

Feb. 12, 1929.

1,701,808

A. O. HOEFTMANN

HIGH TENSION CABLE

Filed April 9, 1927

Fig. 1.

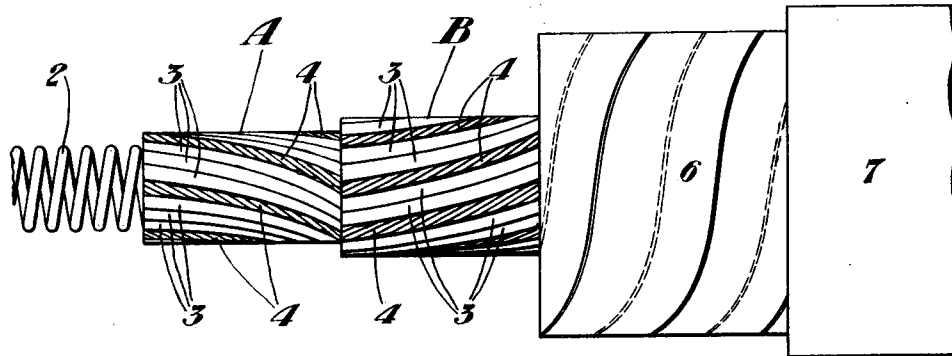
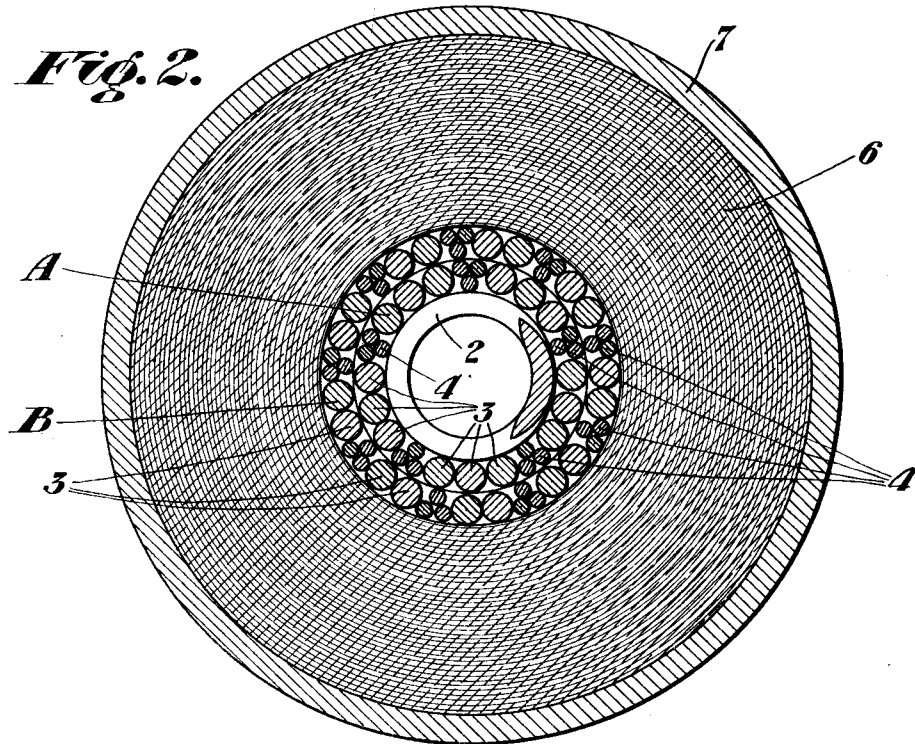


Fig. 2.



Witnesses:

Edwin Tuel

Inventor:

ALEXANDER O. HOEFTMANN,

By:

D. Anthony Usina

his Attorney.

UNITED STATES PATENT OFFICE.

ALEXANDER O. HOEFTMANN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE AMERICAN STEEL AND WIRE COMPANY OF NEW JERSEY, A CORPORATION OF NEW JERSEY.

HIGH-TENSION CABLE.

Application filed April 9, 1927. Serial No. 182,419.

This invention relates to cables and more particularly to high tension cables having a relatively heavy body of impregnated insulating material surrounding the conductor, and has for its object the provision of a novel cable construction in which the impregnating insulating compound may be readily forced through the conductor to impregnate the body of the insulating material.

Heretofore hollow core stranded cables have been made for high tension use. These cables have consisted of a hollow core composed of a spiral or other open and flexible core, over which are laid the required number of solid wires necessary to make up the conductor of given capacity. The conductor thus formed is then insulated by wrapping a heavy body of insulating paper on it and then impregnating the paper with an insulating compound. The insulating compound is forced from the external part of the paper insulation through the cable into the hollow core, or vice versa, from the core through the cable and insulating paper.

When the conductor is perfectly laid up and more especially, when there are several layers of wires around the core, each layer being laid up in the opposite direction, it is difficult and in some cases practically impossible to force the insulating compound through the conductor and therefore, imperfect insulation results.

The present invention overcomes the above difficulties and provides a cable in which the conductor is so formed that the insulating compound may be readily forced there-through.

In the drawings—

Figure 1 is a plan view of a short length of cable constructed in accordance with this invention and broken away to show each of the elements in plan.

Figure 2 is a transverse section through the cable shown in Figure 1.

Referring more particularly to the drawings, the numeral 2 designates the hollow core of the cable shown as comprising a relatively heavy wire formed up spirally. An inner layer A of wire elements is laid up spirally around the core 2 and an outer layer B of wire elements is laid up spirally in the opposite direction around the layer A to complete the conductor of the cable.

Each of the layers A and B of wire elements are composed of a plurality of relatively heavy single or solid wire elements 3 and a plurality of multiple wire elements 4. The elements 4 are composed of three relatively light gage wires laid up or twisted together spirally. The elements 3 and 4 are of substantially the same diameter and of equal capacity.

I have shown every third wire element of each of the layers A and B consisting of the multiple wire elements 4. It will be understood, however, that this arrangement may be varied and either a greater or fewer number of the elements 4 may be used, also that if desired, the elements 4 may be omitted entirely from either of the layers A or B.

A heavy body of paper insulation 6 is formed around the cable conductor and is composed of a plurality of layers of paper strips wrapped spirally, with the spirals of one layer overlapping the joints of the next layer.

A lead sheath or covering 7 is provided over the paper insulation 6 after the insulation 6 has been impregnated.

The interstices of the stranded wire elements 4 serve to form openings throughout the conductor portion of the cable to permit the ready passage of the insulating compound into or from the paper insulation and, therefore, greatly facilitate the operation of impregnating the paper 6.

It is sometimes necessary to first saturate the paper insulation 6 with a light oily compound and then to use a still heavier compound for insulating next to the outer surface of the conductor portion of the cable, and in such cases it is essential to have the conductor porous or provided with openings to permit such compound to pass there-through.

A cable having its conductor portion formed as described above may have its insulation 6 impregnated more thoroughly and in materially less time than cables constructed without the stranded wire elements 4.

While I have shown and described one specific embodiment of my invention it will be understood that I do not wish to be limited thereto since various modifications may be made without departing from the scope

of my invention as defined in the appended claims. As for instance, it will be understood that a single wire of rectangular, triangular or other polygonal cross-section and twisted to form spiral grooves in its surface may be substituted for the multiple wire elements 4.

I claim—

1. A stranded high tension cable comprising a core, a plurality of wire elements laid up spirally around said core, the major portion of said wire elements consisting of relatively heavy gage single wires and the other of said elements being composed of a plurality of relatively light gage wires stranded together.

2. A stranded high tension cable comprising a hollow core, a plurality of wire elements laid up spirally around said core, the major portion of said wire elements consisting of relatively heavy gage single wires and the other of said elements comprising strands composed of a plurality of relatively light gage wires laid up spirally, and a relatively heavy body of insulating material surrounding said wire elements.

3. A stranded high tension cable comprising a hollow core, a plurality of wire elements laid up spirally around said core, the major portion of said wire elements consisting of relatively heavy gage single wires and the other of said elements comprising strands composed of a plurality of relatively light gage wires laid up spirally, and a relatively heavy body of impregnated paper insulation surrounding said wire elements.

4. A stranded high tension cable comprising a hollow core, a plurality of wire elements laid up spirally around said core, the major portion of said wire elements consisting of relatively heavy gage single wires and the other of said elements comprising strands composed of three relatively light gage wires laid up spirally, and a relatively heavy body of insulating material surrounding said wire elements.

5. A stranded high tension cable comprising a hollow core, a plurality of wire elements laid up spirally around said core, all of said elements being of substantially the same diameter, some of said elements consisting of relatively heavy gage single wires

and the other of said elements comprising strands composed of a plurality of relatively light gage wires laid up spirally.

6. A stranded high tension cable comprising a hollow core, a plurality of layers of wire elements laid up spirally around said core, at least one of said layers of wire elements being composed of some relatively heavy gage single wire elements and some elements composed of a plurality of relatively light gage wires laid up spirally.

7. A stranded high tension cable comprising a hollow core, a plurality of layers of wire elements laid up spirally around said core, at least one of said layers of wire elements being composed of some relatively heavy gage single wire elements and some elements composed of a plurality of relatively light gage wires laid up spirally, and all of said elements being of substantially the same diameter.

8. A stranded high tension cable comprising a hollow core, a plurality of layers of wire elements laid up spirally around said core, said layers of wire elements each being composed of some relatively heavy single wire elements and other elements composed of a plurality of relatively light gage wires laid up spirally.

9. A stranded high tension cable comprising a hollow core, a plurality of layers of wire elements laid up spirally around said core, said layers of wire elements each being composed of some relatively heavy single wire elements and other elements composed of a plurality of relatively light gage wires laid up spirally, and a heavy body of impregnating paper insulation surrounding the outer layer of said elements.

10. A stranded high tension cable comprising a hollow permeable core, a plurality of layers of wire elements laid up spirally around said core, a body of impregnated insulating material surrounding the outer layer of said wire elements, and some of said wire elements of at least the inner one of said layers of wire elements being of polygonal cross-section and having their surfaces provided with spiral grooves.

In witness whereof, I have hereunto signed my name.

ALEXANDER O. HOEFTMANN.