

(No Model.)

W. F. SMITH.

COUPLING FOR ELECTRICAL CONDUCTORS.

No. 353,984.

Patented Dec. 7, 1886.

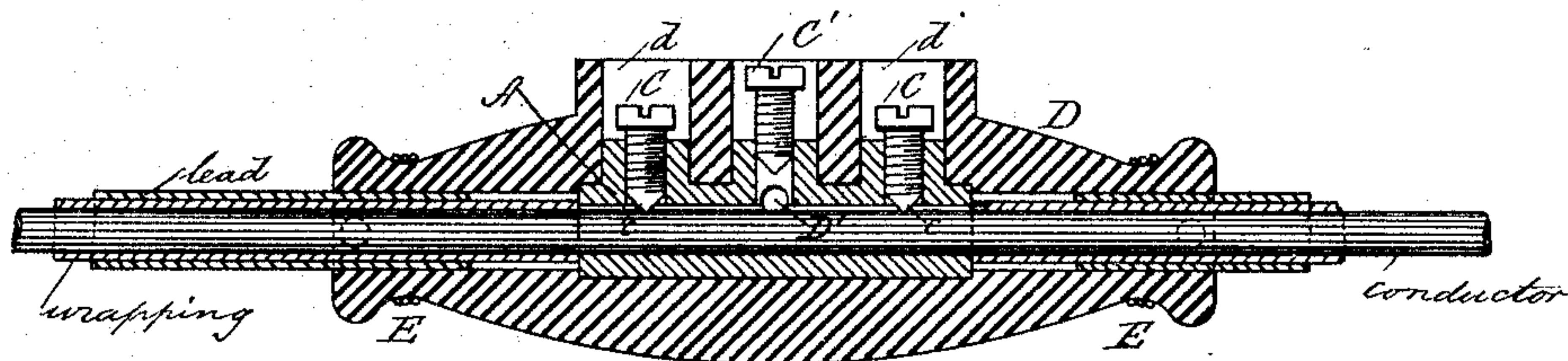


Fig. 1.

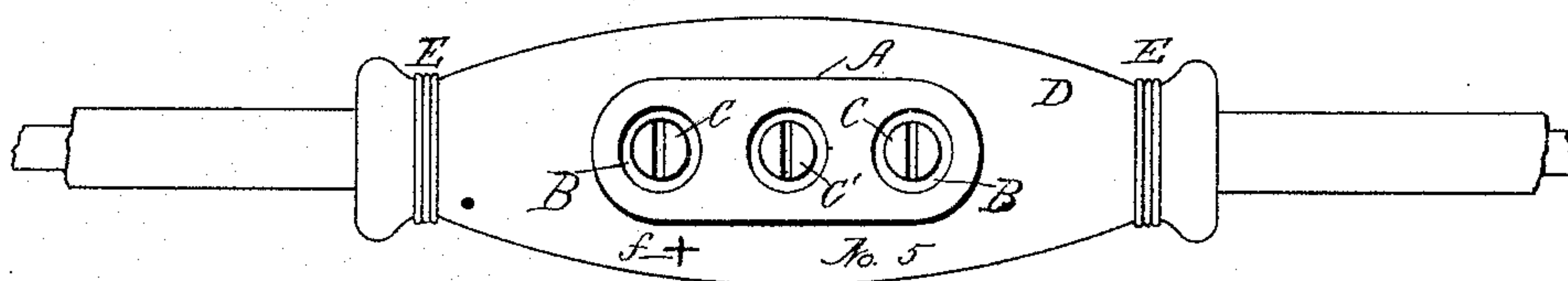


Fig. 2.

WITNESSES

Will de Powell.

J. B. McEwen.

INVENTOR

Walter F. Smith,
By Connolly Bros.,
Attorneys.

UNITED STATES PATENT OFFICE.

WALTER F. SMITH, OF PHILADELPHIA, PENNSYLVANIA.

COUPLING FOR ELECTRICAL CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 353,984, dated December 7, 1886.

Application filed September 14, 1886. Serial No. 213,504. (No model.)

To all whom it may concern:

Be it known that I, WALTER F. SMITH, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Couplings for Electrical Conductors; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this invention, in which—

Figure 1 is a vertical longitudinal section, and Fig. 2 a plan, of coupling in position on a conductor, the filling over the binding-screws being omitted, so as to show said screws.

My invention has for its object to provide an insulated coupling for electrical conductors, said coupling being of a construction which will form a better hold for the ends of conductors than any device heretofore provided for the purpose, and in which the coupling ends of the conductors and the coupling itself will be very securely protected against the intrusion of moisture.

My invention consists in the peculiar construction and combination of parts herein-after fully described, having reference particularly to the following feature: to the construction of a metallic coupling with binding-screws, and an insulating covering therefor having openings for the passage of the binding-screws, said openings being in the form of sockets or recesses designed and adapted to be closed after the insertion of the binding-screws by a filling of paraffine or equivalent insulator or rubber plugs.

Referring to the accompanying drawings, A designates the metallic coupling, which is in the form of a cylinder or tube having a central longitudinal or axial bore or opening, and having lateral bosses B B, threaded for the reception of binding-screws C C. Said binding-screws are of the usual construction, except that they have sharp points *c c*, designed and adapted to penetrate the metal of the conductors against which they are pressed.

D represents an insulating covering, preferably of india-rubber molded round the metallic coupling A, and having openings at either end thereof aligned with the axial opening of the coupling. Said covering has also lateral openings or sockets *d d*, through which

the binding-screws C C are inserted, the openings being of sufficient depth to receive a filling of paraffine or other insulating material or rubber plugs. The insulating covering encircles the coupling, as shown, and also extends for some distance beyond either end of the latter, and has at either end grooves E E for the reception of binding material, such as thread or wire.

In operation the conductors are inserted through either end of the covering and coupling sufficiently far to be met by the binding-screws when the latter are turned in. Said screws, being turned in, hold the metallic conductors very firmly in place. After the connection has been made the sockets or chambers above the heads or screws are filled with the insulating material or plugs already suggested.

Where a lead-covered cable is the conductor, the method of fastening the same in the coupling is as follows: The lead and the textile covering between the latter and the conductors are first stripped off, so as to expose the conductor. Then the lead is stripped off a further distance, leaving the fibrous wrapping exposed a short distance. The ends of the conductors are now inserted in the coupling and its covering, the copper or iron core of the conductor entering the metallic coupling, the fibrous conductor and a short portion of the lead being inside the ends of the insulating covering of the coupling. A piece of cord or wire is now wrapped or tied around the ends of the coupling, which, being flexible material, allows the latter to hug the lead covering very closely and prevents intrusion of moisture at the ends. When it is required to disconnect the ends of the cable or conductors at the coupling, this may be very readily done by removing the rubber plugs or paraffine filling in the lateral sockets, turning out the screws, and then withdrawing the ends of the cable or conductors.

Two binding-screws are all that are required for the purposes of the coupling proper; but in case it may be desired to provide a short circuit to cut out a lamp or for any other purpose, a third binding-screw, C', centrally located, or between the other two screws, may be provided, forming the connection with a lateral short-circuit wire, D', as shown.

The advantages of the described construction are that it affords absolute protection for the coupling against moisture and extraneous influences of an injurious character. It also makes a tighter joint by reason of the pointed screws than any device for the purpose heretofore provided not having pointed screws. It also affords ready means for uncoupling the ends of the conductors when the same is required. The coupling is particularly adapted for electric-light wires or conductors running under ground and in conduits, where the effects of moisture are greater and more constant than with overhead wires. The covering of the coupling being elastic and flexible, it may be drawn through pipes or conduits without injury and without dread of impairing the efficiency of the joint or its conductivity.

Each coupling should be marked on its exterior surface with a symbol, as $+$ or $-$, denoting the direction or character of current, as positive or negative; also, with a numeral corresponding with the terminal number of circuit on the station switch-board. In the accompanying drawings, f represents the symbol for a positive wire, the symbol $-$ being substituted on a negative wire, and 5 represents the numeral indicating the circuit. Therefore all the couplings on any one positive wire will have the positive symbol and the same circuit-designating number. The negative or return wire couplings of the same wire or conductor will all have the negative symbol and the same numeral; hence upon opening a man-hole any wire or circuit can be readily selected, both as regards the direction of current and number of circuit, and all circuit-wires readily distinguished from each other.

The positive and negative symbols respect-

ively are formed on the couplings in molding the latter; but the circuit-designating numerals are placed on the couplings at the time of laying the conductors or establishing circuits.

A designating letter may be substituted for the numeral.

What I claim as my invention is—

1. The metallic coupling or body A, having the lateral bosses B B and binding-screws c c , fitted therein, and an insulating-covering, D, having lateral openings for the passage or insertion of the binding-screws, substantially as shown and described.

2. The combination, with the metallic coupling A, having lateral openings for binding-screws, of the insulating-covering D, having lateral openings for the passage or insertion of said screws, said openings forming sockets or chambers for the reception of an insulated filling or rubber plugs, substantially as shown and described.

3. The combination, with a metallic coupling, of an insulating-covering therefor having openings at either end aligned with the axial opening of the coupling, said covering projecting beyond the ends of the metal, substantially as shown and described.

4. In combination with a metallic coupling-piece, A, an insulating-covering therefor having ends which project beyond the metal, said ends having annular grooves for the reception of fastening cords or wires, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of September, 1886.

WALTER F. SMITH.

Witnesses:

M. D. CONNOLLY,
R. DALE SPARHAWK.