

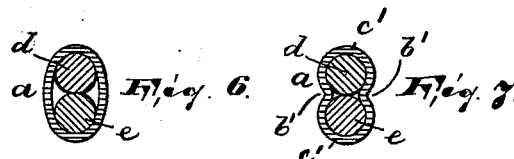
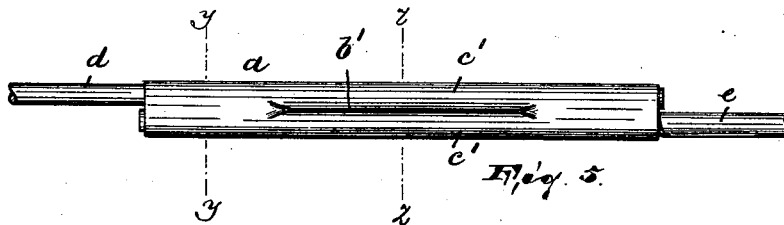
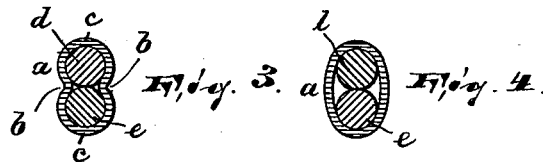
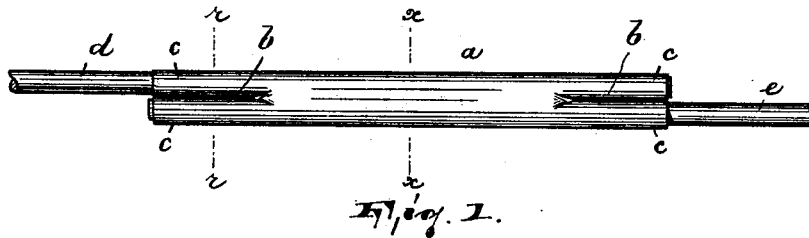
No. 646,573.

Patented Apr. 3, 1900.

A. GARTNER.
WIRE CONNECTOR.

(Application filed Feb. 8, 1900.)

(No Model.)



WITNESSES:

Wm. S. Bell.
James B. Newton

INVENTOR:

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BY
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UNITED STATES PATENT OFFICE.

ALFRED GARTNER, OF PATERSON, NEW JERSEY, ASSIGNOR OF ONE-HALF
TO CHARLES H. MCINTIRE, OF NEWARK, NEW JERSEY.

WIRE-CONNECTOR.

SPECIFICATION forming part of Letters Patent No. 646,573, dated April 3, 1900.

Application filed February 8, 1900. Serial No. 4,464. (No model.)

To all whom it may concern:

Be it known that I, ALFRED GARTNER, a citizen of the United States, residing in Paterson, county of Passaic, and State of New Jersey, have invented certain new and useful Improvements in Wire-Connectors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to wire-connectors, commonly known as "torsion-joints;" and its object is to provide a joint of increased tensile strength for connecting telephone, telegraph, or other electrical wires or cables of simple, strong, and durable construction, and, further, to secure a joint in which the conductivity of the wires to be connected is not obstructed, but assisted and maintained.

It is essential in uniting the ends of conductors that the wires should have a clean and firm metallic contact with each other and also with their connector, and, further, that no foreign substances, such as solder, are introduced into the connector, and, finally, that the latter is so constructed that moisture cannot easily enter into the same.

The present invention is designed to avoid the various objections common to the torsion-joints on the market and to combine and embody all the essential requirements necessary for a perfect joint.

The invention consists in the improved wire-connector and in the combination and arrangement of the various parts thereof, substantially as will be hereinafter more fully described and finally embodied in the clauses of the claim.

In the accompanying drawings, Figure 1 is a side elevation of my improved connector with the wires inserted; Fig. 2, a view similar to Fig. 1, the joint being completed; Fig. 3, an enlarged sectional view on the line *r r* of Fig. 1; Fig. 4, an enlarged sectional view on the line *x x* of Fig. 1; Fig. 5, a side elevation of my improved connector, illustrating a slight modification thereof; and Figs. 6 and

7, respectively, sectional views on the lines *y y* and *z z* of Fig. 5.

In said drawings, Figs. 1 to 4 inclusive, *a* represents a connector consisting of a substantially-oval tube, the cross-section of which is better shown in Fig. 4. Each end of said tube *a* is provided at diametrically-opposite sides with longitudinally-extending indentations or depressions *b b*, dividing said end portions into two substantially-circular connecting-channels *c c*, as clearly illustrated in Figs. 1 to 3. The length of the indentations or depressions will entirely depend upon the size of the joint; but approximately one-fourth of the length of the tube on each end will in most cases be sufficient to make a perfect joint and conductor. The wires *d e* are inserted, in the usual manner, from opposite directions into the channels *c c*, formed in the tube *a*, and are then twisted, together with said tube, substantially into the shape as shown in Fig. 2.

In Fig. 5 is illustrated a modification in which the oval tube *a* is provided in its central portion and at its opposite sides with longitudinally-extending indentations or depressions *b'*, forming substantially-circular connecting-channels in the central portion of said tube, (indicated by reference-letters *c' c'* in Fig. 7.)

It must be remarked that the modification just described does not form as practical a joint as the construction illustrated in Figs. 1 to 4, inclusive, yet it is an improvement over the various torsion-joints known and patented.

There are quite a number of torsion-joints on the market at the present time, and reference may be made to the following United States Letters Patents, which cover the said joints or connectors: Nos. 347,625, 451,933, 541,998, 535,592, 557,690, 561,438, 569,713, 569,752, 569,753, 635,007, and 641,853.

As heretofore mentioned, it is essential in a wire-joint to have as large a bearing-surface between the wires to be connected and also with the connector itself as possible and besides to prevent moisture from entering the joint.

Special reference may be made to United States Patent No. 347,625, covering what is

known on the market as the "McIntire" joint, and also to United States Patent No. 451,933, covering the "Hunt" connector. The McIntire joint, it is true, embodies or combines a number of valuable features, especially as the joint is substantially air and moist proof; yet there is no metallic contact between the wires to be connected, and, besides, the presence of a foreign metal introduced by the soldering or brazing is liable to start local electrical action and of course increase or decrease (according to the nature of the foreign substances) the resistance in the joint. The Hunt connector to a certain extent overcomes the last-mentioned objection, but, on the other hand, is not air and moist proof—that is to say, the oval tube, and especially its end portions, cannot be twisted together with the wires so as to completely surround the wires, and an air-space or opening is always found on either end of the connector, permitting air and moisture to get into the joint, which is very injurious to it, as will be manifest to those familiar with the art.

The present invention combines the valuable features of the McIntire and Hunt connectors and, on the other hand, overcomes the objectionable features of the same.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A connector for electric wires, consisting of a metallic tube, substantially oval in cross-

section, and provided at opposite sides with an indentation or indentations dividing a certain portion or portions of said tube into two substantially-circular connecting-channels, said tube being adapted to receive the wires from opposite directions and to be twisted together with said wires, substantially as and for the purposes described.

2. A connector for electric wires consisting of a metallic tube, substantially oval in cross-section, and having its end portions provided with diametrically-opposite arranged indentations dividing said end portions into two substantially-semicircular connecting-channels, said tube being adapted to receive the wires from opposite directions and to be twisted together with said wires, substantially as shown and described.

3. A connector for electric wires consisting of a metallic tube, substantially oval in cross-section, and having its end portions formed into two substantially-semicircular connecting-channels, said tube being adapted to receive the wires from opposite directions and to be twisted together with said wires, substantially as and for the purposes described.

In testimony that I claim the foregoing I have hereunto set my hand this 5th day of February, 1900.

ALFRED GARTNER.

Witnesses:

MARGARET BRITTON,
JAMES B. NEWTON.