

(No Model.)

W. HEWITT.
TELEGRAPH WIRE.

No. 379,535.

Patented Mar. 13, 1888.

Fig. 1.



Fig. 2.

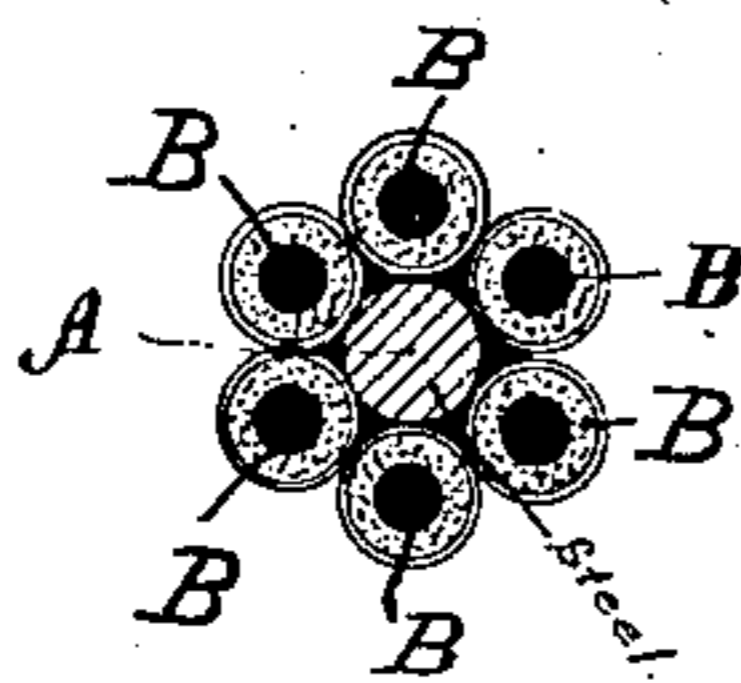


Fig. 3.

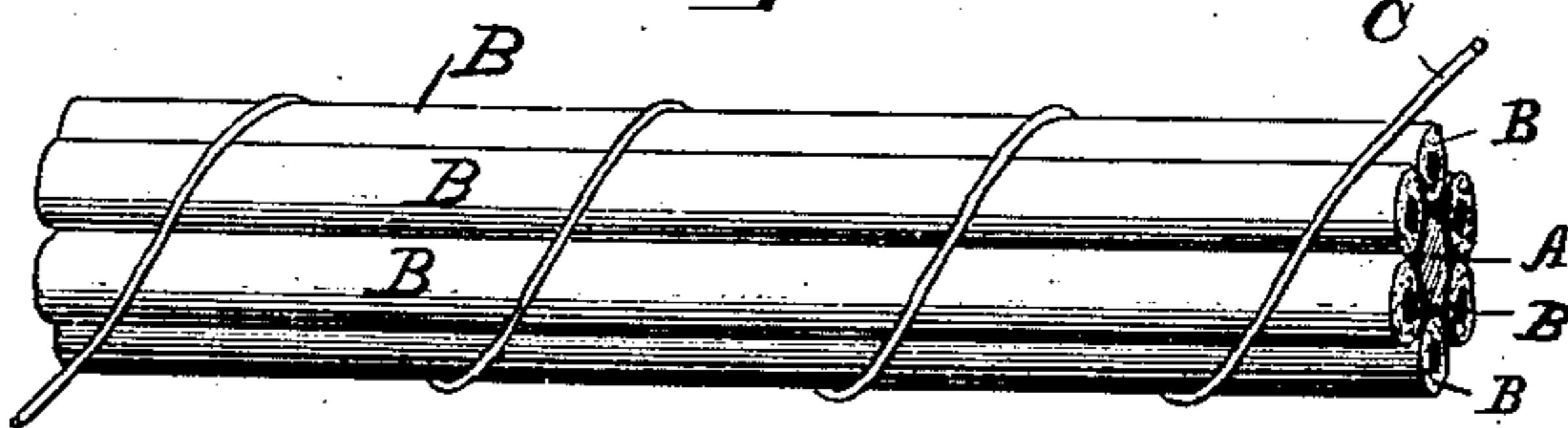


Fig. 4.

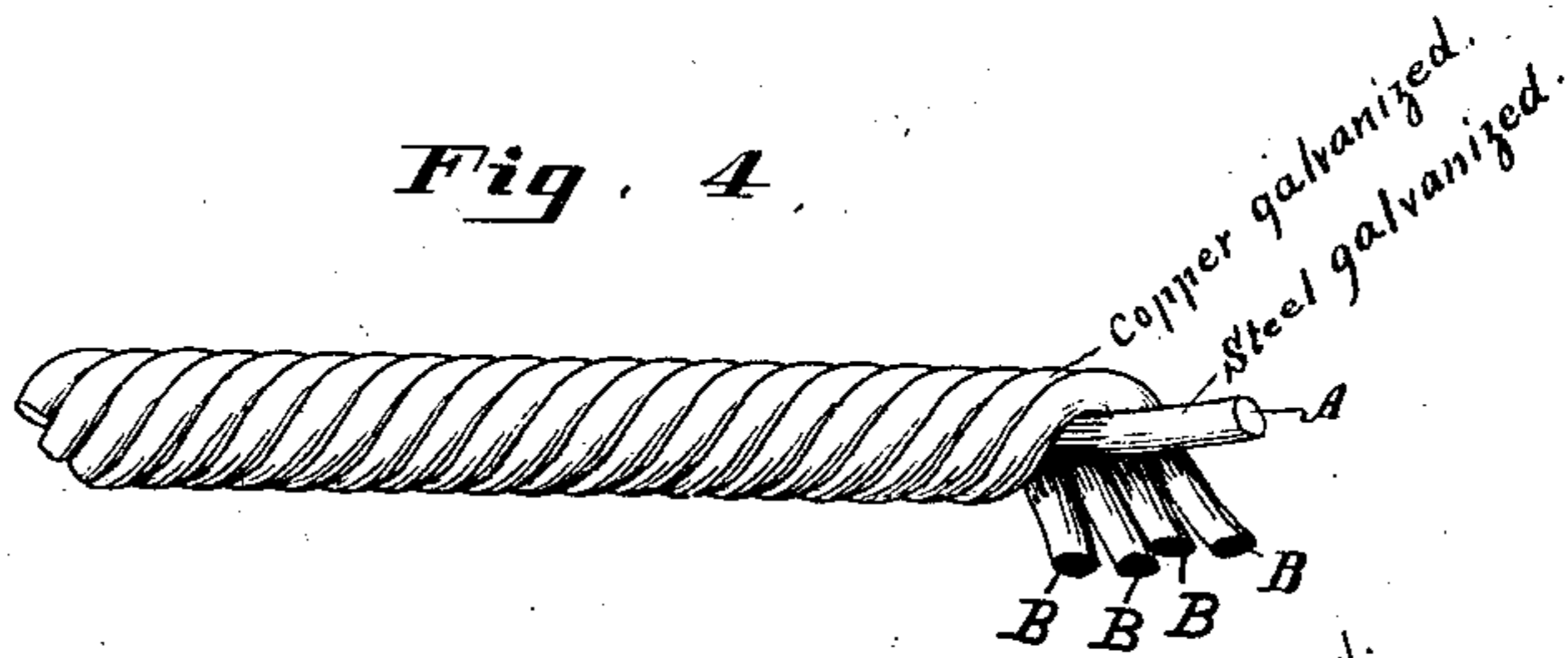


Fig. 5.

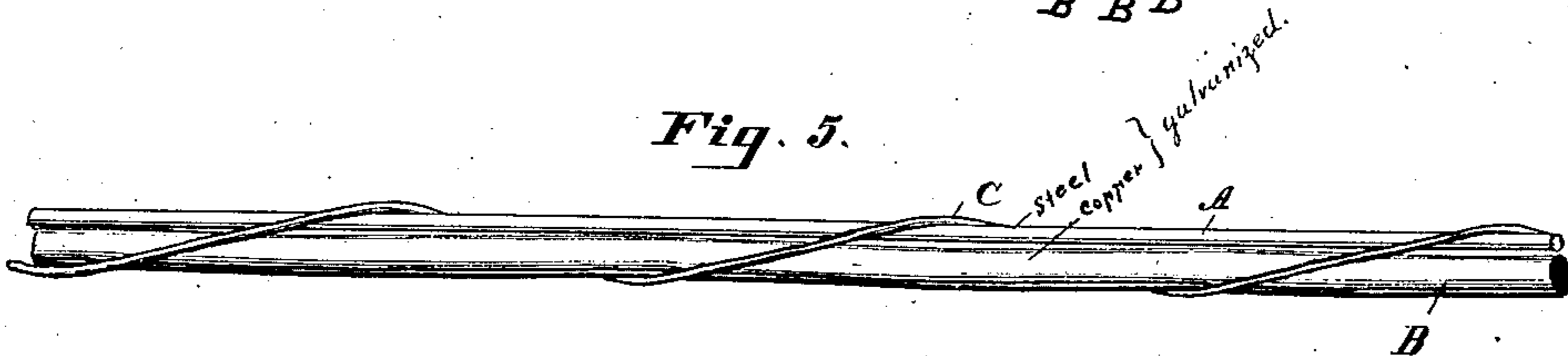
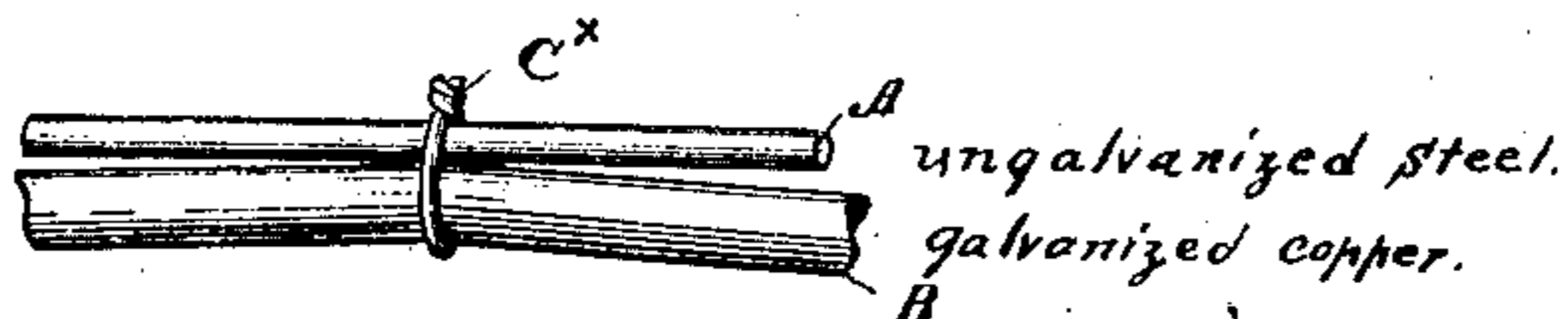


Fig. 6.



William Hewitt

WITNESSES:

M. B. Shepard
J. Norman Dixon.

INVENTOR.

By his attorneys
W. C. Shawbridge.
J. Bonsall Taylor.

UNITED STATES PATENT OFFICE.

WILLIAM HEWITT, OF CHAMBERSBURG, NEW JERSEY.

TELEGRAPH-WIRE.

SPECIFICATION forming part of Letters Patent No. 379,535, dated March 13, 1888.

Application filed September 10, 1887. Serial No. 249,313. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HEWITT, a citizen of the United States, residing at Chambersburg, in the county of Mercer, and State of New Jersey, have invented certain new and useful Improvements in Telegraph Wires, of which the following is a specification.

As is well known, the essential requirements of telegraph wire are, first, high conductivity, and, second, high tensile strength.

Copper, of all available conducting metals or materials, possessing the greatest conductivity, and cast steel the greatest tensile strength, it is apparent that a combination of these two metals in a telegraph wire would tend to the best results. This fact has been recognized in the fact that electricians have attempted to form and commercially employ wires consisting of copper and steel.

My invention relates to electric conductors composed in part of copper and in part of steel, and it comprehends a conductor composed of galvanized copper wires combined with steel wires galvanized or ungalvanized at will.

I have discovered that a conductor of great conductivity and exceptional strength, and suitable for long suspended lines in which the points of support are considerable distances apart,—may be manufactured by uniting or laying together, wrapping, or otherwise connecting, in any suitable manner, independent wires of steel either galvanized or ungalvanized and of copper galvanized. In the composite conductor so formed, it is the function of the steel wire to sustain the entire weight of the conductor, and of the copper wire to act as the conductor proper.

The form in which I put into practice the invention above indicated may vary. In the accompanying drawings I have represented five forms each alike conveniently embodying my invention, in which the wires may be united or laid together. I do not, however, restrict myself to any one of the said depicted arrangements of the respective wires, as my invention is broad enough to comprehend other arrangements not shown.

In the drawings, Figure 1 is an elevational view of a section of a conductor embodying

my invention and composed of two wires, one being copper galvanized and the other steel, and the copper wire being twisted or coiled about the steel wire which is straight. Figs. 2 and 3 are respectively a cross-sectional view and a side elevational view of a section of a conductor or cable consisting of several galvanized straight copper wires placed around and in parallelism with the central galvanized straight steel wire, all said wires being united or permanently connected by a small binding wire *c* of any suitable character wrapped around the whole. Fig. 4 is a side view of a section of a cable in which four galvanized copper wires are laid twisted or wrapped helically about a single central straight galvanized steel wire. Fig. 5 is a side view of a portion of a conductor composed of a single straight galvanized steel and a single galvanized straight copper wire placed side by side and maintained in such relationship by a binding wire *c* wrapped helically around them. Fig. 6 is a side view of a portion of a conductor composed of a single straight ungalvanized steel and a single straight galvanized copper wire placed side by side and maintained in such relationship by a series of wire ties *C*.

In all of the foregoing figures the letter *A* designates the steel and the letter *B* the copper wires. The object of galvanizing the copper or both the copper and the steel wires is to prevent the setting in of such galvanic action between the two metals as would occasion corrosion. Any binding wire or metal tie which may be employed should also, of course, be galvanized.

In practice I prefer to employ what is known as "patent steel wire" such as is used in the manufacture of steel rope, the tensile strength of which runs from one hundred and sixty thousand to two hundred thousand pounds per square inch, which is comparatively inelastic, and the life of which exceeds that of wires of Swedish iron or copper.

Any method of fastening together the steel and copper wires may be resorted to. I confine myself to none. The large cable shown in Figs. 2 and 3 could be bound together if desired with such ties as that shown in Fig. 6. Many other forms of tie than that shown in

Fig. 6 might, however, be employed. The union may also be effected by the galvanizing coating acting after the manner of a solder.

In the conductor which I have invented the best results, commercially, are secured where the steel wire, or "strain wire" as it might be termed, is straight as opposed to being twisted with the copper wire, but it is within the scope of my invention to twist or lay the steel and copper wires together, should I desire so to combine them.

It is obvious that, if desired, more than one steel wire may be used where, for instance, it is desired to support a cable containing a considerable number of copper wires.

The gist of the idea consists in uniting by any preferred means in a single cable for use as a conductor of electricity, one or more strands of steel either galvanized or ungalvanized, as a metal possessing high tensile strength, and one or more wires or strands of

copper galvanized, as a metal possessing high conductivity.

Having thus described my invention, I claim:—

1. As an article of manufacture, a telegraph wire composed of one or more galvanized copper wires, laid or wrapped with, or united to, one or more steel wires, substantially as set forth.

2. As an article of manufacture, a telegraph wire composed of one or more galvanized copper wires, laid or wrapped with, or united to, one or more galvanized steel wires, substantially as set forth.

In testimony whereof I have hereunto signed my name this 8th day of September, A.D. 1887.

WM. HEWITT.

In presence of—

JOS. H. WRIGHT,
JOS. B. WRIGHT.