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J. B. WEBB ET AL

2,095,045

POTHEAD

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Fig. 1.

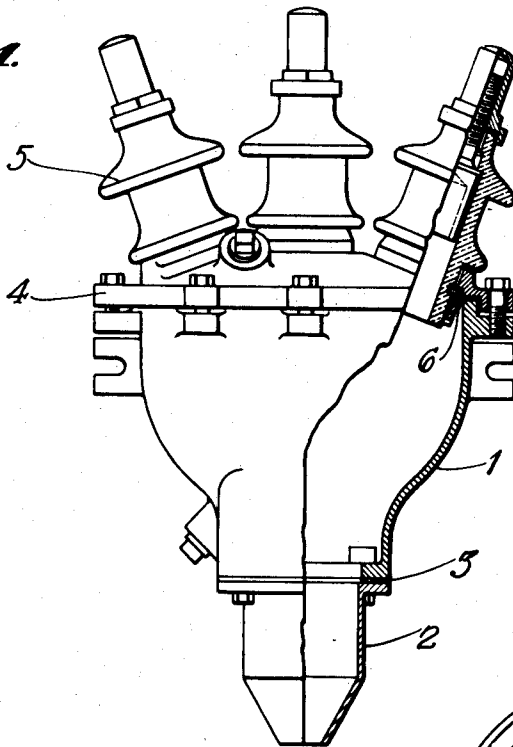


Fig. 5.

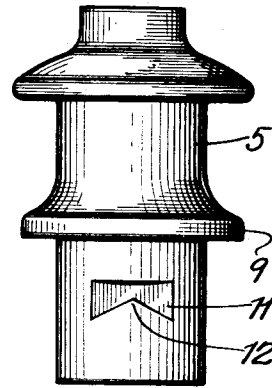


Fig. 2.

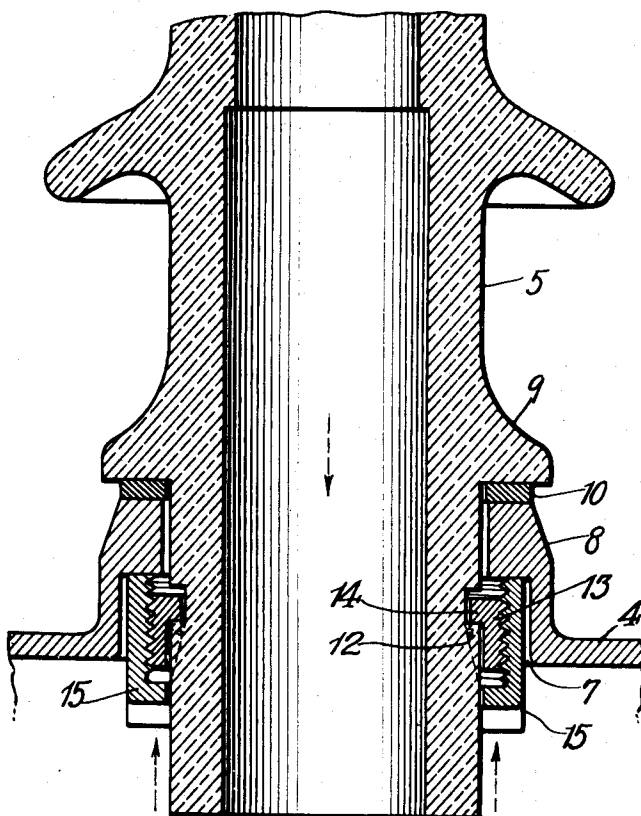


Fig. 3.

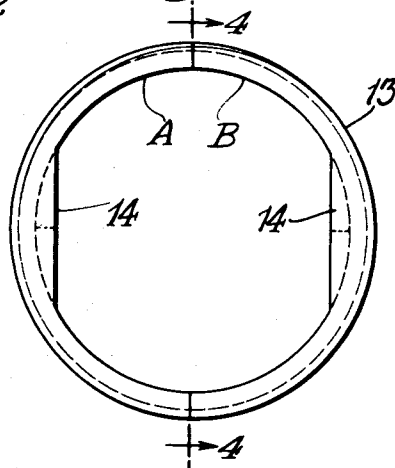
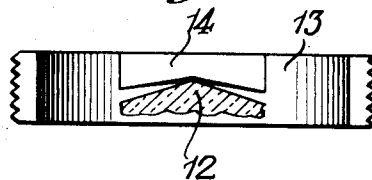


Fig. 4.



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POTHEAD

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Application May 14, 1936, Serial No. 79,688

3 Claims. (Cl. 247—6)

This invention relates to electric potheads and more particularly to an improved means for securing insulators thereto. Potheads are utilized to terminate oil-filled or oil-impregnated cables and to provide means to split the cable into two or more current paths. The usual pothead comprises a bell and cap composed of metal. Means are provided to join the bell and cap together in a fluid-tight seal. The bell is provided with a nipple through which the cable extends to the interior of the bell and the cable sheath is secured to the nipple in a fluid-tight seal. The cap is provided with a plurality of openings through which extend hollow insulators comprised of dielectric material and means are provided to seal the insulators to the cap in a fluid-tight joint. The several branch circuits taken off from the cable are carried out through the cap by conductors extending through the said hollow insulators.

Heretofore in the art it has been customary to seat the insulators within the openings in the cap and to seal the space between the outer surface of the insulators and the cap with some kind of sealing composition, cement or plastic. To facilitate this it has been customary to roughen the exterior surface of the insulator to aid the bonding of the sealing composition to the insulator surface. This method of mounting the insulator in the cap produces a substantially permanent structure which is essentially weak mechanically and where it is later found that the seal is not fluid-tight or where it is necessary to replace the insulator, the entire structure must be returned to the factory for repairs. This causes great inconvenience and expense which is one of the objects of this invention to eliminate.

Another object of this invention is to provide means to detachably secure the said insulators to the cap in a fluid-tight joint. Still another object of this invention is to provide an improved means for securing the insulators in the said cap openings whereby the same may be readily attached and detached, so that repairs and replacements may be easily made thereto in the field and with minimum equipment. Other objects and advantages will be apparent as the invention is more fully disclosed.

Before further disclosing the present invention, reference should be made to the accompanying drawing wherein:—

Fig. 1 is an elevation of a pothead partly in section in which the improved means of the present invention is incorporated; Fig. 2 is a detailed cross-sectional view illustrating the im-

proved means of the present invention; Fig. 3 is an enlarged plan view of one of the elements of the said means; Fig. 4 is a vertical section through the said element; and Fig. 5 is an elevational view of an insulator modified in accordance with the present invention.

Referring to Fig. 1, the pothead comprises a bell 1 formed of cast metal and provided with a nipple 2 through which the cable extends to the interior of the bell. The outer sheath of the cable which is usually comprised of lead is secured to the said nipple in a fluid-tight joint, usually a wiped lead joint. Nipple 2 is usually made separate as indicated and means are provided as indicated at 3 to attach the nipple 2 to the bell 1 in a fluid-tight joint.

The pothead is also provided with a cap 4 provided with a plurality of openings through which insulators 5 extend and means indicated at 6 are provided to secure the cap 4 to the bell 1 in a fluid-tight joint. Means also must be provided to secure insulators 5 within the openings in cap 4 in a fluid-tight joint.

In accordance with the present invention the insulators 5 are secured in the openings in cap 4 in such manner as to be readily detached and attached to provide for the quick and easy repair and replacement of the same at the point of installation of the pothead in the field.

Referring particularly to Fig. 2, we provide each cap opening 7 with an annular shoulder extension 8 having outer and inner bearing surfaces substantially as indicated, and we provide insulator 5 with an annular extension 9 having a bearing surface adapted to engage the outer bearing surface of annular shoulder 8 and we interpose between said engaging surfaces a gasket 10.

We then provide means to mechanically move the said insulator and cap relative to each other in such manner as to bring the two engaging surfaces together thereby compressing gasket 10 therebetween obtaining thereby a fluid-tight seal therebetween, the said means providing for the retention of the insulator and cap in this relation.

As indicated in Fig. 5, this is accomplished most simply by forming diametrically opposite grooves 11 in the peripheral surface of insulator 5 at a distance below the shoulder 9. Preferably the bottom of the groove is provided with bearing seat 12 as will more fully be described. We then provide a split ring element 13 (Fig. 3) consisting of two similar halves A and B, the exterior surface of the ring being threaded as indicated in Fig. 4 and the inner periphery being provided with diametrically opposite bearing extensions

14, 14 the under surface of the said extensions being adapted to engage the said bearing seats 12 in grooves 11, substantially as indicated in Fig. 4.

We then provide a threaded nut 15 having threads adapted to engage the threaded surface of split ring 13 in the manner indicated in Fig. 2 and having an outside diameter permitting the nut to extend within opening 7 of cap 4 and to bear upon the inner bearing surface of extension 8. Upon the threading of nut 15 upon split ring 13, the end of the nut 15 contacts with the inner bearing surface of shoulder 8 and bearing extensions 14 engaged in grooves 11 of insulator 5 thereupon operate to move insulator 5 downwardly. Shoulders 8 and 9 are thus brought together and compress gasket 10 therebetween, thereby forming a fluidtight seal.

The engaging of the bearing recess in the under side of bearing extensions 14 with the bearing seat 12 in groove 11 prevents rotation of the insulator about its longitudinal axis.

It is apparent that the means provided to detachably secure insulator 5 in openings 7 of cap 4 may be widely modified without essentially departing from the present invention and all such modifications are contemplated as may fall within the scope of the following claims:

What we claim is:

1. In a pothead including a bell and cap and means to join the two together in a fluidproof seal, a plurality of insulators and means to detachably secure said insulators to the said cap in a fluidproof seal with one end of said insulators extending through the cap to the interior thereof, said means to detachably secure comprising an opening in the cap through which the said insulator end may extend, an annular shoulder extension about said opening, an annular shoulder end adapted to engage said first annular shoulder, an annular gasket adapted to be interposed between the engaging surfaces of said shoulders, a split ring element having a threaded outer surface and means to engage the outer periphery of said insulator end below said annular shoulder thereon, and a threaded nut adapted to engage with the threaded outer surface of said split ring element and to bear upon the under side of said cap member to thereby obtain relative movement of the insulator and cap bringing the engaging surfaces of said shoulders into compressive contact on opposite sides of said gasket.

2. In a pothead including a bell and cap and means to join the two together in a fluidproof seal, a plurality of insulators and means to de-

tachably secure said insulators to the said cap in a fluidproof seal with one end of said insulators extending through the cap to the interior thereof, said means to detachably secure comprising an opening in the cap through which the said insulator end may extend, an annular shoulder extension about said opening, an annular shoulder extension about the periphery of said insulator end adapted to engage said first annular shoulder, an annular gasket adapted to be interposed between the engaging surfaces of said shoulders, diametrically opposite grooves in the periphery of said insulator end below the said annular shoulder thereon, a split ring element having a threaded outer surface and an inner surface provided with means to engage said opposite grooves, and a threaded nut adapted to engage with the threaded outer surface of said split ring element and to bear upon the under side of said cap member to thereby obtain relative movement of the insulator and cap bringing the engaging surfaces of said shoulders into compressive contact on opposite sides of said gasket.

3. In a pothead including a bell and cap and means to join the two together in a fluidproof seal, a plurality of insulators and means to detachably secure said insulators to the said cap in a fluidproof seal with one end of said insulators extending through the cap to the interior thereof, said means to detachably secure comprising an opening in the cap through which the said insulator end may extend, an annular shoulder extension about said opening, an annular shoulder extension about the periphery of said insulator end adapted to engage said first annular shoulder, an annular gasket adapted to be interposed between the engaging surfaces of said shoulders, diametrically opposite grooves in the periphery of said insulator end below the said annular shoulder thereon, bearing seats in said grooves, a split ring element having a threaded outer surface and an inner surface provided with diametrically opposite bearing extensions having bearing recesses on the under side thereof adapted to engage in said groove and upon said bearing seats therein, and a threaded nut adapted to engage with the threaded outer surface of said split ring element and to bear upon the under side of said cap member to thereby obtain relative movement of the insulator and cap bringing the engaging surfaces of said shoulders into compressive contact on opposite sides of said gasket.

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