(No Model.)

C. W. TOBEY.

CONNECTION FOR ELECTRIC CONDUCTORS.

No. 474,584. Patented May 10, 1892.

Fig. 1.

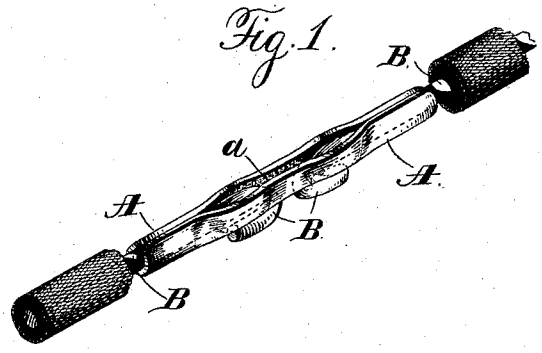


Fig. 2.

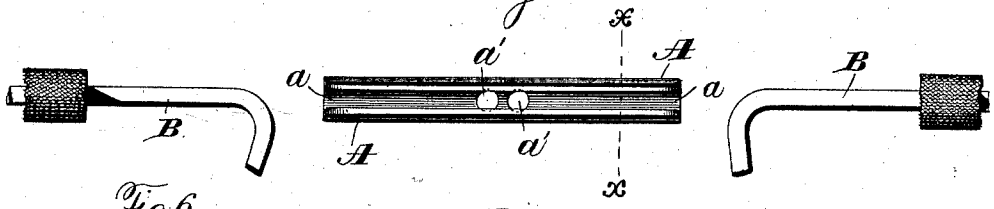


Fig. 6.

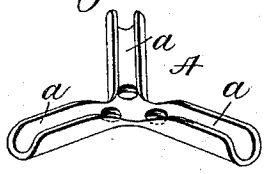


Fig. 3.

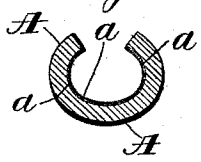


Fig. 5.

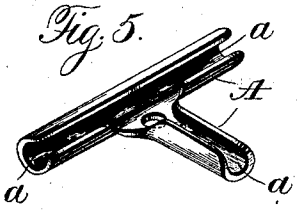
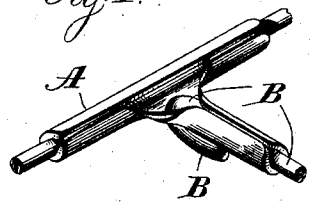


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLES W. TOBEY, OF NEW BEDFORD, MASSACHUSETTS.

CONNECTION FOR ELECTRIC CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 474,584, dated May 10, 1892.

Application filed January 28, 1891. Serial No. 379,419. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. TOBEY, a citizen of the United States of America, residing at New Bedford, in the county of Bristol, and in the State of Massachusetts, have invented certain new and useful Improvements in Connections for Electric Conductors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a perspective view of my improved connection as used to connect the ends of two conductors; Fig. 2, a view in elevation of the connection and the conductors separated from each other; Fig. 3, a view, on an enlarged scale, of a transverse section on line *x x* of Fig. 2; Fig. 4, a perspective view showing my connection as arranged to connect the end of one conductor with the body of another; Fig. 5, a similar view of such connection detached from the conductors, and Fig. 6 a similar view of the connection arranged to connect more than two wires.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention has been to provide a cheap, strong, convenient, and easily-manipulated device for joining electric conductors together, so that there will be a good metallic junction between them which will offer no resistance to the passage of the electric current and will not be liable to become defective from exposure to the atmosphere or to deteriorate during long-continued use; and with this end in view my invention consists in the connection arranged and constructed as hereinafter specified.

In the drawings I have shown it in Figs. 1 and 2 as adapted to connect the ends of two wires to each other, in Figs. 4 and 5 as arranged to connect the end of one wire with the body of the other at right angles thereto, and in Fig. 6 as arranged to connect more than two wires together.

An essential feature of the connection is a clip A, which is adapted to be wrapped about and clamped upon the portions of the several wires to be connected. The material of which it is made is metal, preferably, but not necessarily brass or copper. Any other metal which is a good conductor of electricity can be used instead of either of those mentioned. The face of the clip, which is to be next to the surfaces of the conductors when the clip is wrapped about and clamped upon the latter, is prepared so that the simple application of heat will, when the clip and conductor surfaces are pressed close together, cause said surfaces to be soldered together. For this purpose I provide said face of the clip with a coating of solder, of metal or any suitable alloy, with the proper flux therefor. The kind of solder which is used will of course depend upon the nature of the metal forming the conductors and clip.

For use in connection with the ordinary copper conductors a brass or copper clip with a tinned face resined can be used to advantage.

For convenience sake the portions of the clip which are to be wrapped about the conductors are bent so as to have a partly-tubular form, as shown in the drawings, the inner walls of the bent portions being provided with the solder and flux, as indicated at *a* in Fig. 3.

The form of device for connecting the ends of two conductors B B, as shown in Figs. 1 and 2, consists of a straight strip of metal having its sides turned up to make a part-tube, which can be easily put over the two conductors. At or near its middle point it is provided with the two openings *a' a'*, through which the bent extremities of the conductors are passed when the clip is being put in place. Such extremities can then be bent down into the position shown in Fig. 1 by an ordinary pair of pinchers. The conductors will then be held firmly from being pulled apart longitudinally. When by means of the pinchers or any other clamping device the clip has been clamped closely about the previously-cleaned conductors, so that its prepared surface is in close contact with them, the application, by means of a lamp or other heater of sufficient heat to melt the tin or other solder, will cause the clip and conductor surfaces to be soldered together. The junction thus made is such a metallic one as to insure the passage of electricity from one surface to the other with the least possible resistance, and to exclude from such surfaces all moisture and corrosion, however much the connection may be exposed to the atmosphere.

The form of clip illustrated in Figs. 4 and 5 is adapted to connect the end of one wire or conductor with the body of another. When the two conductors are at right angles to each other, the clip is in the shape of a T, the upright of which is to receive the conductor whose end is to be connected with the other. In the article as put upon the market both the cross-piece and upright of the T have their sides turned up to form part-tubes adapted to receive the conductors. The inner surfaces of such part-tubes are in accordance with my invention prepared with the same coating *a*, of solder and flux, as were those of the other form of clip, hereinbefore described.

To hold the end of the conductor most securely from outward longitudinal movement with reference to the T-upright, the latter is at or near its inner end provided with an opening *a'*, through which the bent extremity of the conductor is to be passed. The clinching of such extremity and the clamping of the parts of the clip upon the conductors can be performed by ordinary pinchers or any other clamping device, just as in the case of the other form of clip hereinbefore described. Heat is then applied, as before, to melt the solder and unite the conductor and clip surfaces together.

While I have shown my device as adapted to connect two conductors together, I desire it to be understood that it can be arranged to similarly join three or any greater number without departure from my invention. The change only involves providing the clip with more conductor-clamping parts or arms arranged at any suitable angles to each other.

The essential idea of a clip adapted to be clamped about the various conductors and prepared with a coating adapted to make, when heat is applied, a solder connection, the clip and conductor surfaces, would be embodied in all the various forms.

My device, as shown and described, while capable of forming the strongest and best metallic connection between electric conductors, a connection which offers the least possible resistance to the passage of the electric current, is not liable to deterioration when exposed to moisture and the atmosphere during long-continued use, and is cheap and easily made.

The clips can be cut or stamped out of sheet-brass or other metal by machinery, the tin or other solder and flux coating being afterward applied in any desired way.

For applying the device to conductors only an ordinary pair of pinchers and a lamp would be sufficient. No other tools or appliances would be necessary.

When, as shown in the drawings, insulated wires are to be connected, the material of the clip is preferably to be thin enough so that when in place its periphery will be below that of the insulation.

Having thus described my invention, what I claim is—

1. In a device for use in connecting electric conductors, a metal clip adapted to be bent about the conductors and having its face provided with a coating of solder, substantially as and for the purpose described.

2. As an article of manufacture, a connection for electric conductors, consisting of a metal clip adapted to be clamped upon the conductors and having its surface prepared with solder and a flux therefor, substantially as and for the purpose specified.

3. As an article of manufacture, a connection for electric conductors, consisting of a metal clip adapted to be clamped upon the conductors and having its face tinned and resined, substantially as and for the purpose shown.

4. As an article of manufacture, a connection for electric conductors, having its several different conductor-receiving portions made with thin edges turned up and on the inner face of such portions a coating of solder and flux therefor, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of January, A. D. 1891.

CHARLES W. TOBEY.

Witnesses:
HENRY P. BURT,
AMAH B. WHITE.