

No. 873,375.

PATENTED DEC. 10, 1907.

B. J. JONES.
GROUND PLATE.

APPLICATION FILED AUG. 5, 1907.

Fig. 1

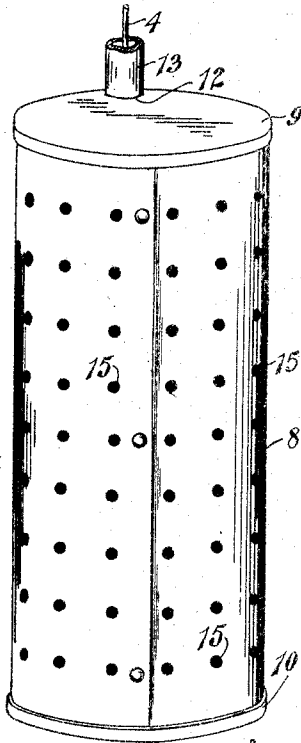


Fig. 3.

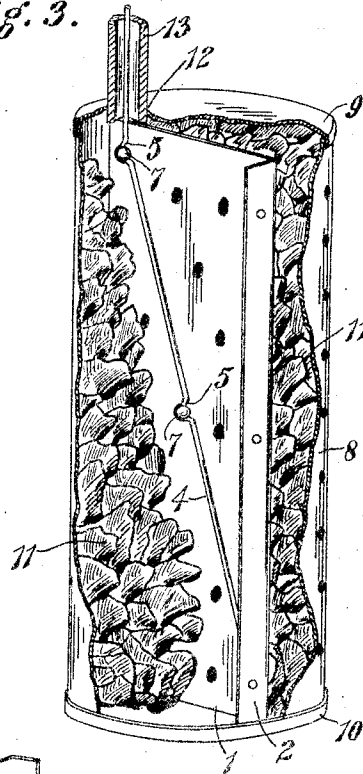


Fig. 2.

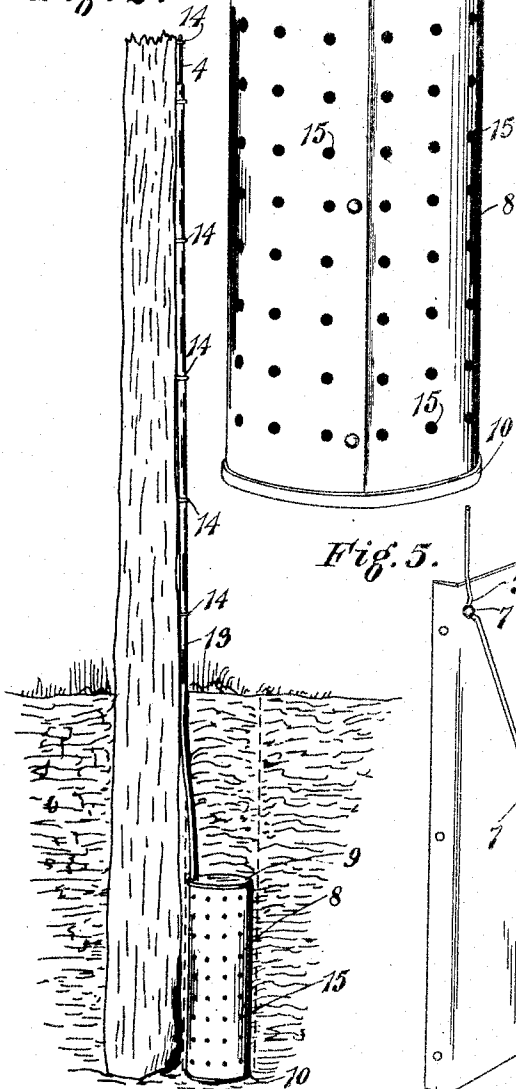


Fig. 5.

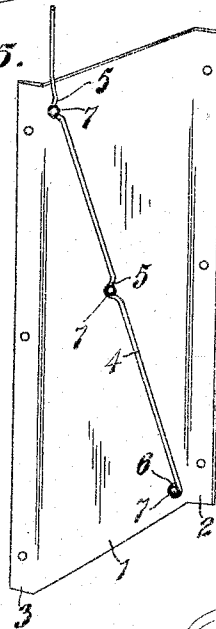
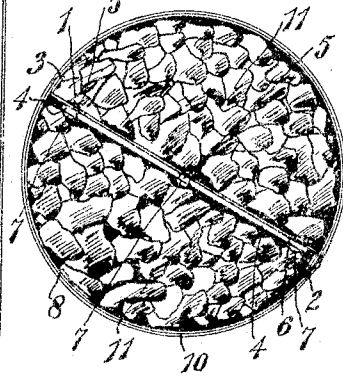


Fig. 4



Witnesses:
Clarence Terdew
Stella Ruby

Inventor
Budd J. Jones
By James H. Ramsey
Attorney

UNITED STATES PATENT OFFICE.

BUDD J. JONES, OF CINCINNATI, OHIO.

GROUND-PLATE.

No. 873,375.

Specification of Letters Patent.

Patented Dec. 10, 1907.

Application filed August 5, 1907. Serial No. 387,063.

To all whom it may concern:

Be it known that I, BUDD J. JONES, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Ground-Plates, of which the following is a specification.

My invention relates to means for making electrical contact with the earth, the object being to provide, in portable form an efficient and durable device of this character, convenient for use whenever it is desired to make a ground connection in engineering work, especially for lightning arresters.

My invention consists in a shell inclosing an inner plate to which the conductor which is to be grounded is connected, said plate being covered by a suitable absorbent and conducting material, which is confined by said shell.

My invention also consists in the parts, and in the combination and arrangement of parts as will hereinafter be more fully described and claimed.

In the drawing: Figure 1 is a perspective view of a complete device constructed as I prefer to embody my invention. Fig. 2 is a view illustrating how the ground plate is installed in connection with pole line construction. Fig. 3 is a sectional perspective view of the device, illustrating the inner construction, the inner plate being perforated. Fig. 4 is a plan view of same with the upper cap removed. Fig. 5 is a detail perspective view of an inner plate with the conductor attached thereto.

As illustrated, the inner plate 1 is provided with the flanges 2 and 3, and has the conductor 4 attached to one side and preferably extending diagonally thereof. This conductor 4 is attached to the inner plate 1 by being provided with open loops 5 at intervals of its length and with the closed loop 6 at its end, within which engage the rivets 7 passing through the plate 1. In order to further secure the conductor 4 to the plate 1 as well as to insure perfect electrical connection, solder is sweated between them along the length of the conductor 4. The shell 8 is composed of a sheet preferably formed into a cylinder, as shown, and having its overlapping ends riveted to the flange 2 of the inner plate 1, the diametrically opposite part being likewise riveted to the other flange 3 of said inner plate 1. The ends of the shell 8 are closed by

the upper and lower caps 9 and 10 respectively. The inner plate 1 thus forms a diaphragm dividing the shell 8 into substantially semi-cylindrical chambers, which are filled with a medium 11 adapted to form a good electrical-conductor between the inner plate, and the earth which surrounds the device when installed, and to also readily absorb the moisture of the earth, and thereby increase in conductivity to add to the efficiency of the ground connection. Charcoal and coke are suitable materials for this purpose.

The caps 9 and 10 are preferably shallow and of the proper size to fit snugly onto the ends of the cylindrical shell 8, and be secured thereto by soldering applied in a suitable manner. The upper cap 9 has the opening 12 through which passes the conductor 4, and this is preferably large enough to admit the conduit 13, which is provided to surround the conductor 4 above the inner plate 1. The conduit 13 may be of fiber, and should be sufficiently substantial and extend to such a height above the surface of the ground to protect the wire from ordinary rough usage, intentional or otherwise, to which it might be exposed in the construction illustrated herewith. This arrangement is best illustrated in Fig. 2 of the drawing. The conduit and conductor should be substantially fastened to the pole, such as by staples 14. The sheet of which the shell 8 is formed, as well as the caps 9 and 10, may be very thin and of metal, such as copper, and preferably provided with the perforations 15, as illustrated, to admit the moisture from the earth to the conducting medium 11. Other material may be employed for this purpose, however, and this may or may not be previous since the only purpose of the shell is to confine the conducting medium around the inner plate 1 in portable form while allowing of electrical connection between said inner plate 1 and the surrounding earth when the device is installed. The inner plate 1 may be perforated to allow thorough distribution of the moisture throughout the conducting medium 11 or it may be plain as illustrated in Fig. 5 of the drawing. In any case copper is the most suitable material for the inner plate 1 as well as the conductor 4, both of which are protected from mechanical injury as well as from corrosion, to a great extent, by the surrounding medium 11. At the

same time, this medium 11, being absorbent, will hold a considerable amount of moisture for a long period of time, facilitating the uniformly efficient operation of the device. The protective function of the medium 11 is especially desirable in localities when the earth surrounding the ground plate contains acids or salts. Where copper is used for the outside covering or shell 8, it should, preferably, be tinned to further resist possible corrosive action.

One of the advantages of this ground plate is the ease and cheapness of installation, which in most cases may be accomplished by the use of a post-hole auger, to form an excavation of a diameter slightly larger than that of the device, and of a depth sufficient to insure continual moisture in the surrounding earth, into which it may then be inserted with its conductor 4 attached and the conduit 13 in place, and the earth filled in upon it and tamped so as to come into intimate contact with the shell 8. The extent of such an excavation is illustrated in Fig. 2 by the dotted lines 16, the installation being here immediately adjacent the post. However, it will be understood that the device is equally well suited for use in interior or station work, or any other place where it is desired to make a thoroughly efficient ground connection, either for lightning arresters or other electrical apparatus. The shape of the device may be varied with equal facility, should it be found necessary, in connection with different classes of service, although the cylindrical construction here illustrated and described will be found most convenient in a majority of cases, the primary object being to furnish a made up ground plate unit ready to install, to dispense with the present practice, which necessitates the securing of the several parts and assembling them at the time and place of installation. This feature of portability is especially advantageous in localities where the materials, such as sheet copper, or charcoal, or coke, are either unobtainable or secured with great difficulty. Additional contact surface may be supplied by adding as many of these complete ground plate units as may be required. With such a construction, the ground plate units may be made up in a quantity and distributed to the places where they are to be used, thus economizing in production as well as eliminating chance of improper arrangement, that exists when the various elements are received separately, and assembled during the process of installation. These units being sufficiently substantially constructed to bear the strains due to handling, are, of course, not liable to have their parts misplaced when installed in the ground, thus giving assurance of perfect working condition.

It will be understood from the above that my invention is capable of considerable

modification without departure from the scope and spirit thereof, and therefore I do not wish to be understood as limiting myself to the precise construction shown and described herein, but

What I claim as new and desire to secure by Letters Patent is:

1. In a ground plate, an inner plate forming a diaphragm, a conductor connected thereto and a conducting material covering said inner plate and said conductor.

2. In a ground plate, an inner plate forming a diaphragm, a conductor connected thereto, a shell surrounding said inner plate, and a conducting material covering said inner plate and confined thereto by said shell.

3. In a ground plate, an inner plate forming a diaphragm, a conductor connected thereto, a pervious shell surrounding said inner plate, and a conducting material covering said inner plate and confined thereto by said shell.

4. In a ground plate, an inner plate, a conductor connected thereto, flanges on said inner plate, a shell attached to said flanges whereby said inner plate forms a diametrically extending diaphragm, and a conducting material covering said inner plate and confined thereto by said shell.

5. In a ground plate, an inner plate forming a diaphragm, a conductor connected thereto, a shell surrounding said inner plate, caps on said shell, one of said caps being provided with an opening through which said conductor passes, and a conducting medium covering said inner plate and confined thereto by said shell and said caps.

6. In a ground plate, an inner plate, a conductor connected thereto, a flange on said inner plate, a shell composed of a sheet having its ends overlapping and riveted to said flange, and a conducting material covering said inner plate and confined thereto by said shell.

7. In a ground plate, a rectangular inner plate, a conductor extending diagonally thereof and connected thereto, flanges on said inner plate, a sheet surrounding said inner plate and attached thereto whereby a cylindrical shell is formed, and a conducting medium covering said inner plate and confined thereto by said shell.

8. In a ground plate, a perforated inner plate forming a permeable diaphragm, a conductor connected thereto, a pervious shell surrounding said inner plate, and an absorbent conducting material covering said inner plate and confined thereto by said shell.

9. In a ground plate, a rectangular inner plate, a conductor extending diagonally thereof and connected thereto, flanges on said inner plate, a cylindrical shell composed of a sheet having its ends overlapping and

riveted to one of said flanges and having its
oppositely disposed part riveted to the other
of said flanges, caps on the ends of said cy-
lindrical shell, and an absorbent conducting
5 material covering said inner plate and con-
fined thereto by said shell and said caps, said
inner plate and said shell being perforated,

substantially as and for the purposes speci-
fied.

BUDD J. JONES.

Witnesses:

JAMES N. RAMSEY,
STELLA RUTZ.