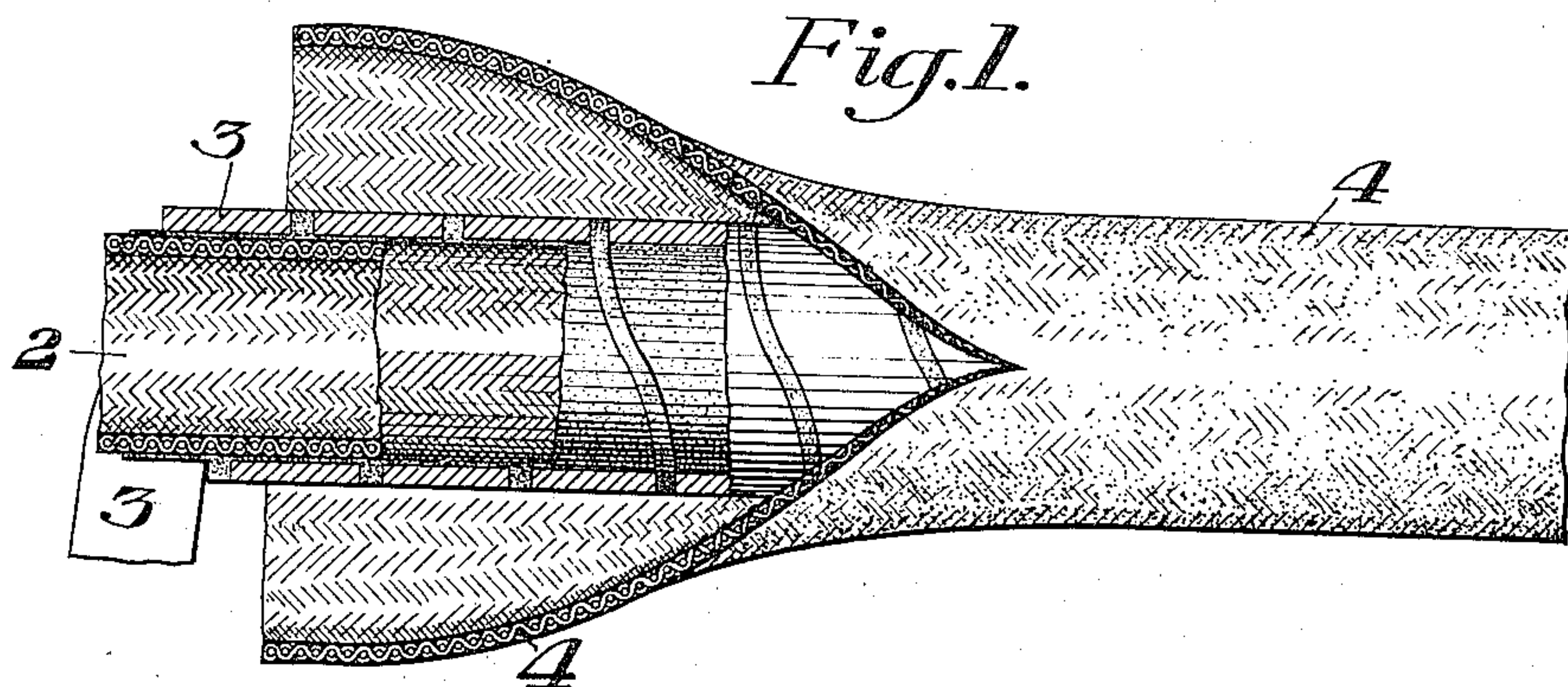


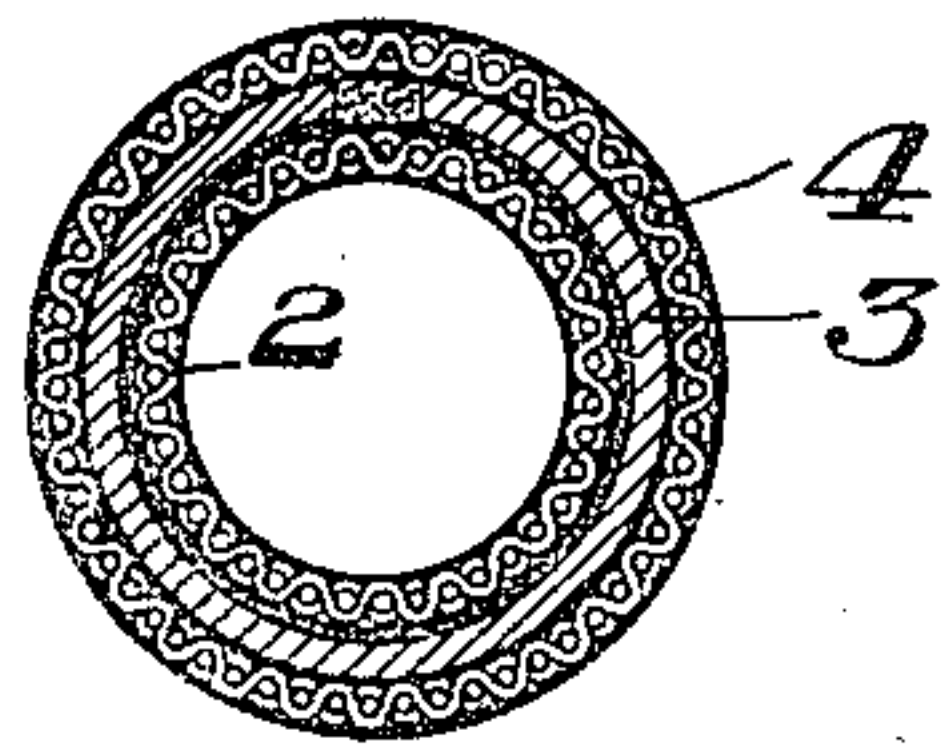
C. A. FLACK.  
 FLEXIBLE CONDUIT FOR ELECTRIC CONDUCTORS.  
 APPLICATION FILED DEC. 31, 1908.

983,815.

Patented Feb. 7, 1911.



*Fig. 2.*



WITNESSES

*RA Balderson*  
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INVENTOR

*Charles A. Flack,*  
 by *Baker, Byrnes & Parnell,*  
 his Attys



# UNITED STATES PATENT OFFICE.

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## FLEXIBLE CONDUIT FOR ELECTRIC CONDUCTORS.

983,815.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed December 31, 1908. Serial No. 470,218.

*To all whom it may concern:*

Be it known that I, CHARLES A. FLACK, of Parnassus, Westmoreland county, Pennsylvania, have invented a new and useful Flexible Conduit for Electric Conductors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of a piece of conduit constructed in accordance with my invention with portions of the outer layers or coverings removed; and Fig. 2 is a cross section of the same.

My invention has relation to nonmetallic flexible conduits for electric conductors, and is designed to provide a durable and serviceable conduit of this character which has sufficient body and stiffness to resist crushing strains, but which is nevertheless sufficiently flexible to permit it to be bent to any desired angle or curve.

A further object of the invention is to provide a conduit of this character which shall be substantially fire proof and water proof.

In accordance with my invention I construct the conduit as follows: I first take an inner tube 2, preferably of canvas and coated with any suitable adhesive compound or cement. This inner tube 2 is then wound or wrapped spirally with a relatively narrow tape or ribbon of paper 3 which is caused to firmly adhere to the inner canvas tube 2 by means of the adhesive coating or cement. The winding of paper is preferably a single winding although a number of thicknesses may be simultaneously wound and the spiral convolutions are preferably slightly separated from each other so as to give the conduit greater flexibility and permit it to be bent to curves of shorter radii. This spiral wrapping of paper gives great stiffness and body to the conduit, and is also of fire resisting character. It also forms a smooth, compact intermediate layer which is well adapted to receive the outer covering layer or layers of the conduit. The relatively narrow spaces separating adjacent windings or convolutions of the paper are filled by the adhesive or cement applied to the inner canvas tube 2 and which is forced out into such spaces as the paper is wound upon said tube.

Over the paper I place an outer covering of braided cotton fabric, or other similar material, indicated by 4 in the drawings. This outer covering is then saturated with any well known substance or compound of a noninflammable nature, which also acts as a cement to make the outer covering adhere to the paper wrapping. Compounds of this character are well known in the art and need not be specifically described herein. While the outer cover is thoroughly saturated with this substance or compound, it does not pass through the intermediate layer of paper, this being unnecessary by reason of the fire resisting qualities of the paper itself.

After the outer covering has been saturated in the manner described, the conduit is given a finishing coating which will cover up the outer braided covering and fill the surface inequalities of the same, so as to give a smooth and finished appearance to the conduit. This substance is also preferably of noninflammable or fireproof character and is also preferably of a water proof character. Compounds of this nature are well known in the art. The conduit is then preferably dusted or coated with some suitable powdered material which will act to prevent sticking and adhesion of the conduit upon itself as it is coiled or wrapped into the finished coils or bundles.

The advantages of my invention will be readily appreciated by those skilled in the art, since it provides a conduit of the character described which can be readily manufactured at a comparatively low cost; which has sufficient body or rigidity to prevent crushing, but which can be readily bent into curves of small radii; and which is of substantially fireproof and waterproof character.

I do not wish to limit myself to the exact construction and method of construction herein shown and described, since it will be obvious that various changes may be made in the details thereof without departing from the spirit and scope of the invention as defined in the appended claim.

What I claim is:

A flexible non-metallic conduit having an inner textile tube, a covering therefor composed of a paper strip or ribbon wound spirally around the inner tube with the edges of adjacent convolutions spaced from each



other, and another textile covering over the paper, together with a binder of adhesive material applied to the inner tube and binding the paper strip thereto, said material also  
5 extending through the spaces of the paper strip and binding the outer covering thereto; substantially as described.

In testimony whereof, I have hereunto set my hand.

CHARLES A. FLACK.

Witnesses:

H. M. CORWIN,  
GEO. H. PARMELEE.