March 4, 1930. O. A. FREDERICKSON 1,749,740

INSULATED CONDUCTOR

Filed June 10, 1926

Fig. 1

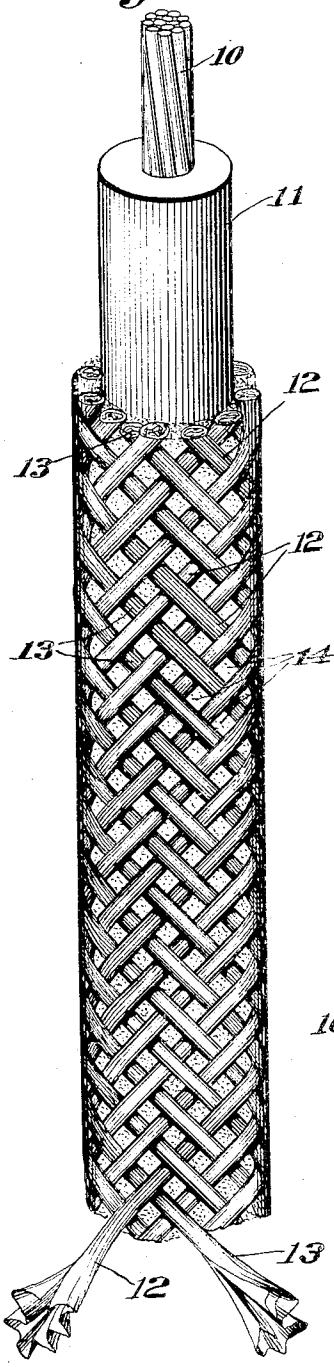


Fig. 2

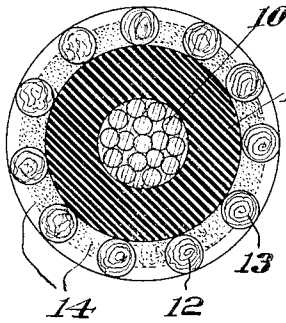


Fig. 3

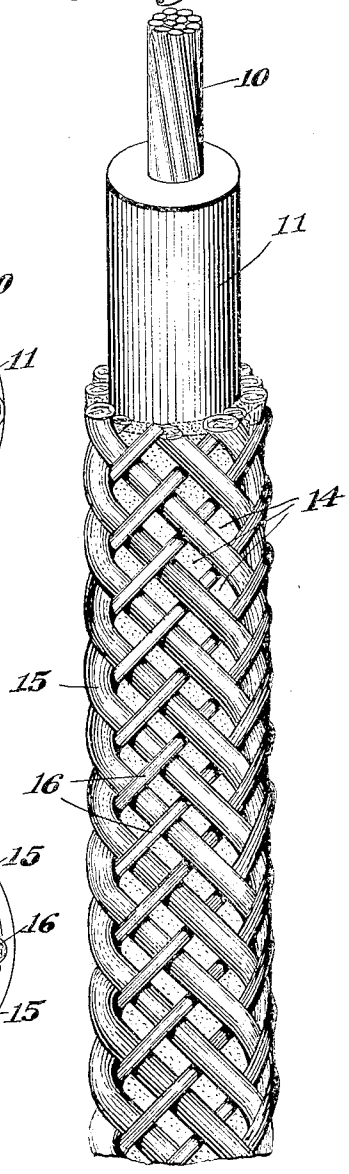
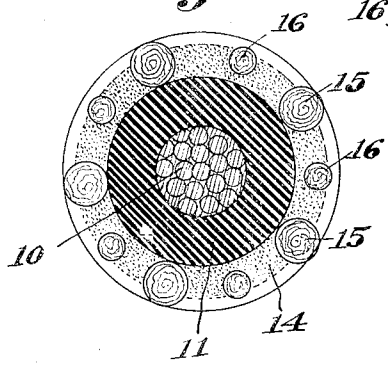


Fig. 4



INVENTOR:
Otto A. Frederickson
BY Robt. S. Harris.
ATTORNEY

Patented Mar. 4, 1930 1,749,740

UNITED STATES PATENT OFFICE

OTTO A. FREDERICKSON, OF WETHERSFIELD, CONNECTICUT, ASSIGNOR TO THE WIREMOLD COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT

INSULATED CONDUCTOR

Application filed June 10, 1926. Serial No. 115,013.

This invention relates to a tubular braid adapted for use as a protecting jacket for electrical conductors.

There is an urgent demand for insulated electrical conductors that can be supplied at a very low cost. Such conductors are extensively used in wiring buildings for electric bell circuits and for other purposes where a current of only a few volts is employed.

A rubber jacket applied to conductor wires will insulate the wires sufficiently for use in circuits having a low voltage, but the rubber covering of an electrical conductor is easily damaged unless protected by an enclosing wrapper, and in order to protect the rubber jacket of conductors it is customary to apply over the jacket a braided cotton cover.

Insulated conductors of the type above mentioned having a rubber jacket protected by cotton braid are extensively used for many purposes where a low voltage is employed and such conductors are used to some extent in electric light circuits.

The present invention relates to insulated conductors of the type above mentioned, and more particularly to a braided jacket which is well adapted for use on such conductors to protect the insulating rubber. One of the primary features of the present invention resides in a braided jacket that is constructed entirely of twisted strands of paper. Such paper jacket can be manufactured at a very low cost and is also extremely tough and durable in use.

Another feature of the invention resides in a braided jacket that is formed entirely of twisted paper strands that are disposed in spaced relation to each other so that they produce an open braid having interstices between the strands of the braid. This open braid is in many cases desirable because of the rapidity with which it may be constructed and also of the saving in material obtained by spacing the twisted strands apart.

The various features of the invention will be best understood from the following description when read in connection with the accompanying drawings; wherein,

Fig. 1 is a perspective view of an insulated conductor covered with braid constructed in accordance with the present invention;

Fig. 2 is a transverse sectional view of Fig. 1;

Fig. 3 is a perspective view similar to Fig. 1, but shows a modified type of braid.

Fig. 4 is a transverse sectional view of Fig. 3.

Although the braid forming the subject matter of the present invention is particularly well adapted for use as a protecting covering for the rubber jacket of a metallic electrical conductor, it may be used for various purposes where a tough, durable and inexpensive tubular braid is desired.

The metallic conductor 10 is shown in the drawings as provided with an insulating jacket 11 formed of rubber or other suitable material, and the jacket 11 is protected by a covering of braid constructed in accordance with the present invention. The braided covering as shown in Figs. 1 and 2 is formed of a series of strands 12 of twisted paper that extend spirally about the conductor in one direction, and these strands are interbraided with the series of strands 13 of twisted paper that extend spirally about the conductor in the opposite direction.

The strands 12 are preferably positioned in spaced relation to each other, and the same is true of the strands 13, so that an open braid is formed having interstices between the adjacent strands. This construction is desirable in many cases because of its economy of production due to the saving of material and rapidity with which the strands can be braided.

In many cases it is desirable to treat the paper strands 12 and 13 with a moisture-proofing material so that the strands will not rot or deteriorate upon exposure to moisture, and a wax-like substance such as paraffine having lubricating qualities is preferably employed as the moisture proofing material, because the application of paraffine to the paper strands materially increases the speed at which they may be braided, since the paraffine imparts a smooth surface to the paper which enables it to be delivered

smoothly to the braiding point by the braiding machine at high speed.

If desired the interstices or apertures formed in the open braid may be filled up by applying any suitable coating material such as paraffine or stearin pitch to the finished braid, so that it will lie in the interstices as indicated by 14.

The braid shown in Figs. 3 and 4 differs from that disclosed in Figs. 1 and 2 in that in the modified construction the twisted strands of paper 15 that extend in one direction are larger in diameter than the twisted strands of paper 16 that extend in the opposite direction; the strands 15 however are shown as disposed in spaced relation to each, as are also the strands 16, so that openings or interstices are formed between the strands 15 and 16 of the braid, as in Fig. 1.

From the foregoing it will be seen that an open braid constructed entirely of paper in accordance with the present invention will form a tough, durable protecting jacket for an insulated conductor, and that the braid can be produced rapidly and at low cost.

What is claimed is:—

An article of manufacture comprising, in combination, an electrical conductor, a surrounding sheath of insulating material, a protecting jacket formed about said sheath and comprising an open tubular braid of light weight formed of a series of paraffin treated, twisted strands of paper that extend spirally about said sheath in one direction in spaced relation to each other and interbraided with a series of paraffin treated, twisted strands of paper that extend spirally about the sheath in the opposite direction in spaced relation to each other to form a tough, durable, open braid produced entirely of paper and having relatively large interstices between the strands, and a filling compound deposited in the interstices to form a wall of insulation compound surrounding said sheath and which is protected from mechanical injury by the open braid.

In testimony whereof, I have signed my name to this specification.

OTTO A. FREDERICKSON.