

(No Model.)

T. A. WATSON.
Electric Cable.

No. 238,999.

Patented March 15, 1881.

Fig: 1.

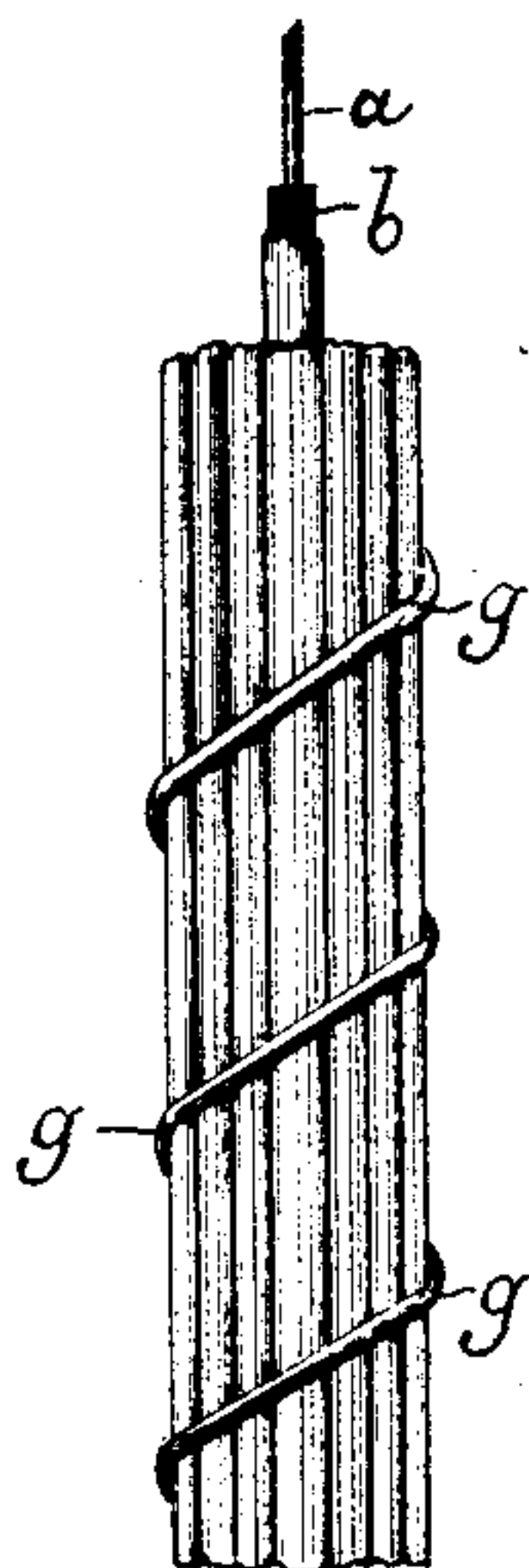
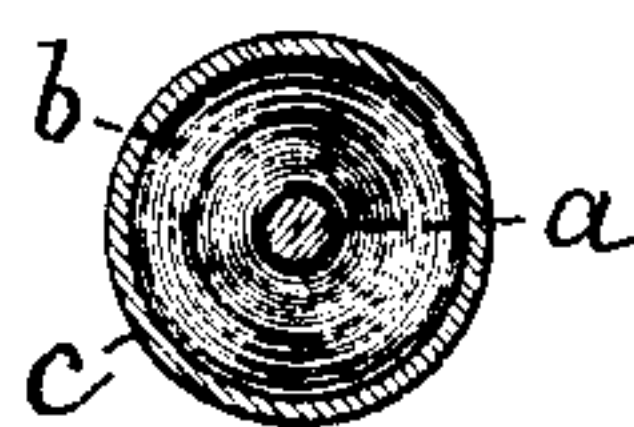


Fig: 2.



Witnesses
Arthur Reynolds.
Lawrence F. Connor

Inventor
Thomas A. Watson.
by Crosby & Gregory Attys.

UNITED STATES PATENT OFFICE.

THOMAS A. WATSON, OF EVERETT, MASSACHUSETTS.

ELECTRIC CABLE.

SPECIFICATION forming part of Letters Patent No. 238,999, dated March 15, 1881.

Application filed June 26, 1880. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. WATSON, of Everett, county of Middlesex, State of Massachusetts, have invented an Improvement in Electric Cables, of which the following description, in connection with the accompanying drawings, is a specification.

My invention relates to electric conductors and a process of manufacturing the same, and is shown embodied in an electric cable containing a number of independent insulated conductors.

Electric cables have been made in which several independent conductors, each surrounded with or embedded in insulating material, are each covered with a metallic coating outside the said insulating material. The said metallic coatings are in electrical connection with one another, and the whole is surrounded with a metallic coating or conductor of electricity connected with the ground, the function of this coating outside of the insulating material inclosing the main or primary electric conductors being to form an electric screen between the said conductors to prevent the electric currents in any one of the said conductors from inducing currents in the other conductors.

As heretofore constructed the external coating of metal outside of the insulating material has consisted of metallic foil wrapped about the said insulating material, and it has been suggested that plumbago might be rubbed over or spread upon the said insulating material and a metallic coating deposited thereon by electro-deposition, or a fine wire might be wound spirally around it. Either of these methods of coating the conductors is objectionable, partly on account of the expense of such construction and partly because the foil or other conductive coating is likely to become much broken, thus forming an imperfect conductor or screen for the induced currents.

I have devised a method for covering the said insulated conductors with a metallic coating which is free from the above-mentioned objectionable features, being attended with slight expense and producing a more perfect and durable coating.

In my improved process the main or primary electrical conductors, surrounded with or embedded in insulating material of any usual kind, are drawn through a bath of metallic

paint, which thus forms a continuous coating not likely to become broken and of sufficient conductivity. When desired the insulated conductors thus provided with a metallic coating may have a further amount of metal deposited thereon from a solution in any usual manner, the said coating forming a good basis for the electro-deposition, and the whole metallic covering thus painted and deposited thereon forming a strong and durable mechanical protection for the conductor inclosed therein, besides performing the function of an electric screen.

Figure 1 is a side view of a portion of a cable constructed in accordance with my invention, and Fig. 2 a cross-section of one of the conductors with its outer coatings of insulating material and metal.

The main or primary conductors *a*, (see Fig. 2,) preferably of copper or other material of high conductivity, is inclosed in insulating material *b*, of any suitable kind, herein shown as fibrous paraffined material; but rubber, gutta-percha, kerite, or other well-known substances may be used. These insulated conductors *a b* are now drawn through a bath of metal paint, which may consist of any fine metallic powder mixed in oil or other suitable vehicle, such paints being well known and in use for ornamental and sign painting. This coating will be sufficient to act as an electric screen between the different conductors, and if the cable is to be used in buildings, or inclosed in protecting-pipes or coverings, will be all that is needed; but it is often desirable to have a stronger and more durable coating, especially when the cable is to pass through the open air exposed to the weather, the said coating then also serving as a mechanical protection as well as an electrical screen. Such an additional coating of metal may be deposited from a solution on the said metal-painted insulated conductor in any usual manner, the metallic paint forming a good basis for electro-deposition. Any metal may be used for this additional covering, copper being well adapted for this purpose, owing to its conductive and non-corrosive character. The several conductors, thus covered with insulating material, painted with metal, and coated with a metal deposited thereon, may be brought together parallel to one another to form a cable, the bundle of wires being overlaid and bound to-

gether in any suitable manner, as by the wires *g*, which should be connected with the ground to conduct away the electric currents induced in the metal coatings.

5 If desired the metal may be deposited from solution directly on the insulating material; but I prefer to use the coating of paint and to electro-deposit the further covering of metal thereon.

10 The metal coating is indicated by the letter *c*.

I claim—

1. An insulated electric conductor surrounded by a metallic surface, the latter formed of
15 small metallic particles in and on the insulating material and a cohesive metallic layer

deposited on and united firmly to said metallic particles, substantially as described.

2. In an electric cable, an electric conductor having a covering of insulating material and 20 a coating of metallic paint on the said insulating material adapted to act as a conductor or screen for induced currents, substantially as described.

In testimony whereof I have signed my name 25 to this specification in the presence of two subscribing witnesses.

THOMAS A. WATSON.

Witnesses:

JOS. P. LIVERMORE,
GEO. W. PIERCE.