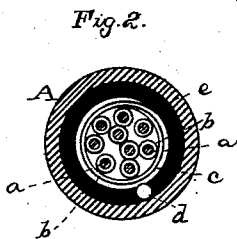
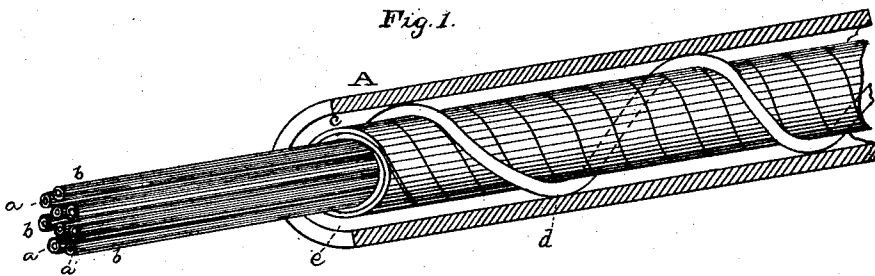


(No Model.)

J. KRUESI.
ELECTRICAL CONDUCTOR.

No. 366,174.

Patented July 5, 1887.



ATTEST:
E. C. Rowlands
H. W. Seely

INVENTOR:
John Kruesi
By *Rich. S. Dyer,*
Att'y.

UNITED STATES PATENT OFFICE.

JOHN KRUESI, OF BROOKLYN, ASSIGNOR TO THE EDISON MACHINE WORKS, OF SCHENECTADY, NEW YORK.

ELECTRICAL CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 366,174, dated July 5, 1887.

Application filed January 4, 1883. Serial No. 80,950. (No model.)

To all whom it may concern:

Be it known that I, JOHN KRUESI, of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Electrical Conductors, of which the following is a specification.

My invention relates to conductors inclosed in metal tubes for distributing current to electric lamps, my object being to so construct and surround such conductors that, while they are of sufficient area to convey the necessary quantity of current, they may have sufficient flexibility to allow them to be readily bent, so that they may be placed in locations where the ordinary conductors consisting of solid rods inclosed in heavy iron tubes could not be employed, while at the same time they shall be well insulated and well protected from moisture and all injurious external influences, and the conductors shall be supported centrally in the tubes.

In accomplishing this object I form the conducting portion of the structure of a number of wires, preferably of copper, and massed together. These wires are placed within an inclosing metal tube, preferably of lead, and are separated from said tube by insulation. A part or the whole of the separating insulation should consist of an insulating compound poured into the tube around the wires while in a soft or semi-liquid condition and allowed to harden. Preferably each wire of the bundle is covered with insulation, in order to increase the flexibility of the whole by interposing a more flexible material between the metal portions of the bundle; but, if desired, the metal wires may be placed together bare. The bundle of wires must be supported in the center of the tube, and I desire that the supports shall be of such character as not to impede the flow of the liquid insulating compound. Such supports consist, therefore, of a heavy cord or rope of suitable insulating material wound spirally about the bundle of wires, and also being in contact with the interior of the inclosing-tube, so as to hold the wires centrally within the tube. For this purpose, marline, tarred cord, insulating-tape twisted into the form of cord, or paper cord

or string are suitable. It is evident that the compound when poured in will follow the line of the spiral, and so will be enabled to penetrate to all parts of the inclosing-tube, while every part of the conductor will be held away from the tube. The bundle of insulated or uninsulated wires may be wrapped with an insulation of tape or similar material, or simply tied together in a suitable manner. The two bundles of wires which form a complete metallic circuit are preferably each inclosed in a separate tube; but they may be placed together, a part of the wires of a bundle being separated from the rest, and each part forming half the circuit.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a perspective view of a conductor with portions of the inclosing parts removed to afford a better view, and Fig. 2 is a transverse section of the same.

A represents the inclosing-tube, preferably of lead. Wires *a a* form the conductor, each being shown as coated with insulation *b*, though, as stated, this may be dispensed with where the whole is designed to form a single conductor. The bundle is wrapped thickly with insulating-tape *c*, and the whole is placed in the metal tube *A*, being supported centrally therein by the cord *d* wound spirally around the bundle, as shown. The space *e*, between the conductor and tube, is filled with a liquid insulating compound, which is poured into the tube, surrounding the whole bundle, and flows along the spiral line, so as not to be impeded in its course. Conductors of this kind are well adapted for use in the lighting of mines, where the conductors have to be bent and placed in various unusual positions, and are also exposed to shocks and strain in various ways, as well as to moisture and other injurious influences.

What I claim is—

1. The combination, with an inclosing-metal tube, of a conductor or conductors situated centrally within said tube, a single insulating-cord wound spirally upon said conductor or conductors and forming a support for holding said conductors in their central position, and

an insulating material of the character described filling the tube, substantially as set forth.

2. The combination, with a flexible metal
5 tube, of a number of separately - insulated
wires in a central position in said tube, a single insulating-cord wound spirally upon said
massed wires and forming a support for holding
the same centrally in the tube, and an in-

insulating material of the character described filling the tube, substantially as set forth. 10

This specification signed and witnessed this
11th day of December, 1882.

JOHN KRUESI.

Witnesses:

JOHN A. DEGRAUW,
H. W. SEELY.