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J. F. CAVANAGH.

SPARK COIL.

APPLICATION FILED SEPT. 28, 1905.

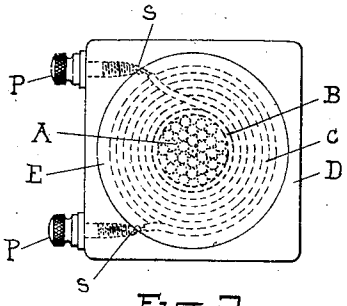


Fig. 2

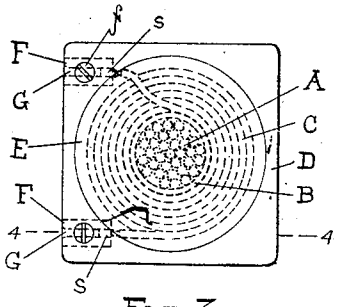


Fig. 3

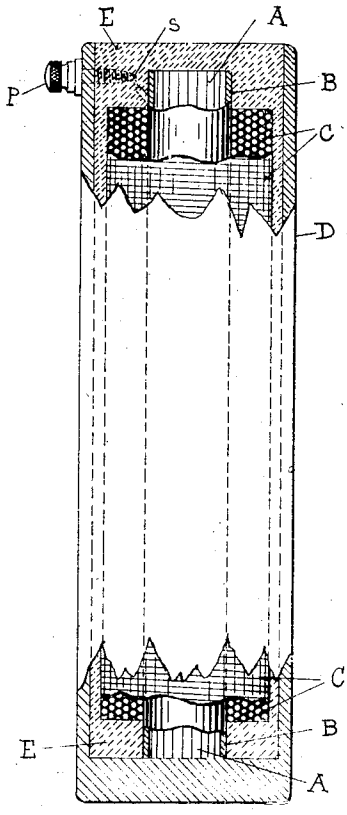


Fig. 1

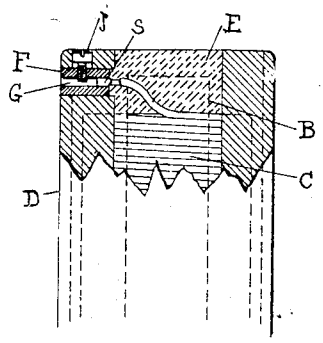


Fig. 4

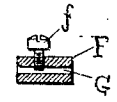


Fig. 5

WITNESSES

William H. McSoley

Richard A. Hunley.

INVENTOR

John F. Cavanagh

by Henry Orrs & Jr.

Attorneys

UNITED STATES PATENT OFFICE.

JOHN F. CAVANAGH, OF PROVIDENCE, RHODE ISLAND.

SPARK-COIL.

No. 844,578. Specification of Letters Patent. Patented Feb. 19, 1907.

Application filed September 28, 1906. Serial No. 230,531.

To all whom it may concern:

Be it known that I, JOHN F. CAVANAGH, a citizen of the United States, residing in the city and county of Providence and State of Rhode Island, have invented a new and useful Spark-Coil, of which the following is a specification.

My invention relates to that class of electrical coils commonly known as "sparking" coils.

The objects of my invention are to provide a spark-coil of few parts and inexpensive construction, which will be waterproof, in which the coil and connections will be protected from injury, and the coil secured and sealed without the employment of the wooden heads commonly used for those purposes.

To these ends my invention consists of the novel construction, combination, and arrangement of parts hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of my spark-coil, partly in section. Fig. 2 is an end view of my coil with ordinary binding-posts. Fig. 3 is an end view of my coil with the coil-wire connections concealed within the coil-protecting case. Fig. 4 is a side elevation of the same with parts broken away to show a section of one of the connections. Fig. 5 is a sectional view of the coil connection.

The core A with its covering B and the coil C wound thereon with the core ends projecting beyond the ends of the coil-winding are all of the ordinary construction.

D represents a block of wood somewhat longer than the core and preferably of rectangular cross-section, provided with a central longitudinal bore not extended entirely through the block and of somewhat greater diameter than the coil C and longer than the core A. The block D thus forms a case or tube open at one end and integrally closed at the other end.

The core A with its surrounding coil C is inserted in the bore of the block D until one end of the core rests upon the bottom or floor of the bore with the corresponding end of the coil some distance above said floor and the other end of the core projecting likewise beyond the adjacent end of the coil and ending at a point within said bore some distance from the open end of said bore. The core and coil are so located in the bore as to form an annular space around the coil and the projecting ends of the core with some unoccupied space between the end of the core and the open end of the bore. I fill this annular space and the unoccupied space between the core end and the open end of the bore with an insulating-wax E, poured therein in a molten state and allowed to cool and harden, thereby forming a waterproof envelop around the coil and heads filling the bore around the projecting ends of the core at each end of the coil-winding and a seal for the open end of the bore. The heads serve to hold the core and coil securely in place and the envelop gives the required rigidity to the coil-wires, while the whole is sealed within the bore and protected by the case D against injury.

P P represent ordinary binding-posts extending through one side of the block D, near one end thereof, into the coil-containing bore, wherein the terminal ends of the coil-wire are secured to them by solder *s*.

F F represent tubular connections set flush in one side of the block D near one end thereof and extending therethrough into the coil-containing bore and secured in place by the set-screws *f f*, tapped into said connections perpendicularly to their bore G with their heads set flush with the end of the block D. The terminal ends of the coil-wire are inserted in the bore G and therein secured by solder *s*. The circuit-wires (not shown) are inserted in the opposite end of said bore and secured therein by the set-screws *f f*. It will be noted that in this form of construction the connections are concealed within the block D, and thereby protected from injury.

I claim as my invention and desire to secure by Letters Patent—

A spark-coil consisting of a core and a coil of wire wound thereon, said core ends projecting beyond the ends of the coil-winding, in combination with a case provided with a bore longer than said core and of greater diameter than said coil, and having one integrally-closed end and one open end, and adapted to form both an annular space around said core and coil inserted therein, and a space between one end of said core and the open end of said bore, wire connections extending outward from said bore through one side of said case near one end thereof, the terminal ends of the coil secured to said connections within said bore, and a body of in-

sulating-wax filling the portion of said bore unoccupied by the core and coil to thereby constitute an annular waterproof envelop for said coil, waterproof insulating-heads surrounding the core ends and adapted to hold the core-winding in place, and a waterproof insulating-seal for said case.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

JOHN F. CAVANAGH.

Witnesses:
ELMER WALKER,
ISAAC N. LINCOLN.