S. D. SPRONG & W. E. McCOY.

MEANS FOR PREVENTING CURRENT LEAKAGE IN ELECTRIC CABLES.

APPLICATION FILED DEC. 12, 1916.

1,227,211. Patented May 22, 1917.

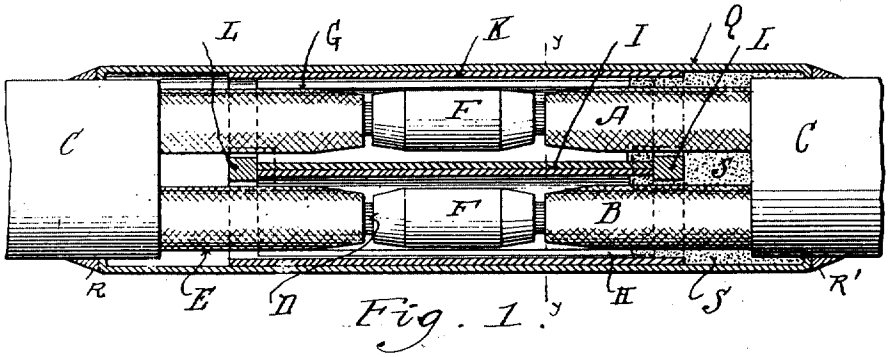


Fig. 1.

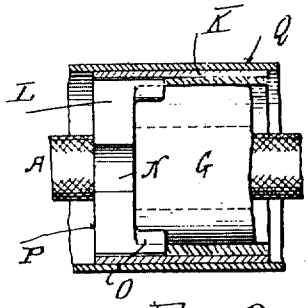


Fig. 3.

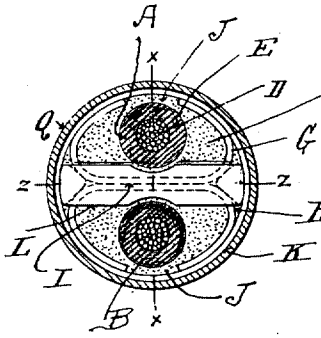


Fig. 2.

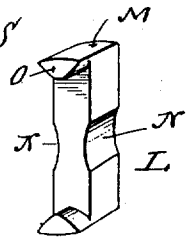


Fig. 4.

INVENTORS
Severn D. Sprong
Walter E. McCoy
BY
Paul Bergamin
their ATTORNEY

UNITED STATES PATENT OFFICE.

SEVERN D. SPRONG AND WALTER E. McCOY, OF NEW YORK, N. Y.

MEANS FOR PREVENTING CURRENT LEAKAGE IN ELECTRIC CABLES.

1,227,211. Specification of Letters Patent. Patented May 22, 1917.

Application filed December 12, 1916. Serial No. 136,402.

To all whom it may concern:

Be it known that we, SEVERN D. SPRONG and WALTER E. McCOY, citizens of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Means for Preventing Current Leakage in Electric Cables, of which the following is a specification.

The invention relates to the prevention of current leakage in electric cables, and is an embodiment of the principle set forth in U. S. Letters Patent No. 1,165,140, and U. S. Letters Patent No. 1,165,141, granted to us December 21, 1915. The invention consists in the construction of the cable covering more particularly hereinafter set forth.

In the accompanying drawings—

Figure 1 is a longitudinal section of a cable joint embodying our invention, on the line x, x of Fig. 2, the line conductors being in side elevation. Fig. 2 is a section on the line y, y of Fig. 1. Fig. 3 is a longitudinal section of an end portion of the joint on the line z, z of Fig. 2. Fig. 4 shows one of the blocks L in perspective.

Similar letters of reference indicate like parts.

A and B are line conductors inclosed in the usual lead sheath C, C. Each line conductor comprises an internal metallic conductor D and an outer insulating covering E. In applying our invention, we proceed as follows: The lead sheaths C, C are cut back to expose the ends of the line conductors A, B, the insulating coverings E of which are also removed for a certain distance. The metallic conductors are connected by any suitable couplings, as shown at F. We then place upon each cable similar tubes G, H, each formed of a plate of fiber or other insulating material, with a flat side I and a longitudinal gap J opposite said flat side. The two tubes G, H are disposed with their flat sides I in contact, and upon them is placed a cylindrical tube K of fiber or other insulating material. The length of the inner tubes G, H is less than that of the inclosing tube K, so that the tube K overlaps said tubes G, H preferably for an equal distance at each end. Into the ends of tube K we insert two similar blocks L of solid insulating material, such as porcelain. The outer end faces M of each block are curved to fit the tube K. On opposite sides of the block are concave recesses N which receive the conductors A, B. On the ends of one face of the block are projections O, triangular in cross section. When the block is in place, the projections O enter between the inner tubes G, H, and abut against the ends of said tubes. The outer side P of each block is preferably flat and registers with the end of the tube K, as shown in Fig. 3. Because the blocks L receive the conductors A, B in their side recesses N, they aid in keeping said conductors in proper position. The projections O serve as abutments to prevent any longitudinal displacement of the tubes G, H within the tube K, and also retain said tubes in proper relative position.

Before the parts are assembled, we place upon one end of the sheath C a sleeve Q of similar metal, which is slid back on said sheath until said parts are assembled, as above described. Said sleeve is then moved forward to cover the said parts and to overlap the ends of the lead sheath C, C. It is then united to one end of said sheath, preferably by a wiped joint, as shown at R. Through the open end of the sleeve we introduce a filling of insulating material, indicated at S, which permeates the interstices within sleeve Q. The open end of the sleeve is then closed by a similar wiped joint R′. In Fig. 1, this filling is shown at one end of the tube K. It is omitted elsewhere in Fig. 1, and also in Fig. 3, for the sake of clearness in showing the parts.

With this construction, any leakage current starting from one metallic conductor, as A, must pass through the filling S to the gap J in tube G, and thence through the joints between said tubes G, H and tube K to the gap in tube H, and then through the filling in that tube before it can reach the metallic conductor B, which is practically impossible. We thus secure effective insulation of both conductors A, B, and eliminate current leakage from one to the other. The dielectric strength of the material of tubes G, H is to be greater than that of the filling S.

We claim:

1. An electric cable, comprising an inclosing tube of insulating material, two jointed line conductors therein, a filling of insulating material in said inclosing tube, and inner tubes of insulating material of greater dielectric strength than said filling embedded in said filling and respectively inclosing said conductors, each of said inner tubes having a flat side, and the said flat sides being

in contact, and each of said tubes having a longitudinal gap in its wall opposite its flat side.

2. An electric cable, comprising an inclosing tube of insulating material, two jointed line conductors therein, a filling of insulating material in said inclosing tube, inner tubes of insulating material of greater dielectric strength than said filling embedded in said filling and respectively inclosing said conductors, each of said inner tubes having a flat side, and the said flat sides being in contact, and each of said tubes having a longitudinal gap in its wall opposite its flat side, the said inner tubes being of less length than said inclosing tube, and blocks of insulating material disposed in the ends of said inclosing tube and abutting against the ends of said inner tubes.

3. An electric cable, comprising an inclosing tube of insulating material, two jointed line conductors therein, a filling of insulating material in said inclosing tube, inner tubes of insulating material of greater dielectric strength than said filling embedded in said filling and respectively inclosing said conductors, each of said inner tubes having a flat side, and the said flat sides being in contact, and each of said tubes having a longitudinal gap in its wall opposite its flat side, the said inner tubes being of less length than said inclosing tube, and blocks of insulating material disposed in the ends of said inclosing tube and abutting against the ends of said inner tubes, the said blocks having at their ends lateral projections entering the spaces between said inner tubes and said inclosing tube.

In testimony whereof we have affixed our signatures in presence of two witnesses.

SEVERN D. SPRONG.
WALTER E. McCOY.

Witnesses:
GERTRUDE T. PORTER,
MAY T. MCGARRY.