attained of lower resistance without decreased induction in the secondary coil which, accordingly, presents as high inductive power as an ordinary coil of high resistance.

My invention consists in the general construction of my improved induction-coil; and it also consists in details of construction and combinations of parts, all as hereinafter set forth and claimed.

Referring to the accompanying drawings—Figure 1 shows my improved construction of induction-coil in its simpler or less extended form and as preferred in matters of detail, with the wires of the primary and secondary coils represented diagrammatically. Fig. 2 is a diagram showing the primary coil between two secondary coils connected in series; and Fig. 3 is a view like that presented in Fig. 2, but showing the secondary wires in parallel connection.

A is the axis or spool of the device, which is preferably, but not necessarily, formed of metal and hollow, though it may be solid. On opposite ends of the tubular axis A are secured, either permanently or removably by screwing, as shown, though one may be removably and the other permanently fastened, the heads B and B', of soft iron, forming extended pole-shoes which serve also as means of confinement for the primary and secondary wire-coils hereinafter described. The tubular axis is surrounded by insulating material as shown at *t* and the inner faces of the soft-iron heads are also insulated, as shown at *t'*.

C denotes the primary wire, covered with insulation and coiled about the spool A, one end *x* terminating at the periphery of the coil

and the other, *x'*, being passed out through the spool, if the latter be hollow, as shown, or otherwise if it be solid.

D is the finer, insulated, secondary wire, two coils of which are shown, wound about the axis A to flank the primary coil, from the opposite sides of which they are insulated by plates or disks *r* of insulating material, such as paper, vulcanite, mica, or the like. One end of each coil D terminates at its periphery, as shown at *v* in either figure of the drawings, the other end passing out as shown at *v'* in Fig. 1 through the axis A if hollow, or otherwise if the axis be solid. The ends of the corresponding two (or more) secondary wires may be joined as shown by the full lines in Fig. 1, and indicated by Fig. 3 to afford to them the parallel connection, or they may be connected in series, as represented by Fig. 2. The first-named connection reduces the resistance to the number of ohms represented by the quotient obtained by dividing the resistance of a wire by the number of coils thereof. The connection in series augments the resistance to the number of ohms resulting from multiplying the resistance of one coil by the number of coils.

While the simplest form of my improved induction-coil would involve one each of the primary and secondary coils or one inside the other insulated as described, the best results are afforded by having an excess of one secondary coil over the number of primaries employed, whereby the primary coil is between two secondaries. In this way the induction-coil may be built up with a series of any desired number of alternating primary and secondary coils with interposed insulation, as like a voltaic pile; and the soft-iron heads B and B' at the ends of the series afford means for confining the sections of the induction coil, composed of the primary and secondary wires and their interposed insulation. The comparatively large extent of iron surface of the expanded heads, or pole-shoes, greatly facilitates the radiation of the primary current, thereby increasing the amount and power of the induced current in the secondary coils.

What I claim as new, and desire to secure by Letters Patent, is—

1. An induction-coil having a spool, primary

and secondary wires coiled side by side about the spool and separated by interposed insulation, the number of secondary coils exceeding by one the number of primary coils, and
5 soft iron expanded heads on the opposite ends of the spool, substantially as and for the purpose set forth.

2. An induction-coil having a spool, a primary wire and a secondary wire coiled about
10 the spool and separated by interposed insulation and each having its outer end extending from the periphery of the coil and its inner end extended out adjacent to the spool, and soft iron expanded heads in the opposite ends
15 of the spool affording confining shields for the coils, substantially as and for the purpose set forth.

3. An induction-coil having a tubular spool, a primary wire and a secondary wire coiled
20 about the spool and separated by interposed insulation and each having its outer end extending from the periphery of the coil and the

inner end extended out through the hollow spool, and soft-iron expanded heads on the opposite ends of the spool affording confining
25 shields for the coils, substantially as and for the purpose set forth.

4. A sectional induction-coil comprising a tubular spool A having wound about it a series of coils C and D comprising alternate
30 secondary and primary wires, each primary wire being between two secondary wires and separated therefrom by interposed insulation, the outer ends of the coils extending from their peripheries and the inner ends being ex-
35 tended out through the hollow spool, and soft-iron heads B and B' on the opposite ends of the spool and affording confining means for the series of coils, substantially as and for the purpose set forth.

ALBERT F. W. MEYER.

In presence of—

J. N. HANSON,

M. J. FROST.