Oct. 23, 1934. E. F. W. SALISBURY 1,977,808

POTHEAD TERMINAL

Filed Jan. 12, 1932 2 Sheets-Sheet 1

Fig. 1.

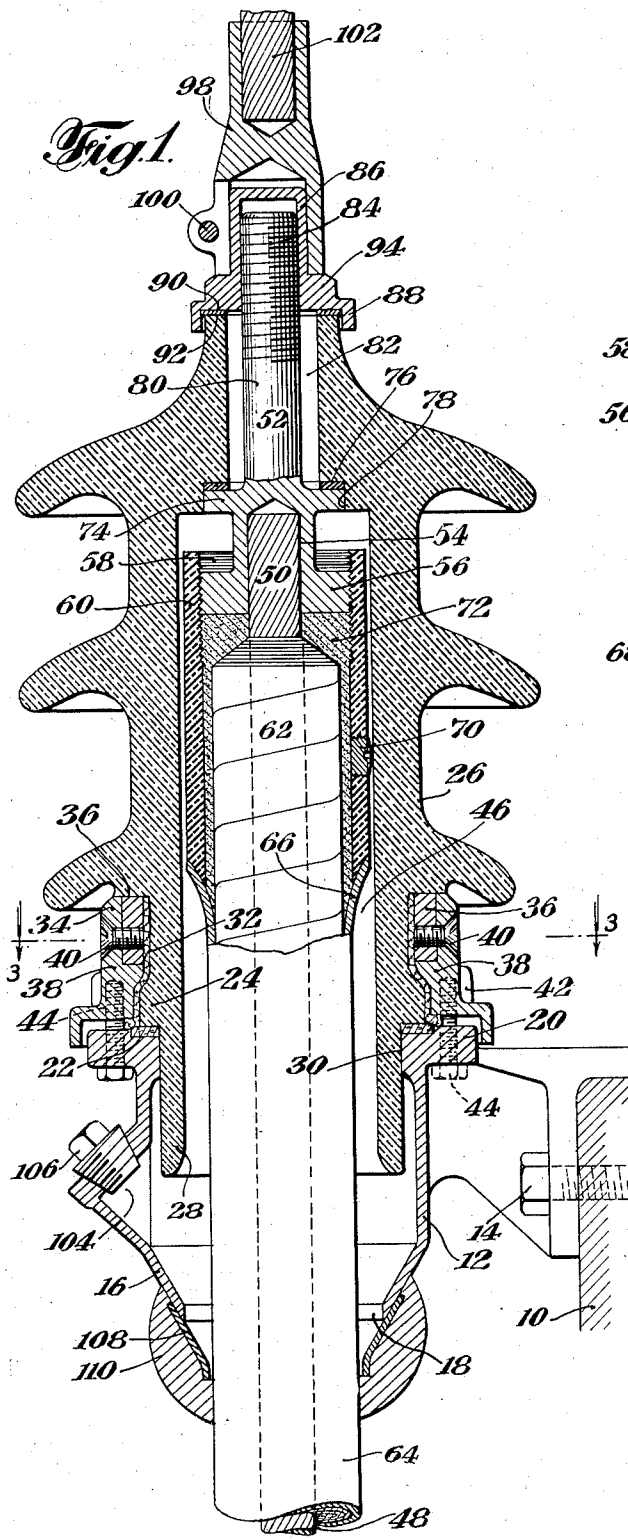
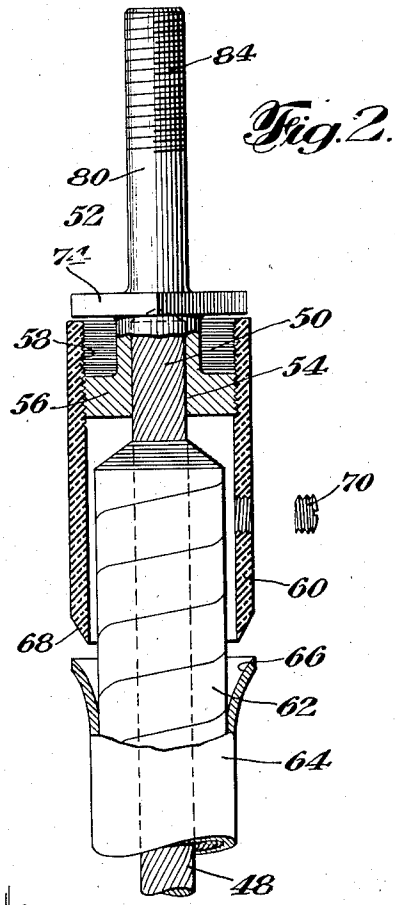


Fig. 2.



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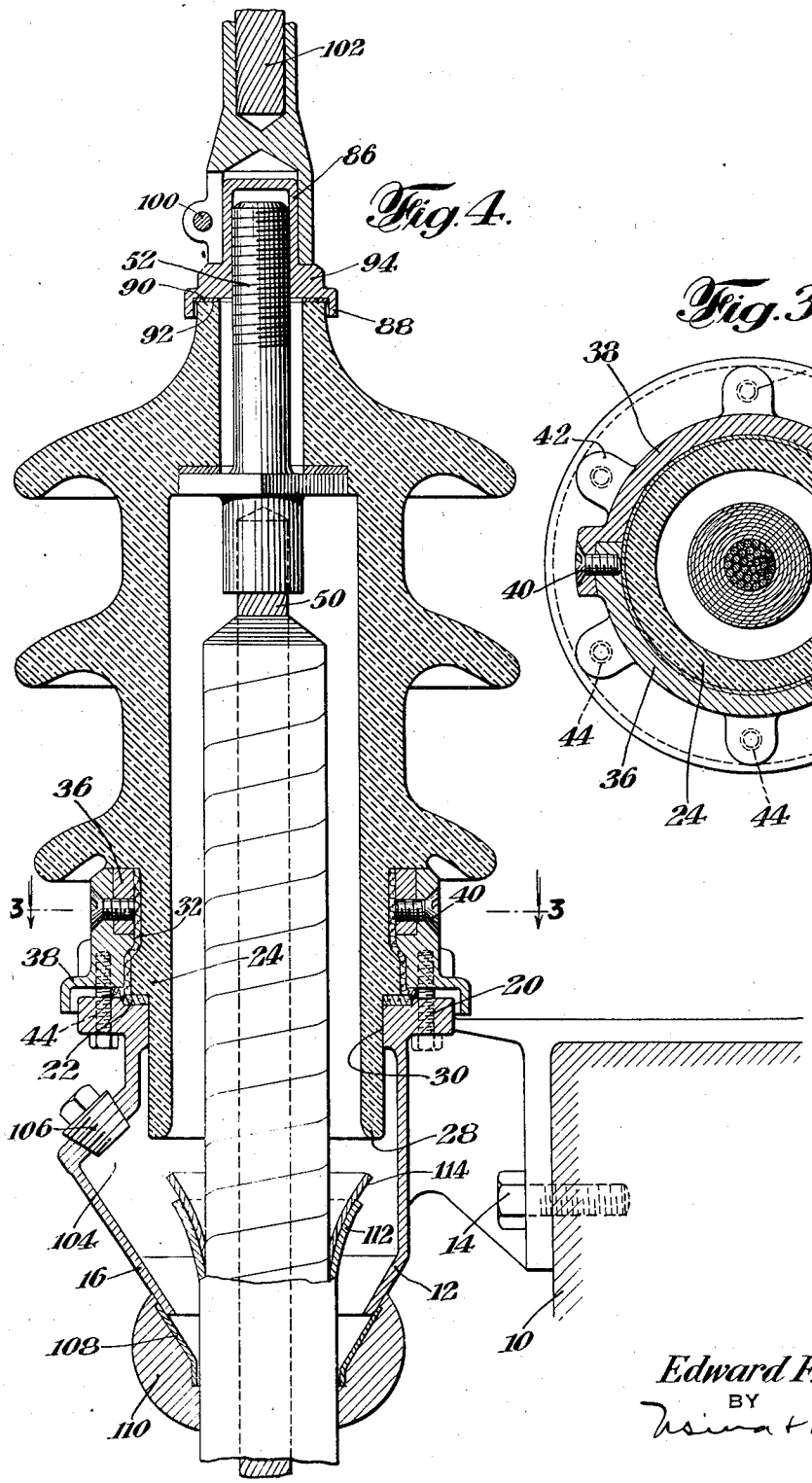

Fig. 4.

Fig. 3.

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POTHEAD TERMINAL

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Application January 12, 1932, Serial No. 586,168

4 Claims. (Cl. 173—353)

This invention relates to improvements in terminals for electric conductors and in particular to what is known in the art as a pothead terminal.

The invention will be fully apparent from the following detailed description when read in connection with the accompanying drawings and will be pointed out with particularity in the appended claims.

In the drawings:—

Fig. 1 is a longitudinal vertical section through a pothead embodying the invention;

Fig. 2 is a detail view illustrating the manner of assembling parts of the pothead terminal of Fig. 1;

Fig. 3 is a horizontal section taken on line 3—3 of Fig. 1;

Fig. 4 is a vertical section similar to Fig. 1, but illustrating a modification of the invention.

Referring in detail to the drawings, 10 represents any fixed structure, to which a pot or casing 12 is secured by means of bolts 14. The lower extremity of the pot 12 is of substantially hollow frusto-conical form, as indicated at 16 and it has an axial aperture 18 at its extremity of a diameter sufficiently large to permit the entrance of the enlarged parts secured to the end of the terminal to be hereinafter referred to.

At the top of the body, there is formed a flange 20 having a counter-sunk portion, in which is seated a gasket 22 formed of cork, or the like.

A shoulder 24 formed on an insulator 26 is seated on the gasket 22. This insulator has a downwardly extending skirt portion 28, which makes a loose fit with the bore 30, at the upper part of the pot or casing. Surrounding the shoulder portion 24 and also extending for a short distance upwardly there is a pad 32 formed of fabric, or other suitable resilient material.

For detachably securing the insulator 26 to the body or casing, I provide a two part base ring, indicated as a whole at 34. This ring, as best shown in Fig. 3, includes two substantially semi-circular parts 36 and 38, which are secured to one another by transversely extending screws 40. Each of these rings, is provided with a plurality of lugs 42 adapted to receive the ends of bolts 44 which pass through the flange 20 of the pot or casing, thus drawing the shoulder 24 of the insulator firmly against the gasket 22 seated on the flange of the pot or casing 12.

The insulator 26 is provided with an axially extending interior chamber 46 having a diameter sufficiently large to permit the free passage of the enlarged pothead terminal to be presently referred to.

An electric conductor 48 usually in the form of a stranded cable has secured to its terminal portion 50 a stem member, indicated as a whole at 52. This member has an interior socket 54 into which the extremity of the terminal portion 50 of the cable is securely fastened, the joint usually being made permanent by soldering. The lower extremity of the stem 52 is in the form of an enlarged head 56 having screw threads on the exterior thereof, which engage threads 58 formed on the interior of a tube or sleeve 60, formed of bakelite, fiber, or similar dielectric material.

The cable 48 is wrapped with a plurality of layers of suitable insulating material in any manner well known in the art. This insulator wrapping being indicated at 62. Over the insulation, there is an outer lead sheath 64. The upper extremity of this sheath is flared outwardly, as indicated at 66, so as to form a seat for the tapered or beveled end of the sleeve 60. The sleeve 60 in its working position is screwed down over the enlargement 56 of the stem 52, so as to seat the beveled portion 68 firmly against the flared part 66 of the sheath, so as to form a hermetical seal. The sleeve 60 is provided with a removable tapered closure plug 70, through which a suitable insulating compound can be inserted after the parts are assembled. This insulating compound, is indicated at 72, in Fig. 1.

After filling up the void between the interior of the sleeve 60 and the exterior of the cable and its wrapping, the tapered plug 70 is firmly screwed home, thus hermetically sealing the terminal portion 50 of the cable.

The stem 52 above referred to is provided with a flange 74 of non-circular form. As illustrated, this flange is square in plan and it is seated against a similarly shaped gasket or washer 76, both the flange and the gasket being accommodated in a square recess 78 formed in the interior portion of the insulator. The shank 80 of the stem 52 extends freely through an enlarged axial opening 82 of the insulator body and has "Dardelet" self-locking threads 84 formed thereon. These threads engage the interior threads formed on the hood nut 86. This nut has a petticoat portion 88, which depends from a bearing portion 90 which is adapted to seat against the gasket 92 located on top of the insulator body. The hood nut has a hexagonal portion 94 adapted for engagement with a suitable wrench. When this hood nut is screwed on the threads 84 of the shank of the terminal, it will be understood that the squared flange 74 prevents the terminal from turning relatively to

the insulator, thus the terminal will be firmly clamped to the insulator body between the yielding gaskets 76 and 92.

A connector fitting 98 is adapted to be clamped to the hood nut by means of a transversely extending bolt 100. This fitting having secured thereto the conductor 102 which it is desired to connect with the pothead terminal.

After the parts are assembled in the position shown in Fig. 1, the interior of the pot or casing 12 is filled with insulating material. Preferably, this insulating material is introduced in the form of a liquid, or semi-liquid, or semi-plastic mass, the same being forced in under pressure through an inlet port 104 formerly closed by a tapered pipe plug 106.

To positively prevent leakage of the insulating compound from the lower part of the pot or casing, I provide a cone-like ring or thimble 108, which is attached to the conical portion 16 of the pot. And over the ring, I form a wiped joint 110, this joint of course readily adhering to the lead sheath surrounding the cable.

In Fig. 4, I have illustrated a modification, in which many of the parts are the same as those above referred to and they are, therefore, indicated by like reference characters. The chief difference between this construction and that shown in Figs. 1 to 3 is that I omit the threaded flange 56 of the terminal stem 52 and also the shell 60. In this form of device, the lead sheath surrounding the cable terminates at a point below the insulator petticoat 28. This sheath is flared outwardly, as indicated at 112 and it has soldered thereto a stress cone 114 adapted to distribute electrical stress well known in the art.

From the foregoing, it will be appreciated that in my improved construction the insulator for the pothead terminal is secured to the pot or casing by the two part clamping ring without the use of cement or the like.

The described construction aims to eliminate the usual line troubles with potheads which are usually caused by the entrance of moisture at the top of the structure. The herein described structure, precludes the entrance of such moisture, it being understood that the clamping action of the hood nut 86 and the flange 74 will hermetically seal the interior of the insulator, the gaskets 92 and 78 contributing materially to this desirable end. The self-locking threaded connection between the shank of the terminal stem and the hood nut makes it impossible to loosen the latter by vibration. The sleeve with its tapered lower extremity makes a substantially moisture tight joint with the flared part of the lead sheath when filled with compound, thus making a perfectly tight joint, so that in the event that moisture should seep into the pot or casing due to leakage, or depletion of the insulating filling, such moisture cannot reach the insulated wrapping around the conductor and thereby cause its breakdown.

The above and other inherent advantages of the described pothead terminal will be readily apparent to those skilled in the art.

While I have described quite precisely the design and construction of certain embodiments of the invention herein illustrated, it is to be understood that the description and drawings are to be interpreted in an illustrative rather than a limiting sense since various modifications may be made by those skilled in the art without departure from the invention as defined in the appended claims.

What I claim is:—

1. In a device of the character described, a pot-casing having a supporting flange, an insulator, means for securing the insulator to said flange, said insulator having a depending petticoat portion extending downwardly from said flange into the interior of the casing, a sheathed conductor extending through said insulator and having a flared portion spaced from the extremity of said petticoat portion, a terminal stem secured to one end of said conductor, a sleeve of insulating material threaded on said stem and having a tapered portion for engagement with the flared part of said sheath, and means for clamping said terminal stem to said insulator.

2. In a device of the class described, a pot-casing, an insulator secured thereto, a sheathed conductor, a joint secured to the casing and said sheathed conductor, a terminal stem secured to an end of said conductor within said insulator, said terminal stem having a sleeve of insulating material threaded on one end thereof, said sleeve having a portion shaped to wedgingly engage a portion of the sheath for the conductor, an abutment on said terminal stem, a gasket interposed between said abutment and part of the insulator body and a nut threaded on the extremity of said shank and having a hood portion extending across the top thereof.

3. In a device of the class described, a pot-casing, an insulator secured thereto, a metal-sheathed conductor having one end enclosed by said insulator, a joint uniting the casing to the sheath of said conductor, a terminal stem secured to the end of the conductor within said insulator, said terminal stem having a sleeve of insulating material threaded thereon, the sleeve having a portion shaped to wedgingly engage a portion of the conductor sheath, an abutment on said terminal stem, a gasket interposed between said abutment and part of the insulator body, a nut threaded on the extremity of said shank and having a hood portion enclosing the top thereof, a conductor having a fitting secured thereto and means for clamping said fitting to said nut.

4. A pothead terminal of the character described including an insulator, an insulated conductor having a metallic protective sheath, a terminal stem clamped to said insulator and secured to said conductor, a sleeve of insulating material in screw threaded engagement with said stem and having one extremity in wedged engagement with said sheath, a pot or casing for supporting said insulator and separable means embracing the insulator for securing it to said pot casing.

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