

No. 647,589.

Patented Apr. 17, 1900.

R. VARLEY.
INDUCTION COIL.

(Application filed Feb. 21, 1900.)

(No Model.)

Fig. 1.

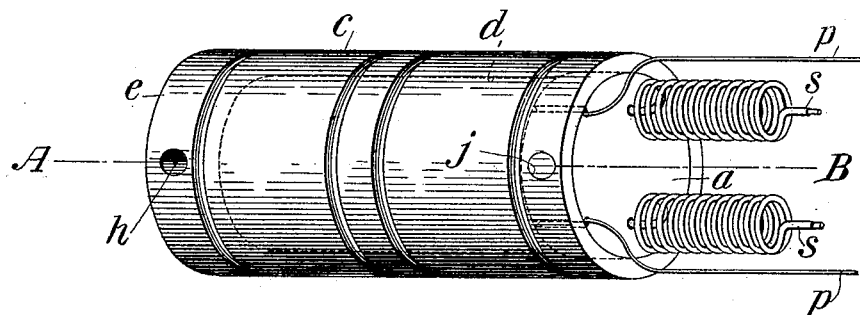
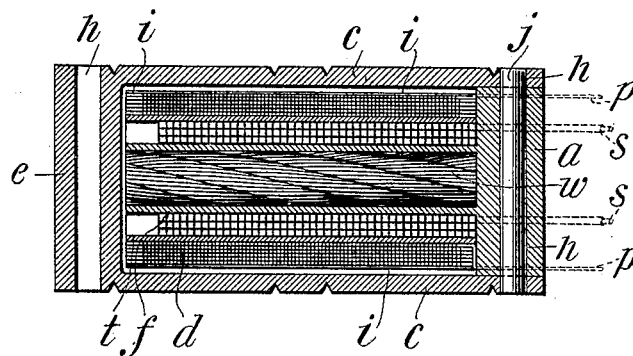


Fig. 2.



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INDUCTION-COIL.

SPECIFICATION forming part of Letters Patent No. 647,589, dated April 17, 1900.

Application filed February 21, 1900. Serial No. 6,016. (No model.)

To all whom it may concern:

Be it known that I, RICHARD VARLEY, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have made certain new and useful Improvements in Induction-Coils, of which the following is a specification.

The object of my invention is to provide a suitable cheap inclosure for induction-coils commonly used with telephone-transmitters and other electrical apparatus which shall provide for easily removing either the primary or the secondary coil or the core.

I provide two cylinders or tubes of insulating material differing in diameter. Each cylinder is permanently closed at one end. The primary and secondary induction-coils are located between these two cylinders. The magnetic core is located within the smaller cylinder, and means are provided for uniting the closed end of one cylinder with the open end of the other cylinder, so as to inclose the parts or elements and permit of easy removal and substitution. For this purpose I employ a flange on the closed end of the smaller cylinder, in diameter about equal to the internal diameter of the larger cylinder or which extends to or beyond the surface of the secondary coil and of a breadth or thickness sufficient to hold the interior cylinder steady. Holes are provided in the said flange and in the ends of the larger cylinder through which pins or screws are passed to hold the two parts against displacement. I prefer to use dry wood to form the described cylinders.

The accompanying drawings illustrate my invention.

Figure 1 is a complete view of the induction-coil. Fig. 2 is a longitudinal cross-section on the line A B, Fig. 1.

The inductorium consists of two coils of insulated wire arranged in inductive proximity. I provide two cylinders of insulating material, preferably dry wood which has been turned in a lathe. The interior cylinder *f* has one end closed by a flanged head *a*, made integral therewith. This head *a* is of considerable breadth, approximating one-eighth the length of the cylinder. The other cylinder *c* has its opposite end closed by means of a head *e*, formed integral therewith. The flanged head *a* must fit the interior open end of the cyl-

inder *c* and preferably is of sufficient breadth to support the cylinder *f* centrally, leaving an air-space surrounding the exterior coil, both sides and end. The coil shown is suitable for telephonic purposes. The primary coil is of coarse wire, as shown, and is wound in layers on the tube or cylinder *f*. Its ends *s* pass through the flanged head *a*. The secondary coil of fine wire *d* is wound upon a tube or core of paper *t*. The wire is arranged in helical convolutions in layers, each pair of layers being separated by a paper tube *i*, and there is such a paper tube upon the exterior. The ends *p* of the coil pass through slots or openings in the head *a*. The secondary coil *d* is freely movable upon the secondary coil, so that it may be removed and replaced when damaged. There is a hole *h* passing through the head *e* in the line of a diameter, and there is a similar hole through the open end of the cylinder *c* and a hole *h* through the flanged head *a*, forming a part of the cylinder *f*. Through these registering holes in the open end of the cylinder *c* and in the head *a* a pin *j* is passed, and if it is desired to fix the coil permanently in position either pins or screws may be passed through the holes *h* and into the base of the instrument upon which the coil is to be fixed. When the cylinder *f* is in position within the cylinder *c*, the flanged head *a*, forming part of *f*, should nicely fit the interior open end of the cylinder *c*, and the breadth or thickness of the head *a* should be sufficient to support the coils centrally or so as to leave a substantially uniform air-space around the coils between the surface of the coils and the inclosing cylinder *c*.

I provide a magnetic core *w* of improved form and arrangement, which is located within the cylinder *f* and which consists of a series of strands of iron wire, each strand composed of a plurality of fine-gage soft-iron wires or filaments. The wires of each strand are helically arranged, and the strands are helically arranged, as shown, to form the core. By the described arrangement I secure a quicker-acting magnetic core than is attainable with any other known disposition of magnetic material. By the employment of two tubes or cylinders of different diameters I secure the easy separation, removal, and replacement of any part, combined with

economy in cost of production, construction, and assembling of the parts.

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

- 5 1. In an inductorium a primary coil wound upon a tubular core, closed at one end and having a flanged head fixed thereto, which extends to or beyond the surface of the secondary coil.
- 10 2. In an inductorium a primary coil wound upon a tubular core of insulating material, said core being closed at one end and having a flange or head extending to or beyond the surface of the secondary coil.
- 15 3. In an inductorium a primary coil wound upon a tubular core of insulating material, said core being closed at one end, and having a flange or head extending to or beyond the surface of the secondary coil, combined
- 20 with a core of magnetic metal located within said tubular core.
4. In an inductorium the combination of a tubular core of insulating material closed at one end by a flanged head, a primary coil on
- 25 said core, a secondary coil on said primary coil and an exterior inclosing cylinder permanently closed at one end and receiving the flanged head of the tubular core at the other end.
- 30 5. In an inductorium the combination of a tubular core of insulating material closed at one end by a flanged head, a primary coil on said core, a secondary coil on said primary coil and an exterior cylinder of insulating
- 35 material permanently closed at one end, inclosing the flanged head of the core-cylinder at the other end, and means for fixing the core-tube and inclosing cylinder together.
6. The combination in an inductorium of
- 40 two coils in inductive proximity; a tube of insulating material closed by a flanged head at one end, and a cylinder of insulating ma-

terial, closed at one end, inclosing both said coils and the flanged head of the core-tube.

7. In an inductorium, two coils of insulated 45 wire arranged in superposed layers and movably located in inductive proximity, a movable core of magnetic metal, a core-tube of insulating material closed at one end by a flanged head, and a cylinder of insulating 50 material, closed at one end, inclosing both coils and the magnetic core; combined with means for uniting the open end of the inclosing cylinder with the flanged end of the core-tube whereby the parts are separably 55 united.

8. The combination in an inductorium of two cylinders or tubes of insulating material, differing in diameter, each cylinder being permanently closed at one end, superposed coils 60 of insulated wire located between said cylinders, a core of magnetic metal within the smaller cylinder, and means for uniting the closed end of one cylinder with the open end of the other cylinder to inclose the coils and 65 core.

9. In an inductorium the combination of two coils of insulated wire arranged in superposed layers and located in inductive proximity with a core of soft iron arranged in a series of helically-disposed strands each strand 70 consisting of a series of wires or filaments.

10. In an inductorium the combination of two coils of insulated wire in close proximity, and an inclosing case therefor consisting of 75 two cylinders of dry wood, of different diameters, having their opposite ends permanently closed, the open end of one being fixed in proximity to the closed end of the other.

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Witnesses:

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