July 4, 1950 I. A. PAIGE 2,514,336

CABLE END CONNECTOR

Filed Oct. 22, 1947

Fig. 1.

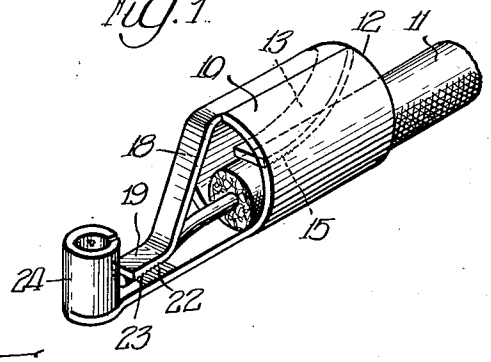


Fig. 3.

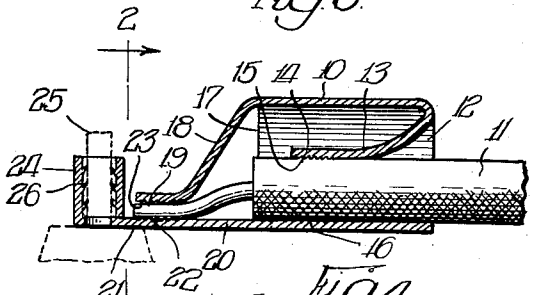


Fig. 2.

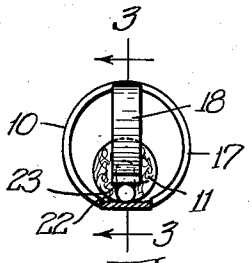


Fig. 4.

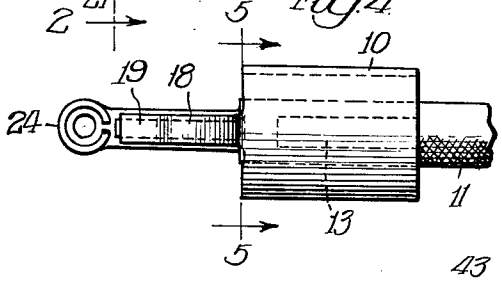


Fig. 5.

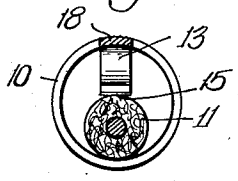


Fig. 7.

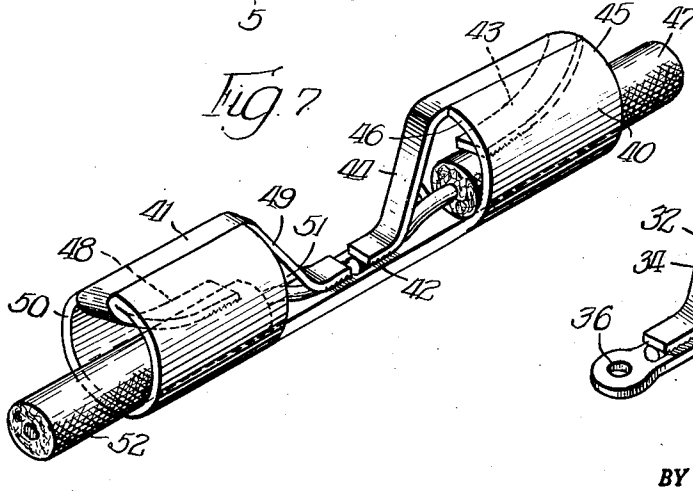
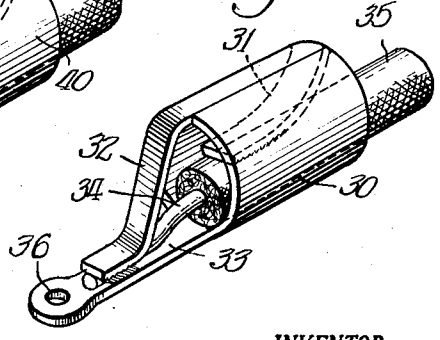


Fig. 6.



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CABLE END CONNECTOR

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4 Claims. (Cl. 173—269)

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This invention relates to improvements in a connector device for use in providing an electrical connection between the end of an electric cable or conductor and a terminal post or similar element.

It is an object of the invention to provide a simple one-piece metal connector device for electrically connecting the end of an insulated wire cable or conductor to a terminal post or similar member which connector member is so constructed that it may be quickly and easily secured to both the end of the cable and the terminal post.

A further object of the invention is to provide a connector of the type described which comprises a tube-like body member and an axially inwardly directed spring finger for resiliently clamping the cable against the opposite inner wall of the connector.

A more specific object of the invention is to provide an improved connector for the purpose described which comprises an integral one-piece tube-like spring metal member having a pair of inwardly projecting resilient fingers which engage both the uncovered wire end and the adjacent covered portion of the conductor and clamp the same against the opposite inner wall of the connector whereby axial pull on the conductor in a direction reverse of the direction in which the conductor end is inserted in the connector greatly increases the clamping action of the fingers and more securely engages the connector with the end of the conductor.

Another object of the invention is to provide a device for connecting or splicing the ends of a pair of electric conductors to securely fasten the ends relative to each other and to provide a satisfactory electrical connection between the same wherein resilient spring fingers extending from one side of the device clamp the respective ends of the conductors against the other side of the device so that axial pull exerted on the conductors increases the clamping action of the fingers.

These and other objects of the invention will be apparent from a description of the preferred form of the connector device and the modfications thereof which are shown by way of illustration in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a connector device embodying the principles of the invention;

Fig. 2 is an end elevation of the connector;

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Fig. 3 is a longitudinal section taken on the line 3—3 of Fig. 2;

Fig. 4 is a plan view;

Fig. 5 is a transverse section on the line 5—5 of Fig. 4;

Fig. 6 is a perspective view of a modified form of the connector; and

Fig. 7 is a perspective view of a further modified form of the connector.

Referring to the drawings, the preferred form of the connector, as illustrated in Figs. 1 to 5, is adapted to be applied to the end of a conductor of the type which consists of a current carrying wire enclosed in a sheath of insulating fabric or similar material. The connector is applied after the insulating sheath has been removed or cut back a short distance from the end to provide a bare or uncovered section of the current carrying wire.

The connector which is preferably manufactured from a flat metal blank of spring metal sheet material is formed to provide a tube-like body section 10 which is of sufficient inside diameter to accommodate a variety of sizes of electrical conductor 11. At one end 12 of the tubular section 10 a reversely bent spring finger member 13 is provided which extends radially and axially into the body section 10. The spring finger end 14 is adapted to resiliently clamp or engage the material which forms the insulating cover or sheath on the conductor 11 adjacent the end of the same. The engaging surface of the finger end 14 is preferably provided with tangs or serrations 15 and the opposed surface of the body section 10 is provided with cooperating tangs or serrations 16 for securely gripping the insulation on the conductor 11 between the same.

At the other end 17 of the body section 10 a resilient spring finger 18 extends radially inwardly and axially outwardly of the section 10. The spring finger end 19 is adapted to engage the bare wire end portion 20 of the conductor 11. The body section 10 is provided with an axially outwardly extending arm 21 arranged in opposed relation to the end 19 of the spring finger member 18 for cooperating with the finger end 19 to clamp the wire end 20 therebetween. Serrations or tangs 22 are provided on the surface of the extension 21 and cooperating tangs or serrations 23 are provided on the finger end 19 to insure a secure gripping or clamping of the

wire 20 between the spring finger 18 and the arm 21.

The arm 21 of the connector extends to a hollow tubular formation or section 24 for securing the connector to a binding post or similar connecting element 25 which is indicated in dotted lines. The tubular section 24 is provided on its inner surface with inwardly extending corrugations or tangs 26 for gripping the surface of the post 25 and preventing removal of the connector from the post.

A connector which is constructed as illustrated may be secured to a terminal post or similar connecting element without the use of any lock nuts or other parts which may become accidentally loosened and impair the electrical contact. The end of the conductor is clamped between the resilient fingers and the opposite wall of the connector in such a manner that any effort to remove the conductor by an axial pulling force merely causes the resilient fingers to more securely clamp the conductor in position in the connector.

In the modified form of the connector which is illustrated in Fig. 6 the arrangement of the tubular body portion 30 and the associated resilient spring fingers 31 and 32 is the same as the corresponding members in the preferred form of the device (Figs. 1 to 5). The arm 33 which cooperates with the spring finger 32 for gripping and electrically connecting the uncovered wire end 34 of the conductor 35 to the connector extends beyond the end of the clamping finger 32 and is provided with an aperture 36 for accommodating the binding post or other connecting element. The spring fingers 31 and 32 and the cooperating clamping portions of the body 30 and the arm 33 are preferably provided on their clamping surfaces with serrations as in the preferred form of the connector. This form of the connector is adapted to be secured to the binding post by means of a lock nut or similar fastener.

The modified form of connector which is illustrated in Fig. 7 is adapted to electrically connect the ends of a pair of conductors to each other. The device comprises two spaced tube-like sections 40 and 41 which are joined by an integral wall portion or strip 42 which extends between the sections. The section 40 is provided with resilient spring fingers 43 and 44 which extend radially and axially inwardly from opposite ends 45 and 46, respectively, of the section. The finger 43 resiliently engages the covered or insulated portion of the conductor 47 and clamps it against the opposite wall of section 40. The finger 44 extends in the same axial direction as finger 43 and resiliently engages the uncovered end portion of conductor 47 and clamps it against the connecting wall portion or strip 42. The section 41 is provided with radially and axially directed resilient fingers 48 and 49 extending from the ends 50 and 51. Finger 48 engages the covered portion of conductor 52 and resiliently clamps it against the opposite wall of the section. The finger 49 engages the uncovered end portion of the conductor 52 and resiliently clamps it against the connecting strip 42. The fingers 43, 44, 48 and 49 are all provided with corrugations or tangs on their end portion for engaging the conductor and cooperating corrugations or tangs are provided on the opposed wall and connecting strip portions. When axial pull is exerted on either conductor 47 or 52 in a direction away from the end 45 or 50, respectively, the clamping action of the resilient fingers is increased and the conductor ends are more securely fastened in the connector.

While specific details of construction and materials have been referred to in describing the illustrated forms of the invention, it will be understood that other details of construction and other materials may be resorted to within the spirit of the invention.

I claim:

1. A connector member for securing the end of an electrical conductor to a binding post comprising a one-piece tubular member of spring material having a reversely bent integral resilient clamping finger extending axially inwardly from an end thereof into the tubular member for clamping a conductor between said finger and the opposite wall of the member, an axially extending arm projecting beyond the other end of the tubular member and means extending laterally on said arm for engaging the binding post to clamp the connector thereto.

2. A connector member for securing the end of an electrical conductor to a binding post comprising a one-piece tubular member of spring material having an axial inwardly directed resilient clamping finger extending from one end into the tubular member for clamping a conductor between the same and the opposite wall of the member, an axially extending arm projecting outwardly of the other end of the tubular member, an axial outwardly directed resilient finger extending from said other end of said member in opposed relation to said arm for clamping the conductor against said arm, and means on said arm for engaging and clamping the connector to a binding post.

3. A device for electrically connecting the end of an electrical conductor to another element comprising a tube-like section having a wall portion extending from one end thereof, a pair of resilient fingers extending radially inwardly from the opposite ends of said section, one of said fingers extending axially within said section to clamp a conductor between the same and the opposed wall of said section, and the other of said fingers extending axially outwardly of said section to clamp the conductor between the same and said extending wall portion.

4. A device for electrically connecting the end of an electrical conductor to the end of another electrical conductor comprising axially spaced tube-like sections having a connecting wall portion extending between said sections, a pair of resilient fingers extending radially and axially inwardly from the opposite ends of said sections one of each of said pairs of fingers extending axially into its respective section to clamp a conductor between the same and the opposed wall of said section, and the other of each of said pairs of fingers extending axially between said sections to clamp the conductor against said connecting wall portion.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,387,252	Fredericks	Aug. 9, 1921
1,564,761	Daiker	Dec. 8, 1925
1,896,443	Fossati	Feb. 7, 1933
2,257,317	Wade	Sept. 30, 1941