(No Model.)

J. F. CUMMINGS.

CONDUIT FOR ELECTRICAL CONDUCTORS.

No. 562,806. Patented June 30, 1896.

Fig. 2.

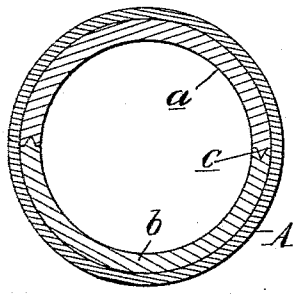


Fig. 1.

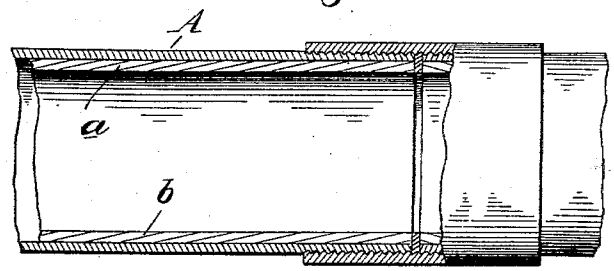
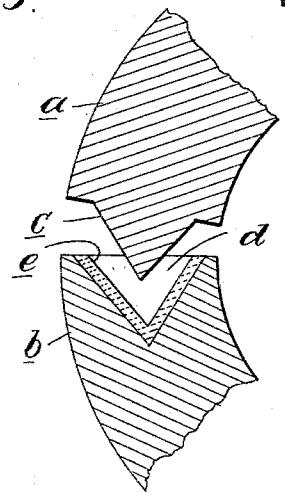


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

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CONDUIT FOR ELECTRICAL CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 562,806, dated June 30, 1896.

Application filed March 4, 1895. Serial No. 540,478. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. CUMMINGS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Conduits for Electrical Conductors, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the construction of a conduit for electrical conductors, especially adapted for interior use.

The invention particularly consists in the construction of a duct or tube, comprising an outer metallic pipe and an inner lining of wood or similar material, made in sections arranged in tubular form, and forced into the outer pipe, which acts as a sleeve or binder to hold the lining in shape, all as more fully hereinafter described.

In the drawings, Figure 1 is a longitudinal section through a conduit embodying my invention. Fig. 2 is a cross-section thereof, and Fig. 3 is a similar section showing a slightly-modified form.

In the present state of the art it is old to manufacture what is known to the trade as "armored conduits," and these are usually constructed by inserting into a metallic tube or pipe an inner pipe of vulcanized fiber, or similar material. This construction makes an excellent conduit, but requires in its manufacture the construction of two sets of tubes for every size, one of which must fit exactly into the other, and being of hard material the fit must be very nice, or else the inner tube is apt to be displaced.

My invention contemplates a construction which overcomes the objections to the known constructions, and enables me to produce a superior conduit at a very much less cost.

A represents a metallic pipe, preferably the usual iron gas or water pipe of wrought-iron, lap or butt welded, and which preferably is finished with a smooth interior face. The inner tube or lining, I preferably form as shown in the drawings, consisting of two semi-cylindrical sections *a b* of wood which can be cut out in an ordinary wood-shaping machine or rabbeting-machine. These sections are preferably alike, each having at one edge a tapering tongue *c* and on the other edge a corresponding tapering groove *d*, to effect a mortise-and-tenon connection between the meeting of the two sections, when they are arranged together to form a tube.

After I have formed the sections of my inner tube or lining, I saturate them with oil, or subject them to any well-known creosoting process, and force them into the metallic tube under pressure, so as to make a tight joint between the lining and the casing or armor.

The wooden sections having considerable elasticity will make a tight fit, when forced into the iron tube, and will hold the meeting edges of the wooden sections tightly together.

If desired, I may apply cement to the inside of the armor, or to the outside of the lining, before forcing the lining into the armor; and I may also apply cement to the joint between the sections, to prevent the possibility of shrinking opening a seam.

Instead of the cement, I may apply a small strip of elastic material between the edges of the sections, as shown at *e*, which will be compressed when the lining is forced in, and will expand to take up any possible shrinkage.

I am aware that prior to my invention metallic pipes have been lined with an insulating material of various kinds. Heretofore, such lining has ordinarily been of tubes formed of vulcanized fiber. Wooden tubes in short sections have also been proposed and such a lining has been made in sections or strips in a manner similar to the way the staves of a barrel are arranged, and I do not therefore intend to include within the terms of my invention such previous constructions. The stave construction referred to requires great skill or expensive special machinery for manufacturing and assembling. In long lengths of pipe, such as are ordinarily used, the warping of the material will dislodge the staves and destroy the non-conductor effect of the conduit. In my construction the expense of manufacture is reduced to a minimum; both the cost of producing the trough-shaped sections and the cost of assembling such sections in the tube. All possibility of the dislodgment of the parts or disarrangement is obviated by the mortise-and-tenon joint at the edges of these sections.

What I claim as my invention is—

1. A conduit for electrical conductors consisting of an outer metal casing, and an inner insulating-lining comprising two like sections of fibrous material, suitably treated to render the same impervious to moisture, and each formed with interlocking meeting edges, substantially as described.

2. A conduit for electrical conductors, consisting of an outer metallic tube, an inner lining fitted onto the inner walls of the tube and comprising like sections having interlocking meeting edges, and an elastic compound between the interlocking edges, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES F. CUMMINGS.

Witnesses:
M. B. O'DOGHERTY,
L. J. WHITTEMORE.