May 2, 1939. S. W. BORDEN 2,156,965

GROUND FITTING

Filed Sept. 13, 1937 2 Sheets-Sheet 1

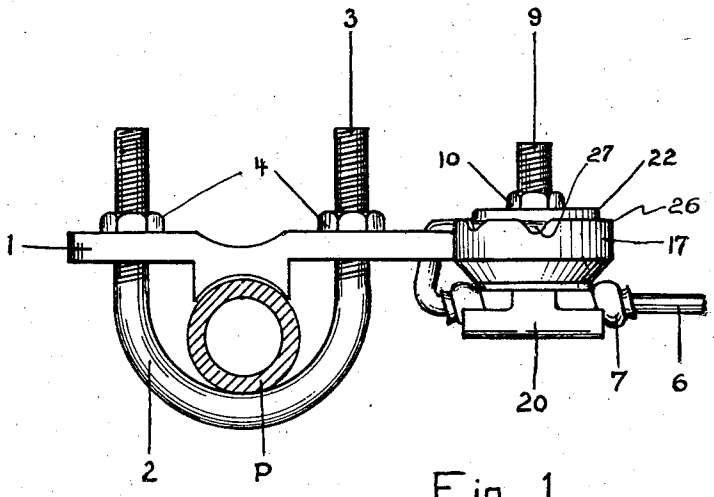


Fig. 1

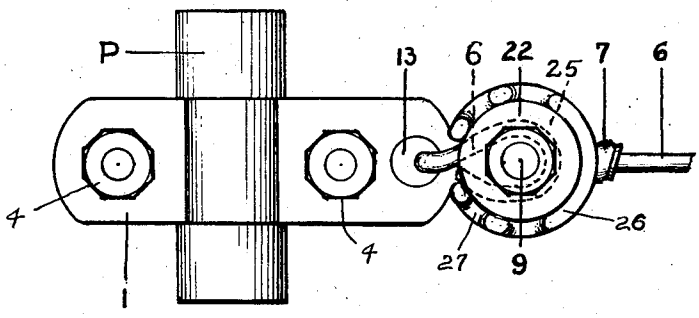


Fig. 2

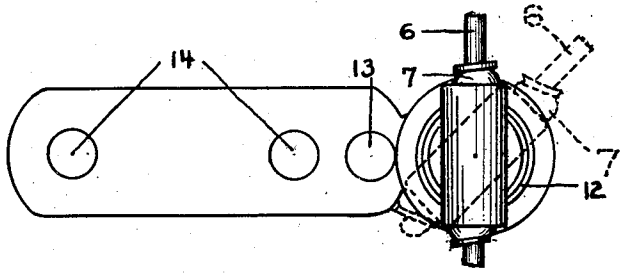


Fig. 3

INVENTOR

Stetten W. Borden

May 2, 1939. S. W. BORDEN 2,156,965

GROUND FITTING

Filed Sept. 13, 1937 2 Sheets-Sheet 2

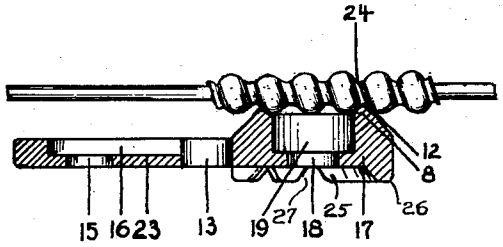


Fig. 6

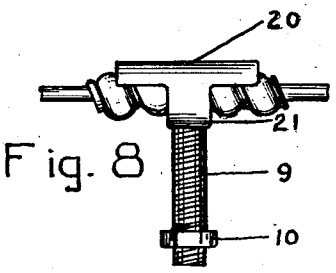


Fig. 8

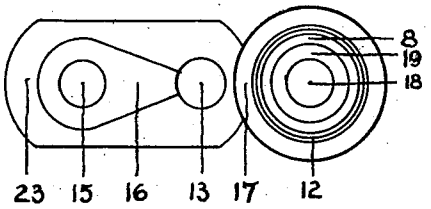


Fig. 5

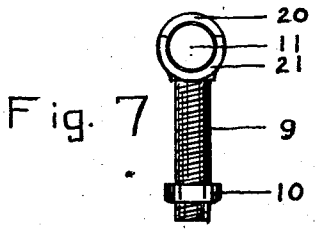


Fig. 7

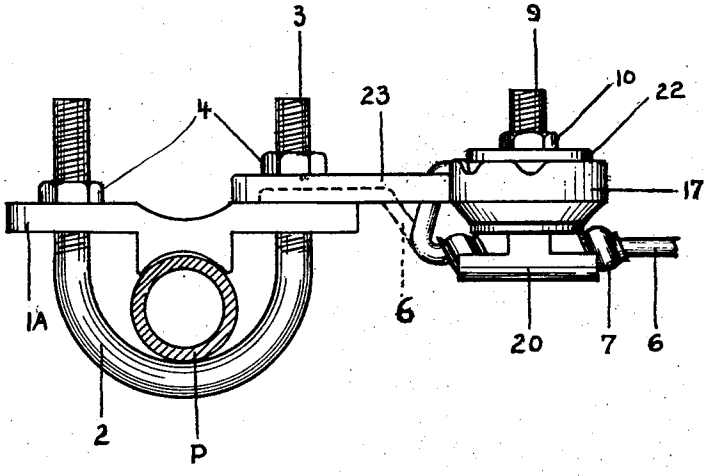


Fig. 4

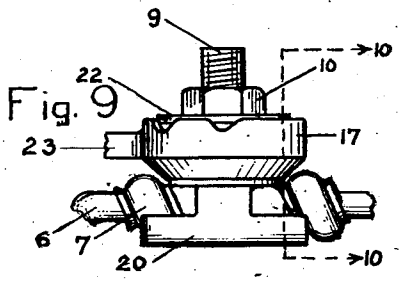


Fig. 9

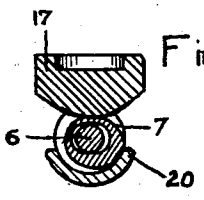


Fig. 10

INVENTOR

Stephen W. Borden

Patented May 2, 1939 2,156,965

UNITED STATES PATENT OFFICE

2,156,965

GROUND FITTING

Stephen W. Borden, Summit, N. J.

Application September 13, 1937, Serial No. 163,607

3 Claims. (Cl. 173—273)

This invention pertains to a ground fitting for connecting a ground wire and its protective covering to a water pipe or other earth electrode.

Fig. 1 shows the preferred form of the fitting, clamped on a water pipe and with the ground conductor and its protective armor clamped to the fitting. Fig. 2 is a top view and Fig. 3 a bottom view of the same except that in Fig. 3 the ground conductor is attached parallel to the water pipe. Fig. 4 is a modified form in which terminal plate 23 has been shortened and the yoke 1A added. Fig. 5 is a bottom view of the body 17 and Fig. 6 a vertical cross section on the center line of body 17 and showing an armored conductor resting in its seat. Fig. 7 is an end elevation and Fig. 8 is a front elevation of the clamping bolt 9. Fig. 9 shows an armored ground conductor clamped to the body member with the armor crushed against the conductor, Fig. 10 being a cross section on line 10—10 of Fig. 9.

Referring to the drawings; 17 is a hollow body member the details of which are shown in Figs. 5 and 6. One side of 17 is finished off into a relatively sharp ring 12 which may be forced into the corrugations 24 in a flexible armor as shown in Fig. 6. An opening 18 permits the insertion of bolt 9 and the cavity 19 accommodates the portion 21 of bolt 9 which is free to rotate therein when the conductor is not in place.

The body member 17 is in effect a terminal fitting for a ground wire and its protective covering provided with means for attaching both the covering and the wire thereto and with means for attaching the same to a ground clamp. Body 17 has an extension plate 23 which may extend only so far as shown in Fig. 4, in which it is provided with a single opening, as 15, by means of which it may be attached to a ground clamp, or plate 23 may be longer, as shown in Fig. 1, and provided with two openings for attachment to a ground clamp or, with the assistance of other parts, directly to a ground pipe. While the body member 17 is here shown, in Fig. 4, attached to a ground clamp of the U bolt type, it is to be understood that it may be attached to any type of ground clamp and that any means associated with the plate 23, for attaching the body member 17 to the ground pipe, is all that is necessary for carrying out the purposes of this invention. The invention resides in the construction of the body member 17 including the arrangement by which it is attached to the ground conductor and its covering, the method employed for attaching it to the grounding pipe being incidental and more or less immaterial.

When connecting up the fitting the bolt 9 is slipped over the end of the armored conductor 6 and the conductor is then bent at right angles to the armor. The bolt is then inserted in opening 18 and at the same time the conductor is inserted in opening 13 after which the conductor is twisted around bolt 9, washer 22 is applied and nut 10 is put on and tightened up. The result is that the armor 7 is securely clamped to seat 8 with ring 12 forced into the corrugations 24 and the conductor 6 is clamped against body 17 and in a depression 25 formed therein for retaining the same. The depression 25 is surrounded by a collar 26 which may be provided with depressions as 27 for the reception of conductor 6. As will be seen from Fig. 3 the conductor and its covering may be attached with the conductor in various angular positions with respect to the water pipe.

In the modification shown in Fig. 4 the conductor may be either clamped under washer 22 or it may be clamped between the yoke 1A and terminal plate 23 as shown in the dotted lines of Fig. 4. Parts 23 and 1A are clamped together by bolt 3 and nut 4 and may be clamped in a number of different angular positions with respect to the water pipe.

In Fig. 9 the bolt 9 and nut 10 are of larger size and of sufficient strength to crush the armor of an armored ground conductor against the conductor as shown in Fig. 10 so as to secure both the armor and conductor at the one point. This method of using the fitting is useful when the conductor is too large or stiff to be easily applied under washer 22.

While I have illustrated only armor as a protective covering for the ground conductor it will be understood that such covering may be a rigid conduit, thin wall conduit or pipe and that the fitting will accommodate such coverings if of sufficient size and strength.

While I have shown only two embodiments of my invention for the purposes of illustration and description, other changes and modifications may be made therein without departing from the scope of the invention and I, therefore, desire to be limited only by the scope of the appended claims.

What I claim is:

1. A ground fitting for connecting a ground wire and its protective covering to a water pipe which includes a body member provided with means for attaching the pipe thereto and with

means for attaching the covering thereto said latter means including a bolt having a transverse opening for the reception of the covering and a nut on the bolt and positioned on the opposite side of the body for drawing the covering against the body and means on the fitting for attaching the wire thereto.

2. A fitting for connecting a ground wire and its protective covering to a water pipe; which includes a body member provided with means for attachment to the water pipe and with means of attaching the wire and its covering thereto, said latter means including a receptacle, non-integral with body member, for the reception of the covering, the receptacle having a threaded bolt-like portion for positioning in an opening in the body member and a nut on the bolt-like member for clamping the covering in the receptacle and for clamping the covering and the wire against the body member.

3. A connector for connecting together a water pipe, a ground wire and the wire's protective covering which includes; a first portion having means for attaching the wire and its covering thereto; a second portion overlapping the first portion and seating against the pipe; and a third portion which, in conjunction with the second portion and tightening means, forms a clamp for the pipe, said third portion and said tightening means constituting means for clamping the first and second portions together in any one of a plurality of angular positions and for clamping the second portion to the pipe, said tightening means being independent of the means for securing the wire or its covering to the first member.

STEPHEN W. BORDEN.