No. 97,374. PATENTED NOV. 30, 1869.

M. G. FARMER.

SUBMARINE TELEGRAPH CABLE.

Fig. 1.

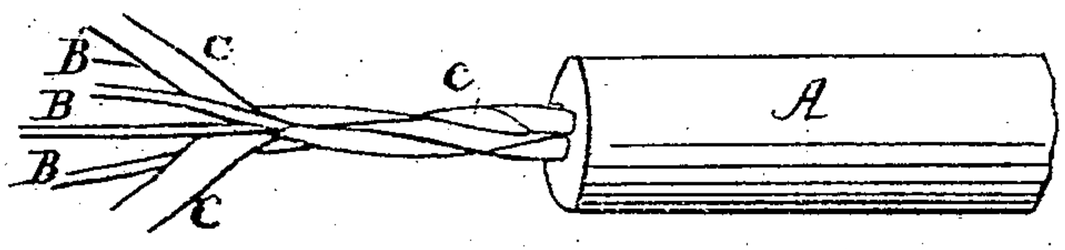
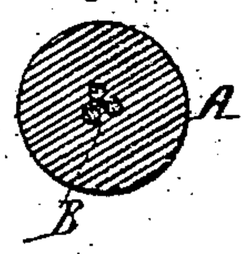


Fig. 2.



Witnesses.

Wm A Morgan.

C. Greene Collins.

Inventor

Moses G. Farmer.

per *Munn & Co*

Attorneys.

United States Patent Office.

MOSES G. FARMER, OF SALEM, MASSACHUSETTS, ASSIGNOR TO THE AMERICAN COMPOUND TELEGRAPH-WIRE COMPANY, OF NEW YORK CITY.

Letters Patent No. 97,374, *dated November* 30, 1869.

IMPROVEMENT IN SUBMARINE-TELEGRAPH CABLES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, MOSES G. FARMER, of Salem, in the county of Essex, and State of Massachusetts, have invented a new and useful Improvement in Submarine-Telegraph Cables; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view, and

Figure 2, a cross-sectional elevation of my improvement.

Similar letters of reference indicate corresponding parts.

The object of this improvement is to provide a submarine-telegraph cable of simpler, cheaper, and stronger construction than those at present used.

In constructing the ordinary submarine-telegraph cables, it is common to place the conducting-wires, which are usually made of copper, and of small diameter, in the centre of the insulating-substance, around which a series of strong iron wires is woven or secured, for the purpose of giving the necessary strength to the cable. The strengthening-wires are then covered with tarred jute, or other soft covering, and over this, in some cases, an additional covering of strong wires, known as armor-wires, is applied. In this method of construction, the strengthening-wires, by reason of their number and necessarily large size, placed, as they are, upon the exterior of the insulating-substance, add great bulk to the cable, and render its manufacture and manipulation not only expensive, but difficult.

The nature of my invention consists in combining a strengthening-wire or wires with the central electrical conductor or conductors, thus dispensing with the use of strengthening-wires upon the exterior of the insulating-substance.

There are various methods by which my invention may be practically carried out, but the method which I at present prefer is as follows:

I provide one or more small steel wires of great tenacity, B, each of which I cover with a ribbon or sheet of thin copper, C, laid spirally, or in any other manner, upon the strengthening-wires, thus forming compound wires.

The copper forms the necessary electrical conductor. I then cover the compound wires with the usual insulating-substance, A, and upon this, if needed, I place the usual jute covering; and, if desired, the usual armor-wires may be added.

The conducting-material, instead of being applied, in the form of a ribbon, upon the strengthening-wires, may, if desired, be otherwise arranged; as, for example, the usual copper wires may be twisted in with the strengthening-wires, and the whole then covered with the insulating-substance.

Various other arrangements of the conducting-metals may be employed without departing from my invention.

By the use of my improvement, I produce a submarine-telegraph cable having the greatest attainable strength and conductivity, with the least weight and smallest bulk.

I find, by actual experiment and calculation, that a cable made on my plan, having superior relative strength, and equal conductivity to the present deep-sea Atlantic cable, occupies only one-third of the bulk of the Atlantic cable.

The extraordinary strength and lightness of my improved cable greatly facilitate its manipulation, and the operation of deep-sea laying will be attended with little or no difficulty.

I do not limit or confine myself to the use of any specific number of wires or metals, nor to the precise methods of manufacture herein described.

Various other methods may be adopted by the skilled mechanic without departing from my invention.

Having thus described my invention,

I claim as new, and desire to secure by Letters Patent—

1. As an article of manufacture, an improved submarine-telegraph cable, consisting of a strengthening-core, conductor, and insulator, surrounded by a jute or hempen buoy, arranged, one upon the other, in the order specified.

2. The method of constructing submarine-telegraph cables, by winding spirally about a tenacious steel strengthening-core, a ribbon of copper, to form the electrical conductor, and by surrounding the compound metallic wire thus formed with any suitable insulator, and this with some buoyant material, all in the manner specified.

MOSES G. FARMER.

Witnesses:

SARAH J. FARMER,

STELLA E. ROWE.