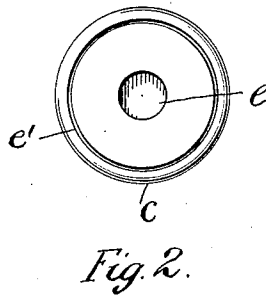
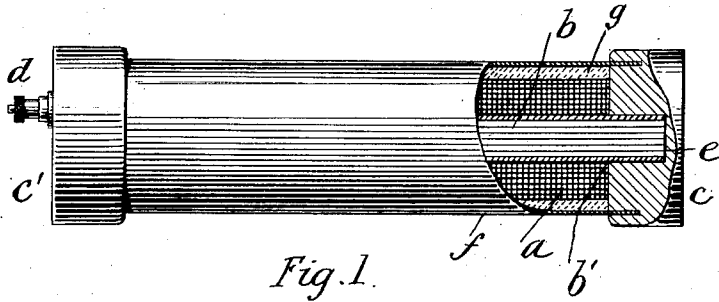


R. VARLEY.
ELECTRIC COIL.

APPLICATION FILED MAY 2, 1903.

NO MODEL.



Witnesses
Frank Ober
Waldo M. Chapin

Inventor
Richard Varley
 By his Attorney
M. Rosenbaum

UNITED STATES PATENT OFFICE.

RICHARD VARLEY, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO VARLEY
 DUPLEX MAGNET COMPANY, A CORPORATION OF NEW JERSEY.

ELECTRIC COIL.

SPECIFICATION forming part of Letters Patent No. 736,319, dated August 11, 1903.

Application filed May 2, 1903. Serial No. 155,417. (No model.)

To all whom it may concern:

Be it known that I, RICHARD VARLEY, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Electric Coils, of which the following is a full, clear, and exact description.

My invention relates to electrical coils, such as are commonly known as "sparking-coils."

The object of the invention is to provide a construction whereby the coil will be waterproof and in which the wooden heads commonly used to protect the ends of the coil will be firmly secured in place and prevented from becoming detached.

A further object is to produce a cheap form of construction.

In the accompanying drawings, Figure 1 is a side elevation with parts broken away to show a section of the coil, and Fig. 2 is a face view of one of the heads.

a indicates the coil-winding, and *b* the usual core, consisting of a bunch of iron wires. The core, as usual, projects a short distance beyond the heads of the coil.

c and *c'* indicate two end pieces or heads of insulating material, commonly of wood, and used to protect the ends of the coils as well as to carry binding-posts, one of which is shown at *d*. These heads as usually applied to the coil have a central orifice *e*, into which the projecting end of the core fits. To give rigidity to the bunched wire-coil, it is common to inclose it in a pasteboard tube *b'*, which extends the full length of the core and adds its strength to the projecting ends. The winding is commonly surrounded by a sleeve of pasteboard *f*, which butts up against the face of the heads when assembled. The head is usually secured in place by inserting the projecting end of the core in the central orifice and gluing all of the abutting surfaces together. It will be seen that lateral pressures or blows directed against the sides of the head will tend to break it loose from the central core. For this reason it has been customary to make the tube surrounding the core thicker than is otherwise required to resist these lateral blows.

In accordance with my improved manner of constructing the coil I form a deep annu-

lar groove *e'* in the face of the head near its edge and extend the outer sleeve *f*, so that it will enter said groove at the same time that the core enters the central orifice. By using glue in the annular groove as well as between all of the abutting-faces I produce a very solid connection for the head, which is capable of resisting the lateral forces above referred to much better than the old construction. By this construction it is also possible to make the diameter of the outer sleeve *f* somewhat greater than the diameter of the coil and provide an annular space *g* for waterproofing wax. The groove *e'* centers the sleeve around the coil, so that after one head and the sleeve have been applied to the coil the wax in liquid state can be poured in and the second head applied. The wax thus applied permeates the pores and cavities in the adjoining parts and effectually bars the entrance of moisture to the windings of the coil.

Another advantage flows from the method of securing the heads devised by me in that it is possible to use a much thinner tube around the bunched-wire core, the thickness required being only such as to resist the tension of the winding, or, in case the core is slipped into place after the coil is wound, the tube can be merely thick enough to hold the bunched wires in place. The advantage gained by a thin tube is that it permits of the same number of turns or convolutions in the winding with less length of wire, each turn being of less diameter than those in the old form.

Having described my invention, I claim—

An electrical coil having a core and a surrounding sleeve of greater diameter than the coil, both of which project beyond the ends of the coil, in combination with heads provided with a central aperture and an annular concentric groove into which the projecting core and sleeve respectively extend, and a body of wax filling the annular space between the sleeve and coil, substantially as described.

In witness whereof I subscribe my signature in presence of two witnesses.

RICHARD VARLEY.

Witnesses:

WM. A. ROSENBAUM,
 WALDO M. CHAPIN.