W. R. GARTON.

GROUNDING DEVICE.

APPLICATION FILED NOV. 10, 1913.

1,177,180.

Patented Mar. 28, 1916.

Fig. 1.

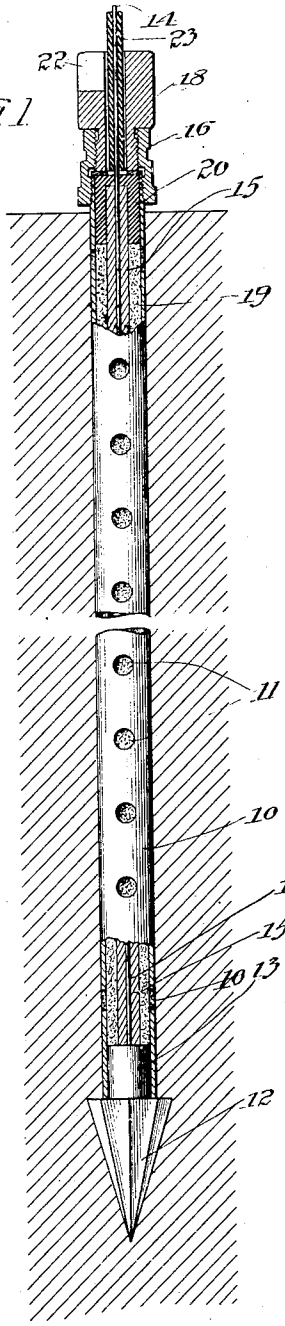


Fig. 3.

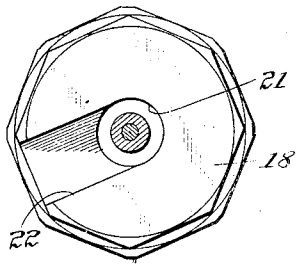


Fig. 4.

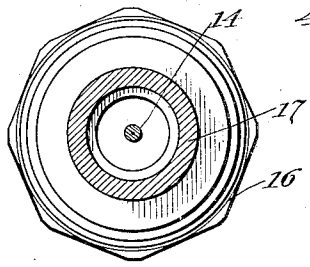


Fig. 5.

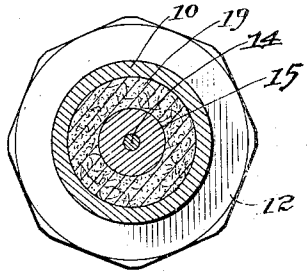
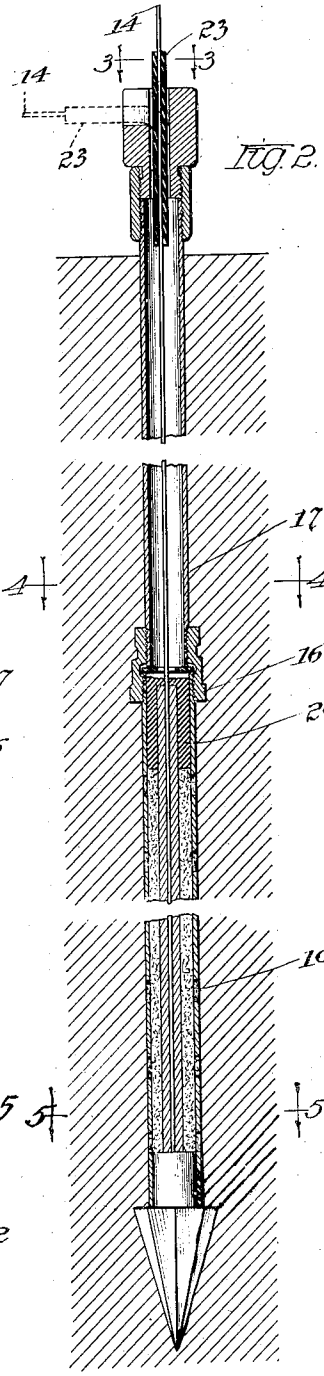


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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GROUNDING DEVICE.

1,177,180. Specification of Letters Patent. Patented Mar. 28, 1916.

Application filed November 10, 1913. Serial No. 800,112.

To all whom it may concern:

Be it known that I, WILLIAM R. GARTON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Grounding Devices, of which the following is a specification.

My invention relates to improvements in grounding devices or ground terminals for electric circuits.

My present invention has especial reference to devices of this character that may conveniently be driven into the ground and which are capable of establishing and maintaining electrical connection, of relatively low resistance, under all conditions of weather with the surrounding earth into which said device has been driven.

The device is capable of imparting a condition to the surrounding earth that greatly reduces its specific electrical resistance and as this condition extends radially a considerable distance from the tube constituting part of my driven ground terminal, the resistance is thereby further reduced as the result of the large area of contact of the treated earth with the natural earth. For these reasons, the tube containing the prepared material, may present a relatively small, superficial area to the earth for actual contact therewith and therefore I am enabled to place the irriguous chemical material in a relatively small iron pipe and drive the pipe into the ground.

In the accompanying drawing wherein I have illustrated an embodiment of my invention—Figure 1 shows an elevation of my terminal device as it appears when driven into the ground, or earth. Fig. 2 shows the terminal driven deeper into the ground by use of an extension pipe connected thereto. Fig. 3 is a section taken on line 3—3 of Fig. 2. Fig. 4 is a section taken on line 4—4 of Fig. 2. Fig. 5 is a section taken on line 5—5 of Fig. 2.

In all the views the same reference characters are employed to indicate similar parts.

The terminal proper of my device consists of a pipe 10 which may be ordinary gas pipe perforated at intervals, as at 11, and having secured to its bottom end a point 12, made of suitable cast metal, such as cast of malleable iron, secured to the pipe either by driving the pipe onto the cylindrical projection 13 of the point, or screw-threading this part to the pipe, as may be desired.

In carrying my invention into practical effect I have found that if the point 12 be driven into the end of the tube so that it is restrained with some degree of certainty by the friction exerted between the cylindrical part and interior of the tube that it is all sufficient, as there is no particular strain between these parts when the device is in operative position. I next provide a copper wire 14 properly tinned and surrounded with a lead covering or jacket 15, so as to increase its area or surface and then secure the lower end of the lead jacket 15 and the wire 14 to the cylindrical part 13 of the tube so as to make good electrical contact between these parts.

To the upper end of the terminal proper, as by screw threads, I secure a fitting 16 for connection of an extension pipe 17. The extension pipe 17 is employed when it is desired to drive the terminal farther into the ground than the length of the terminal itself will permit. If I use the terminal alone, as shown in Fig. 1, I screw a driving plug 18 into the fitting 16 to provide an anvil upon which to receive the impact of the hammer blow when the terminal is being inserted in the ground.

The lead jacket 15 covers the wire which is included within the pipe 10 but the wire may be extended therebeyond, as shown in Fig. 2, for connection to the electric circuit, or other service, such as a lightning rod or the like, that it is desired to ground. After the wire 14 and the jacket 15 have been placed within the tube 10 I place in the tube, between the interior surface thereof and the exterior surface of the lead jacket 15 an absorbent compound or composition 19. A suitable compound may be made by combining chlorid of potassium and chlorid of sodium together with a suitable binding powder and mixing with granulated coke or charcoal. Before placing this compound in the tube 10, I surround the tube with a temporary jacket to temporarily close the openings or perforations 11, and then pour the composition into the tube 10 and fill the tube to within a short distance of the top, the space above the composition being afterward filled with lead 20, to seal the composition within the tube.

The driving cap 18 is centrally perforated, as at 21, and is provided with a radial slot 22. After the driving cap 18 has been screwed into the fitting 16, which may be

readily done with the wire 14 extending through the perforation 21, the wire 14 and the covering 23, which latter is preferably made of some insulating material, is bent down at right angles into the position shown in Fig. 3, so as to provide an uninterrupted surface on the top of the cap 18 to receive the impact of the hammer without injuring the wire, and after the tube and the extension pipe, if such pipe be used, is driven into the ground, the wire 14 is straightened again, as shown in Figs. 1 and 2, and may be continued to a remote point by soldering or otherwise joining another wire thereto, as usual in the practice of such art.

The winding 23 is preferably made of cotton fabric saturated with asphaltum, or the like, so as to insulate the wire 14 directly from the cap 18 where the part is subjected to atmospheric conditions and would thereby be affected by electrolytic action causing the unnecessary disintegration of the parts.

The composition 19, introduced in the terminal tube, is more or less porous and has the characteristic of absorbing moisture from the surrounding earth, when the earth is super-saturated with moisture, and giving off the moisture when the earth becomes more or less dry thereby increasing the earth's contact value and also retaining a certain amount of moisture at all times absorbing moisture when the exterior conditions are more heavily charged with moisture than the composition itself and giving it off at times when the composition is more heavily charged than the surrounding earth

The openings 11 in the tube 10 provide means for access of moisture in the earth with the compound or chemical within the terminal tube, so that there may at all times be a free interchange of moisture by infiltration, through these apertures.

By making my grounding device substantially as disclosed in this application it may be driven into the earth just as a similar tube is driven into the earth for a driven well and the device is brought into contact with earth that has otherwise been undisturbed, as when digging a hole within which to place or bury the device.

Having described my invention, what I claim is:—

A ground terminal adapted for use with a hygroscopic composition, comprising a perforate, tubular receptacle, having a driving point at one end, an electric conductor extending through said tube, a space between said conductor and said tube being filled with the aforesaid composition, and a centrally perforated driving cap on the upper end of said tube having a radially disposed slot extending from said perforation to the periphery of the cap and opening to the upper end thereof.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

WILLIAM R. GARTON.

In the presence of—

M. C. LUDEMANN,

C. WICHERT.