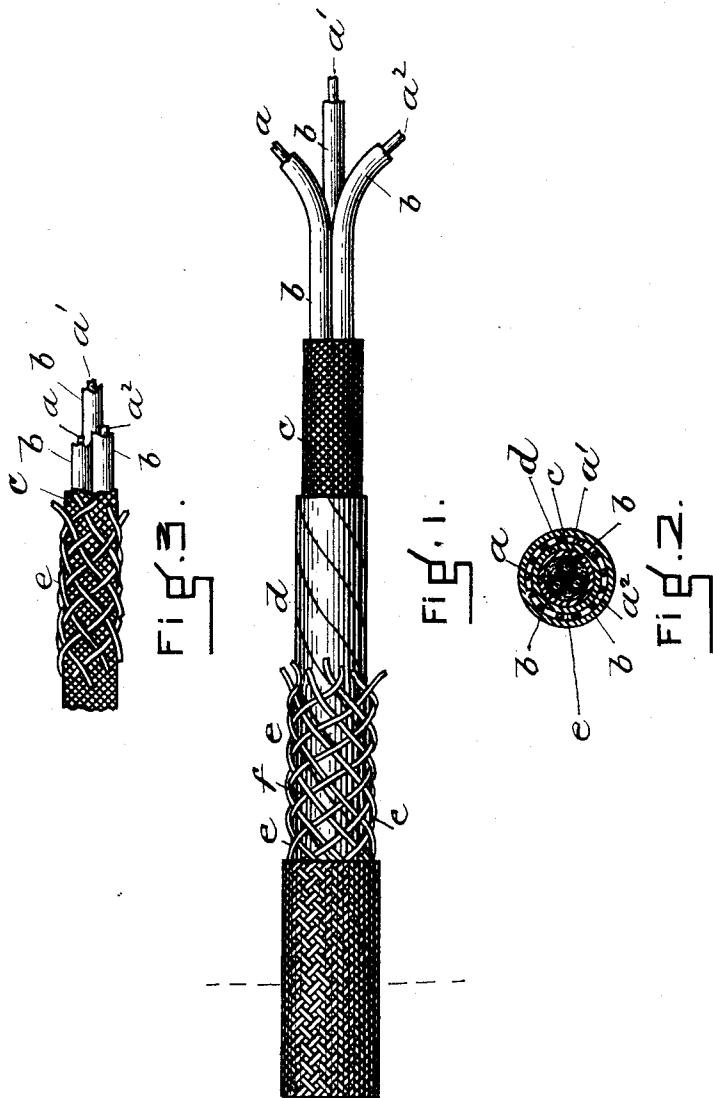


(No Model.)

H. F. CHICK.  
ELECTRIC CONDUCTOR.

No. 513,982.

Patented Feb. 6, 1894.



WITNESSES  
*J. M. Dolan*  
*M. Lynch*

INVENTOR.  
*H. F. Chick*  
*by his Attys*  
*Clark & Raymond*

# UNITED STATES PATENT OFFICE.

HORACE F. CHICK, OF WATERTOWN, ASSIGNOR OF TWO-THIRDS TO FRANK A. SPOONER AND RONALD A. STUART, OF BOSTON, MASSACHUSETTS.

## ELECTRIC CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 513,982, dated February 6, 1894.

Application filed May 1, 1893. Serial No. 472,503. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE F. CHICK, a citizen of the United States, residing at Watertown, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Electric Conductors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to an electric conductor especially adapted for use in mines, tunnels and other places where it must be more or less portable and be subjected to hard wear, and where it is more or less exposed to other unusual influences.

The invention comprises any desired number of insulated electric conducting wires either in single or cable form, or both, covered with a braided jacket or covering of one or more thicknesses saturated with insulation, which in turn is preferably wound or covered by a spiral winding of tape or fibrous material treated with an insulating preparation. Upon this structure is a braided jacket of wire preferably laid in insulating material, and about this braided wire jacket is braided a fibrous braiding saturated with insulating composition. For certain uses I prefer that the insulation be of rubber and that the wire strands of which the braided wire jacket is made be of copper or galvanized iron or other metal not easily corroded. The tape winding is not essential, although it is desirable, as it forms the support for the wire and prevents it from working through the inner braided jacket; but I would say that this tape winding may be dispensed with and also the outer jacket.

In the drawings: Figure 1 represents in plan the various divisions or sections of the conductor. Fig. 2 is a sectional view upon the dotted line of Fig. 1. Fig. 3 represents an insulated group of cables with an outer braided wire covering or jacket.

$a$   $a'$   $a^2$  are the conducting wires. They are of any suitable material, and they are each covered with a coating  $b$ , of insulating material.

In the drawings I have shown the three conducting wires insulated from each other and inclosed in the braided fibrous jacket  $c$ , the cavities between the jacket and covered conducting wires being filled solid with insulating material, and the strands of the jacket being saturated with insulating material. This inner jacket  $c$ , however, may contain but one electric conducting wire or a number of conducting wires, varying in size and insulated from each other, or groups of conducting wires. About the inner jacket  $c$ , I prefer to wind spirally a tape or other fibrous material saturated with an insulating composition, and  $d$  represents this winding. About this is then braided, preferably in insulating material, the strands  $e$  of wire forming the braided wire jacket  $f$ . While I prefer to braid this wire jacket upon the jacket  $c$  covered or wound with the tape  $d$ , it may be braided directly upon the jacket  $c$ , and in this respect I would say that the jacket  $c$  may be composed of two separate braided sections one within the other. The wire braiding or jacket is in turn covered with a braided fibrous jacket of one or more thicknesses, the strands of which are saturated with an insulating composition. The braided wire jacket protects the jackets and insulation within it from undue wear, preserves their relation to each other, and yet permits the conductor to be easily bent or turned without injury to it, the metal braiding being flexible, and permitting such movement to take place; the metal braiding also acts to protect the entire conductor from abrasion and wear from contact with rough surfaces, and permits it to be dragged, hauled, and otherwise roughly used.

While I prefer to use a ductile copper or soft iron wire, yet I do not confine myself to wire made of these materials.

I would say that for certain purposes it will be desirable to insulate the conductor or conductors with india-rubber, the india-rubber envelope of any desired thickness being between the conductor or conductors and the inner fibrous braided jacket. I would also say that this conductor can be used for telephonic purposes whether magneto, pulsion or

electric, as well as for electric lighting, transmission of power, &c.

Having thus fully described my invention, I claim and desire to secure by Letters Patent  
5 of the United States—

1. An electric conductor comprising one or more insulated conducting strands or groups of wire, a braided fibrous jacket enveloping the same, and a braided wire protecting  
10 jacket, as and for the purposes described.

2. In an electric conductor one or more insulated conducting strands, a braided insulated fibrous jacket enveloping or containing said conducting strand or strands, and wound  
15 upon its exterior with a tape or other fibrous material saturated with insulating composi-

tion, and an exterior braided wire jacket, as and for the purposes described.

3. In an electric conductor, one or more insulated conducting wires contained within a  
20 braided jacket or covering, a winding of tape or fibrous material saturated with insulating composition about the inner jacket, a jacket of braided wire surrounding the tape cover-  
25 ing, and a fibrous jacket of strands saturated with insulating composition about or covering the wire jacket, substantially as described.

HORACE F. CHICK.

In presence of—

J. M. DOLAN,

F. F. RAYMOND, 2d.