Oct. 16, 1934. S. W. BORDEN 1,976,769

ELECTRICAL CONNECTING DEVICE FOR ELECTRICAL CONDUCTORS

Filed April 24, 1926

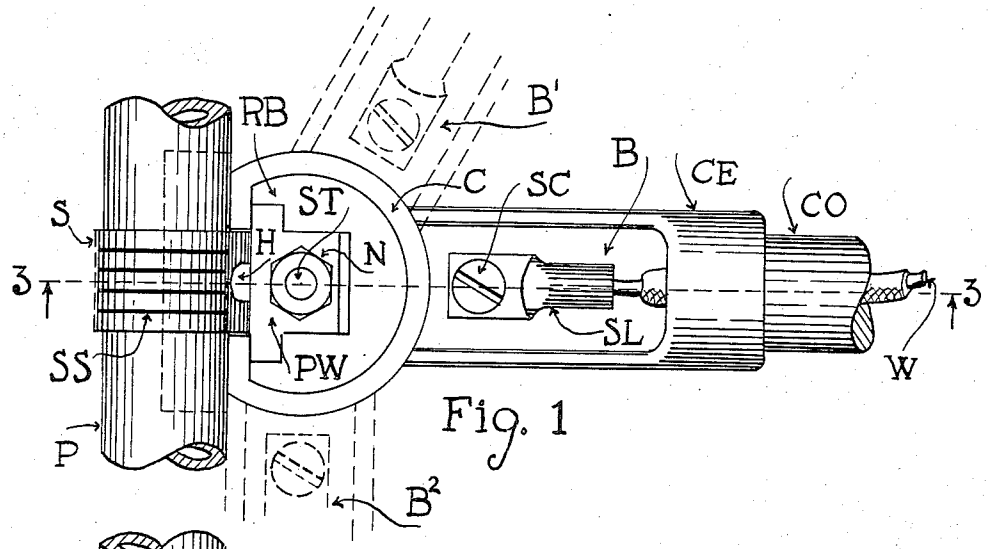


Fig. 1

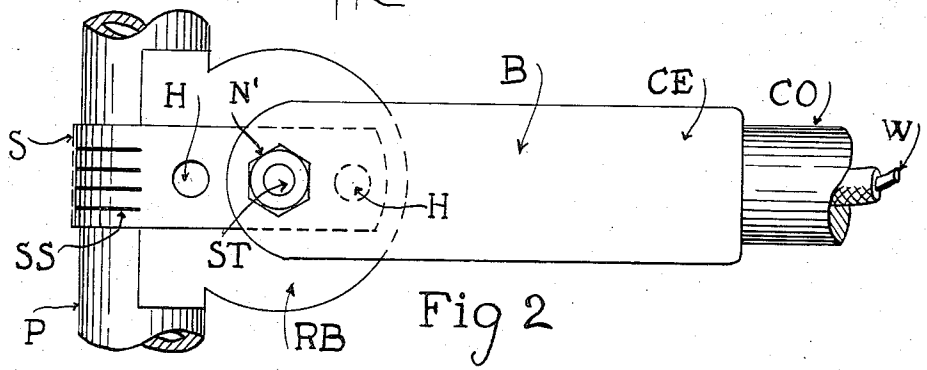


Fig 2

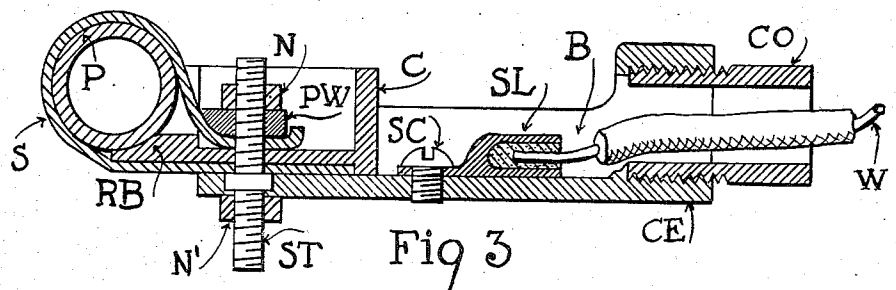
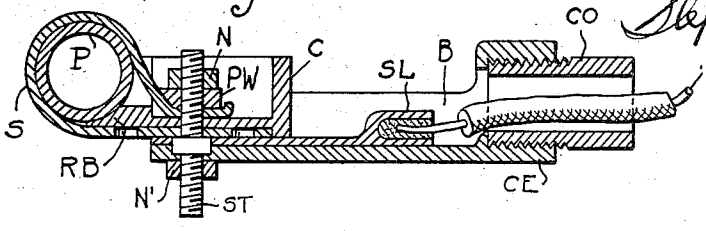


Fig 3

Fig. 4



Stephen W. Borden

INVENTOR.

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ELECTRICAL CONNECTING DEVICE FOR ELECTRICAL CONDUCTORS

Stephen W. Borden, Summit, N. J.

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5 Claims. (Cl. 247—1)

This invention relates to improvements in electrical connection devices for connecting together two electrical conductors where the connection is to be made to an end of one conductor but to some other portion of the second conductor as for instance, when the connection is to be made to a water pipe which is already installed as part of a water system. The particular type of connector to which these improvements relate is the so called "rigid" type connector, that is the type which holds the connected conductors rigidly together mechanically as well as electrically and which at the same time is so constructed as to protect the electrical connections from mechanical injury.

The objects of the improvements are to improve such electrical connecting devices in general and more particularly to provide first, a connector which is readily adjustable throughout an angle of 180 degrees and second, to improve the flexible connecting portion of such fittings.

The invention comprises the connecting de..ces described and claimed hereinafter in connection with the drawing and equivalents thereof, of which

Fig. 1 is a top plan view of a preferred form of my connector, and showing two connected conductors, P and W, lying at right angles to each other;

Fig. 2 is a bottom view of the same;

Fig. 3 is a vertical cross section on the line 3—3 of Fig. 1;

Fig. 4 is a modification showing the wire terminal clamped between the rigid portions.

In the drawing, like parts are indicated by like symbols.

The principal features of my connector are the two rigid portions B and RB and the flexible portion S, the other parts of the connector being ordinary devices generally used in the art.

Part B is constructed of conducting metal. One end, as CE, is formed and threaded to receive an electrical conduit, CO, while the other end is flat and provided with a hole through which the stud ST passes. Extending from the portion CE nearly to the other end of the part B, the part B is of channel construction so as to protect the electrical connection SL from mechanical injury.

Part RB is constructed of conducting metal and must be sufficiently heavy to be comparatively rigid. It is cupped shape to protect the electrical connections at PW from mechanical injury and also to provide bearing surface at C in order to secure additional rigidity of the complete fixture when assembled. One portion of the part RB is designed to conform substantially to the surface of a conductor such as P, to which it is to be clamped by the flexible portion S, this portion being relatively long as compared to the width of the strap S in order to provide sufficient rigidity.

The flexible portion S is of flexible conducting material, preferably copper or aluminum, and differs from such flexible portions heretofore used in that it is slotted laterally as shown at SS. The object of this slotting is to provide a strap which will conform more closely to the surface of the pipe or conductor, especially when the surface of said pipe or conductor P is rough or irregular.

The use or application of my connector is as follows, it being desired to connect the wire W, contained within the conduit CO, to a water pipe as P. The part B is screwed onto the conduit CO, the wire W is installed and the soldering lug SL is attached to the wire W and also attached to the part B by the screw SC, these operations being carried out in such chronological order as may suit the convenience of the wireman, this flexibility as to the order of the different operations being of considerable practical value. The part RB is attached to the pipe or conductor P by means of flexible portion S which is passed around the pipe P and drawn tightly into place by means of the washer PW and nut N. ST is a stud bolt screwed into the portion RB.

It will be observed that up to this point the part RB has been attached to the conductor or pipe P without the wireman being hampered in any way by the part B and likewise the work on part B has been completed without being hampered in any way by part RB. This is of practical importance since the conduit CO and the pipe or conductor P are usually in comparatively fixed positions and may be moved only by more or less application of force. In order to complete the connection it now only remains to move the part B sufficiently to pass the same over stud ST, after which it is securely clamped against the part RB by means of a nut, N'. The construction is such that part B may be located anywhere in an arc of 180 degrees with respect to the center line of the conductor P, two alternative positions being shown at B1 and B2 of Fig. 1.

While Figs. 1 to 3 show a preferable form of my connector, it is understood that the fitting might take other forms in order to meet special requirements. For instance, the part CE might be made in the form of a hollow lug into which a conductor such as W might be directly soldered or welded when the conductor W is of sufficient size and strength to require no mechanical protection, such as conduit CO, or again, the con-

duit CO might itself be a conductor, and the only conductor, connecting to the part B at the end CE. The soldering lug SL might be constructed of sufficient length to extend between the portions B and RB, the stud ST passing through the same, as shown in Figure 4 thus eliminating the necessity for screw SC with its corresponding threaded hole in the part B.

I claim:

1. An electrical connector for connecting two electrical conductors, one of which consists of a comparatively hard metal rod or pipe, said connector comprising portions consisting of a flexible metal strap for encircling the pipe or rod, the strap having slits extending lengthwise of its intermediate part in a direction circumferentially of the pipe or rod, said slits terminating short of the end portions of the strap whereby the end portions are integral with the slitted intermediate part and means coacting with said end portions for contracting the slitted part of the strap on said pipe or rod.

2. An electrical ground connector for connecting two electrical conductors arranged in fixed relation and one of which is grounded, said connector comprising two sections having lapping portions, one section having a strap for encircling the grounded conductor, one end portion of the strap extending between the lapping portions of the sections, a threaded pin extending through the lapping portions of the sections and the interposed end portion of the strap, a jaw on the pin, a nut threading on one end of the pin against the jaw, the other end of the strap extending under the jaw and a nut threading on the other end portion of the pin against the outermost lapping portion of the sections to clamp said sections together.

3. An electrical ground connector for connecting two conductors arranged in fixed relation, said connector including two rigid portions, one having a flexible strap attached thereto for encircling the grounded conductor and clamping said portion against said conductor and the other rigid portion having means for rigid connection to an electric conduit containing an electrical conductor; and a single means for contracting the flexible portion about the grounded conductor, for clamping the two portions together in any one of a plurality of angular positions and for clamping the electrical conductor directly to the first rigid portion.

4. An electrical connector for connecting together a water pipe and an electrical conduit and an electrical conductor protruding from the conduit, which includes a rigid portion formed with an annular member to receive the conduit; and a second rigid portion, non-integral with the first portion and overlapping the first portion, said second portion seating against the pipe and a third member which in conjunction with the second member and tightening means forms a clamp for the pipe; means for contracting the second and third portion rigidly against the pipe and a single means for clamping the two rigid portions together in any one of a plurality of angular positions and for clamping the electrical conductor to the first portion.

5. An electrical connector for connecting two electrical conductors, one of which consists of a comparatively hard metal rod or pipe, said connector comprising portions consisting of a flexible metal strap for encircling the pipe or rod, the strap being split lengthwise of its intermediate portion in a direction circumferentially of the pipe or rod, and means coacting with the end portions of the strap for contracting the split part of the strap on said pipe or rod.

STEPHEN W. BORDEN.