March 11, 1941. F. L. AIME 2,234,662

TERMINAL ENCLOSURE

Filed Sept. 27, 1939

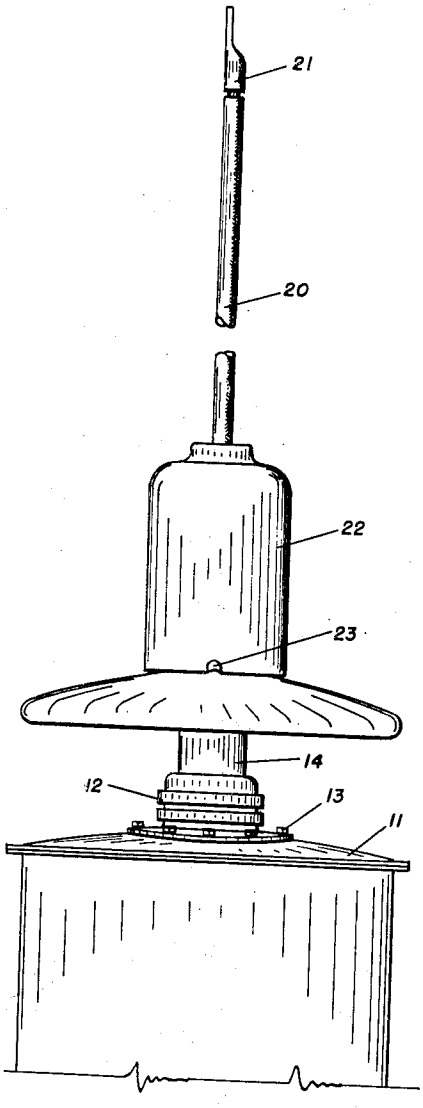


Fig. 1

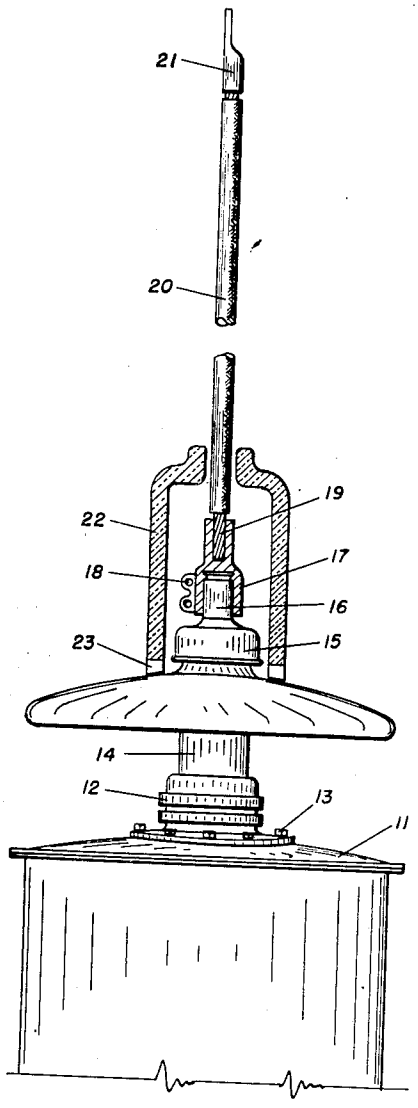


Fig. 2

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TERMINAL ENCLOSURE

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1 Claim. (Cl. 174—145)

This invention relates to an improved type of terminal for electric distribution circuits, designed for outside operation, in which those portions of the terminal which carry an electrical potential are entirely enclosed so that there is no possibility of their coming in contact with grounded objects.

This construction has particular application to rural electrification projects where numerous small transformers are installed on poles or in other exposed conditions. Generally such circuits are operated at potentials of 7500 volts and consequently it is inevitable that any animal or bird which comes in contact with the conducting portions of the circuit will be killed even if it is only partially grounded. Similarly, serious damage and, at the least, loss of current may result if branches of trees, wires or similar objects are so positioned, accidentally or otherwise as to contact the exposed terminal.

It is the chief object of this invention to provide an insulating fitting for terminals which is inexpensive and, at the same time, is adaptable to the various types of insulators and accessories which are now in use, but which eliminates any danger of contact with the energized portions of the circuit so long as the fitting is in position.

Further and other objects of the present invention will be hereinafter set forth in the accompanying specification and shown in the drawing which, by way of illustration, show what I consider a preferred embodiment of the invention.

In the drawing—

Figure 1 is an elevation of a terminal made in accordance with the present invention.

Figure 2 is an elevation of a terminal shown in Figure 1 certain parts having been broken away to reveal the interior construction.

Referring to the drawing, a transformer casing 11, which is at ground potential, is fitted with a flanged collar 12, secured in place by appropriate bolts 13. Cemented to the collar is a porcelain insulator 14 through which passes a copper rod designed to serve as a path for the current from the terminal to the apparatus enclosed within the casing. The insulator is fitted with a metallic cap 15 which is in electrical contact with the copper rod passing through the insulator and which is also cemented to the porcelain so as to provide a moisture-proof joint. The upper end of the cap is turned down to form a post 16 over which the coupling 17 may be slipped and tightened in place by the bolts 18. The coupling, in turn, is drilled to receive the conductor 19 of the insulated cable 20 to which it is soldered, while the other extremity of the cable is fitted with a lug 21 which may be readily attached to an overhead line.

The feature of the present invention lies in the use of the porcelain shield 22 which is slipped over the cable 20 and rests upon the skirt of the insulator. It is important that the opening in the upper end of the shield fit very loosely about the cable covering as otherwise there would be a tendency to chafe and wear the insulation. Furthermore, when the shield fits the cable loosely, the weight of the shield is supported wholly by the insulator so that there is no tendency for the shield to vibrate against the glazed surface of the supporting porcelain. For practical reasons it is desirable that the minimum internal diameter of the shield exceed the maximum outside measurement of at least one of the fittings used with the cable so that the shield may be slipped in place after the fittings are attached. Otherwise it will be necessary to remove one of the fittings if they have been negligently soldered to the conductor before the shield is placed in position.

If the shield is made of porcelain it is desirable that it be glazed, not because of any electrical requirements since the shield is not under electrical stress, but rather as an aid to keeping the surface clean and free from dirt which would adhere to an unglazed surface. The inner surfaces of the constricted top portion of the shield should however be glazed or otherwise smoothed and polished so that the effects of any rubbing on the cable which may occur will be minimized.

As the upper end of the shield fits loosely about the cable there is an opportunity for drops of water to run down the cable 20 and so find their way inside the shield. For this reason, notches 23 are provided on the lower edge of the shield to permit any entrapped water to drain out.

It will be seen that a bird perched on the shell of the transformer 11 which might accidentally brush against the cap or fitting 19 and so be electrocuted is protected by the shield 22 which completely surrounds all exposed parts of the connection. Branches, wires or similar objects which may fall or be thrown on the transformer are also kept out of contact with the live parts of the circuit.

While the shield has been described as being made of porcelain, other vitreous materials such as glass may be used or one of the many molding compositions which use resinous binders may

be substituted, provided it possesses the necessary degree of weather-resistance.

What I claim is:

An assembly of the type described comprising an electric insulator fitted with an exposed energized metallic connector, an insulated electric conductor in contact with said connector and a protective cylindrical shield formed of frangible electrically insulating vitreous material enclosing said connector, said shield being constricted at its upper end so that its minimum internal diameter is substantially greater than the maximum dimension of the insulated electric conductor in cross-section, said shield being enirely supported by said insulator, the internal diameter of said shield being sufficient at all points to provide clearance between the interior surface of the shield and the enclosed connector, the clearance being sufficient to permit entrapped moisture to drain through ports recessed in the lower edge of said shield between said shield and said insulator.

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