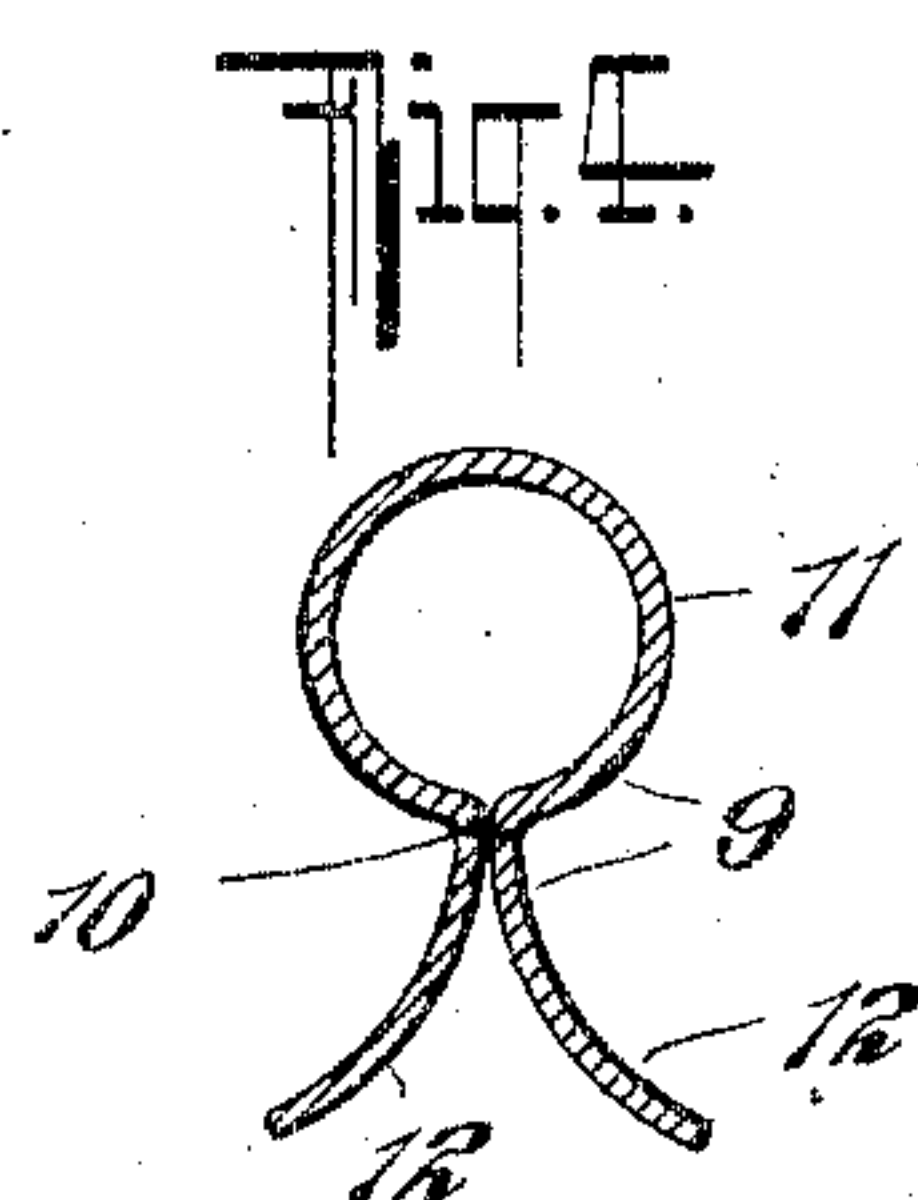
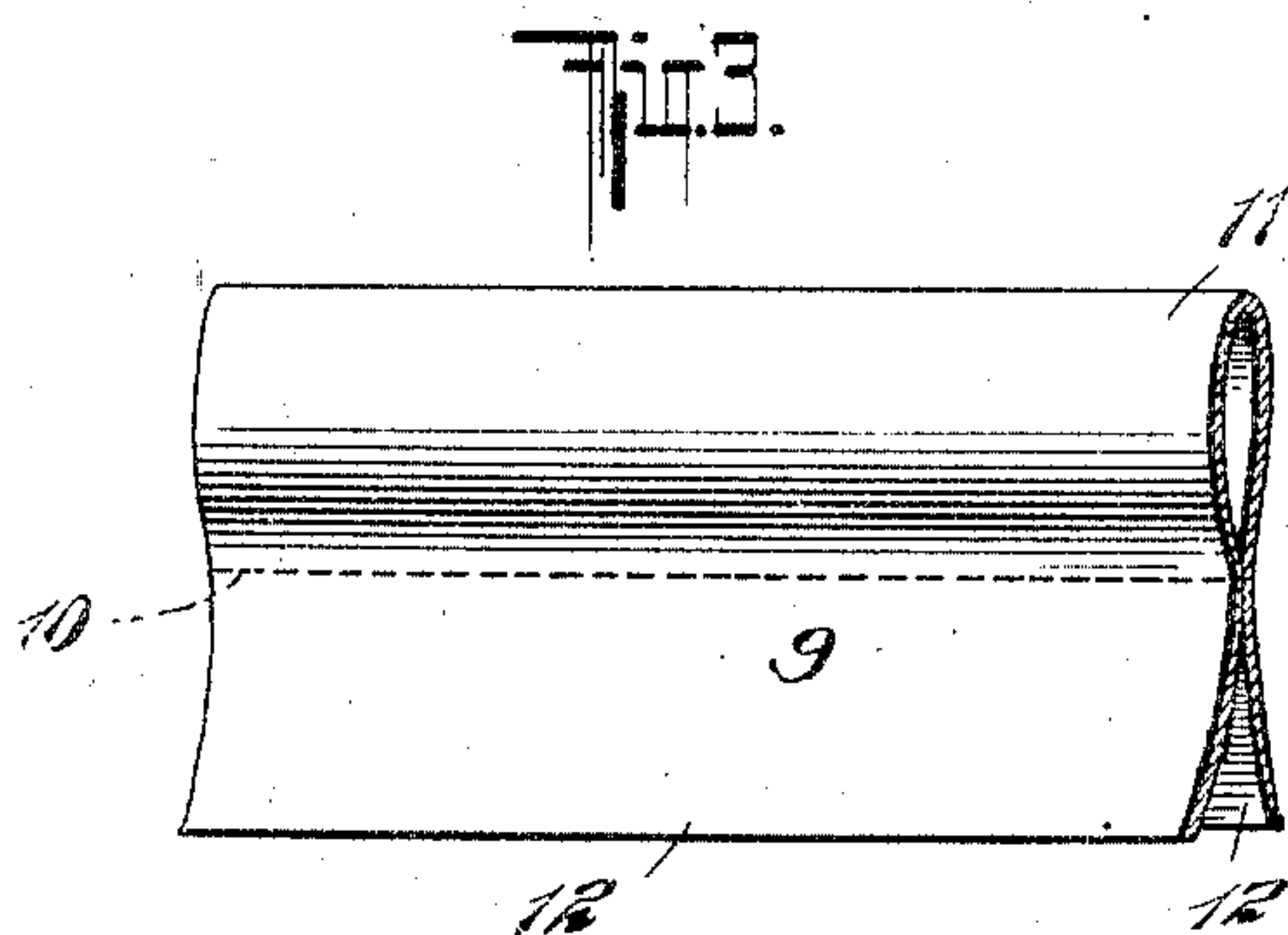
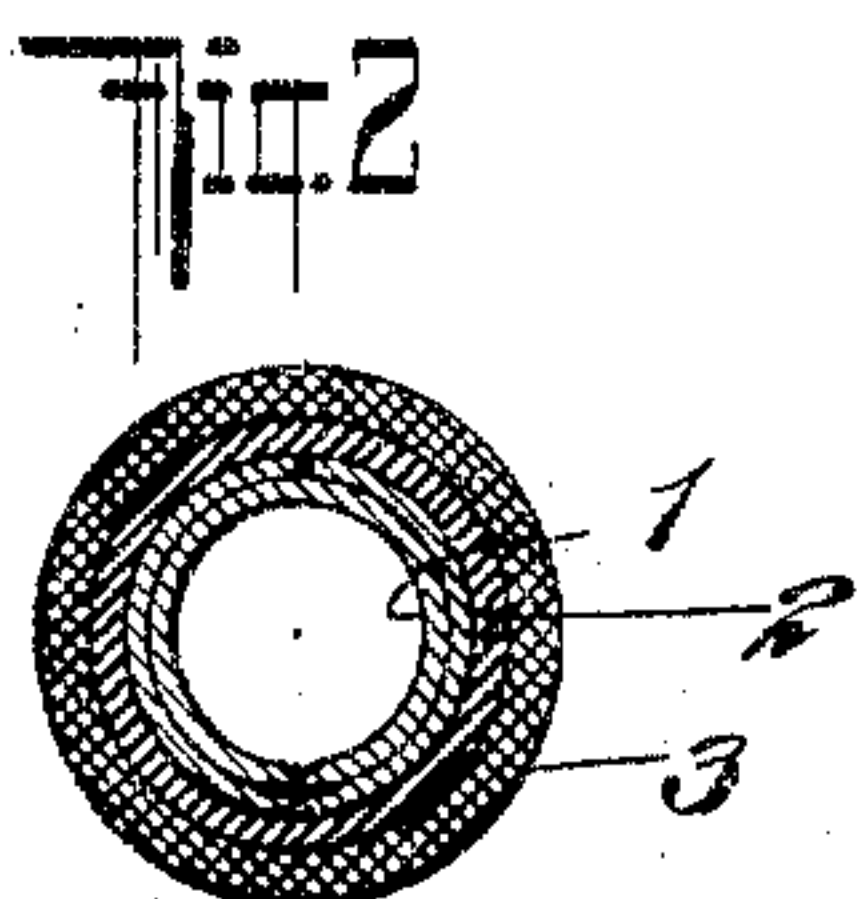
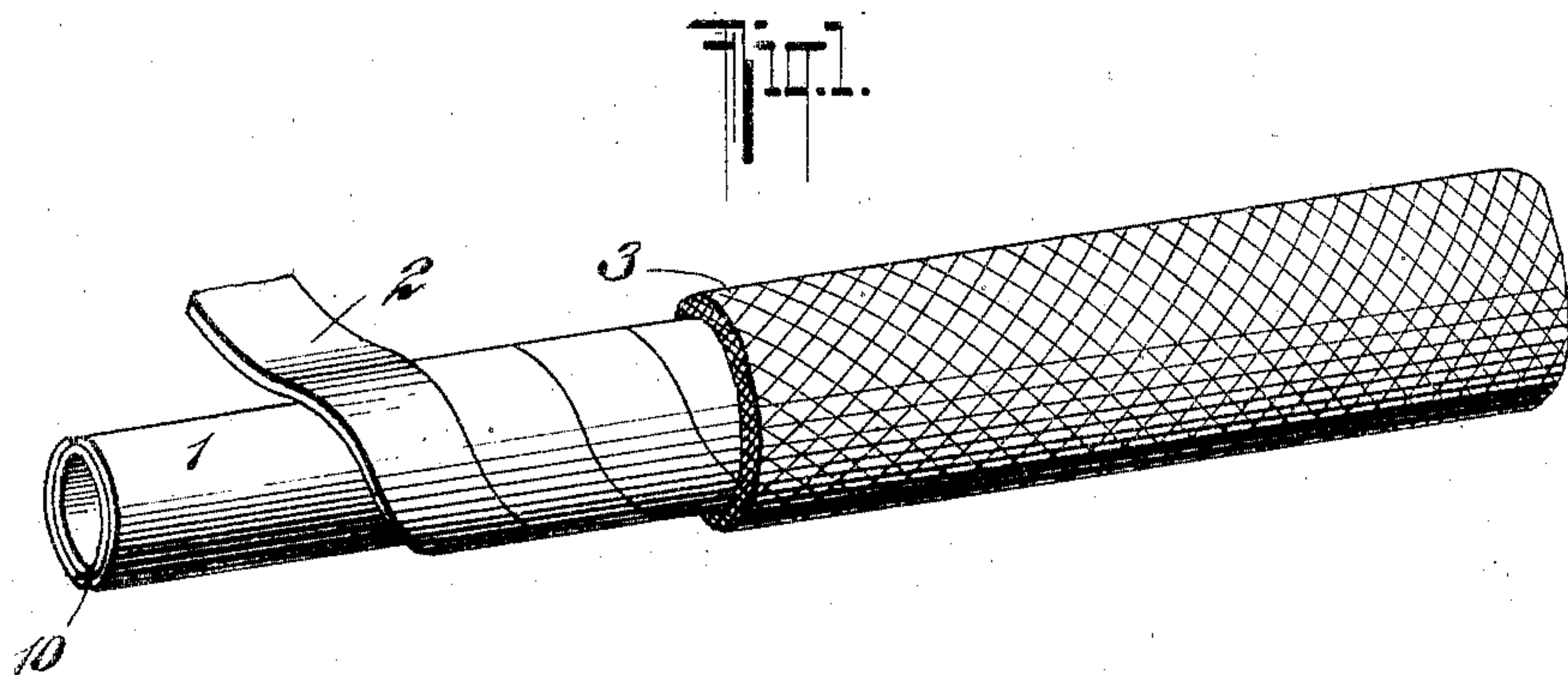


H. N. SPEER.  
CONDUIT FOR ELECTRIC WIRES.  
APPLICATION FILED JULY 12, 1907.

928,285.

Patented July 20, 1909.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

HORACE N. SPEER, OF NEW YORK, N. Y.

## CONDUIT FOR ELECTRIC WIRES.

No. 928,285.

Specification of Letters Patent.

Patented July 20, 1909.

Application filed July 12, 1907. Serial No. 383,448.

*To all whom it may concern:*

Be it known that I, HORACE N. SPEER, a citizen of the United States of America, and a resident of the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Conduits for Electric Wires, of which the following is a specification.

This invention relates to conduits for electric wires, and particularly to those made in the form of flexible ducts.

The object of the invention is to furnish a conduit of this type in which strength and flexibility are combined, and which is absolutely moisture-proof, durable, and readily and cheaply manufactured, and one from which the interior tube cannot be removed.

With these ends in view, the invention consists in a conduit which embodies the novel features and arrangements of parts to be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a section of conduit made in accordance with the invention, with parts broken away to show the different layers or coverings, Fig. 2 is a transverse section, Fig. 3 is a perspective view of an uncompleted inner tube, and Fig. 4 is a transverse section of Fig. 3.

The improved flexible conduit consists essentially of three layers or plies: an inner tube 1, a winding 2 for said tube, and a fabric covering 3. The inner tube 1 can be made of some suitable flexible material, such as a textile fabric, paper or similar material, but I preferably construct it of oil-cloth, having a glazed inner surface. I have found by experiment that the use of oil-cloth gives superior results, and the glazing of its inner surface is of advantage because the electric wire can then be very readily threaded through the tube without catching or being obstructed therein. This glaze is given to the oil-cloth in the course of its manufacture.

I also prefer to form the inner tube 1 in the manner shown. Said tube is made in two plies by folding a blank 9 longitudinally and then sewing together the halves or sections thus formed along their longitudinal center-lines, as shown at 10 in Figs. 3 and 4. When this has been done the portion adjacent the fold is formed by a mandrel or otherwise into a tube 11, as shown best in Fig. 4. The free portions of the sections or halves of the blank form flaps 12 which extend from the tube 11. The outer surface of the tube 11, or

the outer surfaces of the flaps 12, or both, are then coated with a suitable adhesive, such as india-rubber cement, and the flaps folded back and cemented to the tube as shown in Figs. 1 and 2, whereby the two-ply tube 1 is formed. The edges of the blank meet in the outer ply opposite the stitching 10, as shown.

After the inner tube has been formed in the manner indicated, it is coated thoroughly on the exterior with a moisture-repellent such as tar. While this tar is still moist, the winding 2 is applied to the tube so as to adhere firmly thereto. Said winding consists of a tape or strip of some suitable hard, tough paper, preferably impregnated with a substance which renders it water-proof; and this strip is wound spirally and tightly about the inner tube, as shown in Fig. 1, so that the winding thus formed has a perfectly smooth outer surface without breaks or undulations. After the paper strip has been applied to the inner tube, the tube thus formed is covered with the fabric 3, constituting the outer covering. Said fabric is in practice braided about the tube by a suitable braiding machine. After this operation has been completed the fabric covering, like the inner tube, is coated thoroughly with tar or other moisture-repellant.

The conduit thus made is extremely strong and durable, owing to the nature of its layers, and is effectively rendered water-proof. It may be readily and cheaply manufactured, this being done by suitable machinery.

Having thus described my invention, I claim:

1. In a conduit for electric wires, an inner tube formed by folding a blank longitudinally and stitching the sections thus formed along their longitudinal center-lines to form a tube adjacent the fold, the flaps thus formed being folded back on and cemented to such tube.

2. In a conduit for electric wires, a two-ply inner tube made of one piece of material folded into two sections each of which is secured intermediately to the other and folded on itself.

3. In a conduit for electric wires, a two-ply inner tube made of one piece of material folded longitudinally into two sections, each of which is secured to the other and folded back on itself, so that the edges of the blank are in the outer ply.

4. In a conduit for electric wires, a two-

ply inner tube made of a blank folded longitudinally into two sections each of which is secured to the other intermediately by longitudinally-extending stitching and folded  
5 back on and cemented to itself, the edges of the blank being in the outer ply and meeting opposite said stitching.

Signed at New York city, this 11th day of July, 1907.

HORACE N. SPEER.

Witnesses:

RICHARD CONDON,  
C. B. SCHROEDER.