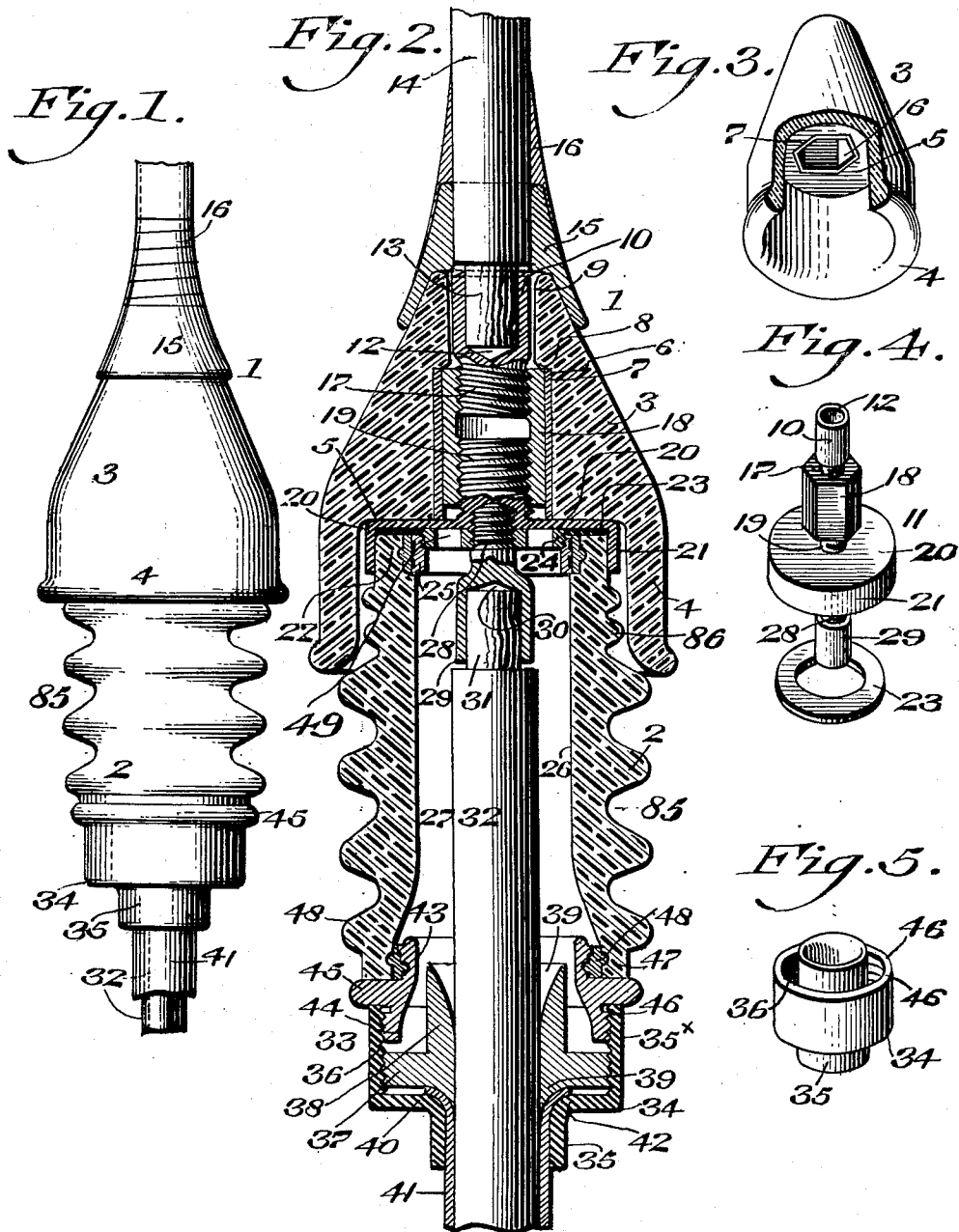


H. P. LIVERSIDGE.
 POTHEAD OR CONNECTOR FOR ELECTRICAL CONDUCTORS.
 APPLICATION FILED MAR. 5, 1915.

1,168,019.

Patented Jan. 11, 1916.
 2 SHEETS—SHEET 1.



WITNESSES

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H. P. Dieterich

INVENTOR

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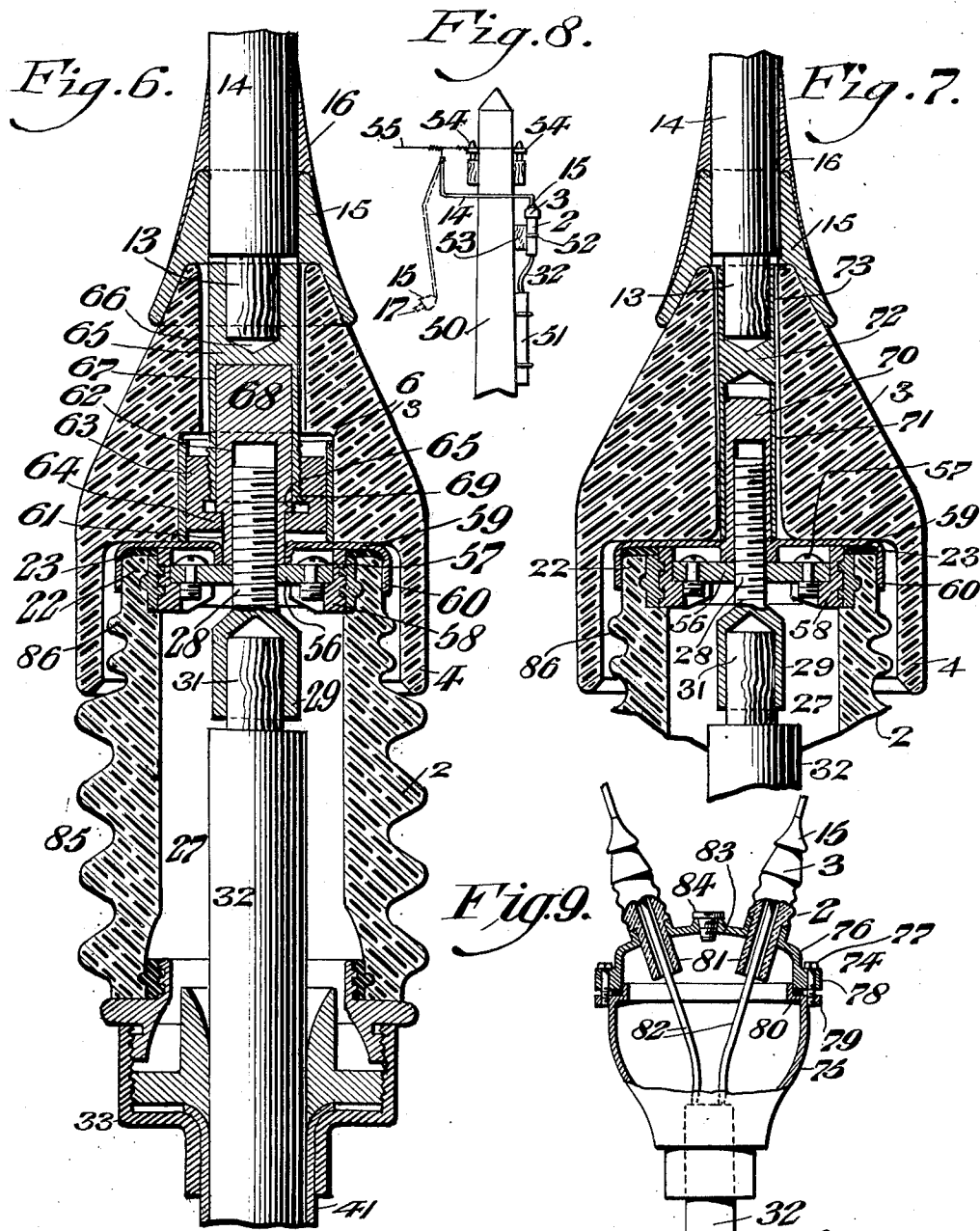
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UNITED STATES PATENT OFFICE.

HORACE P. LIVERSIDGE, OF BALA, PENNSYLVANIA.

POTHEAD OR CONNECTOR FOR ELECTRICAL CONDUCTORS.

1,168,019.

Specification of Letters Patent.

Patented Jan. 11, 1916.

Application filed March 5, 1915. Serial No. 12,248.

To all whom it may concern:

Be it known that I, HORACE P. LIVERSIDGE, a citizen of the United States, residing at Bala, county of Montgomery, State of Pennsylvania, have invented a new and useful Pothead or Connector for Electrical Conductors, of which the following is a specification.

The object of my novel construction of pothead or connector for electrical conductors is to provide a connecting device preferably for high tension cables or conductors that can be readily installed without special skill or appliances; that when so installed, will protect the conductors from damage due to moisture even when exposed to the elements, and will also prevent any possible arcing or leakage for so long a period as the system in which it is installed will ever be in use, and which when installed, if desired, is absolutely harmless if accidentally touched, and can be safely disconnected and reconnected manually or by hand without the employment of any tools or appliances for any potential for which the device has been designed to operate.

A further object of my invention is to dispense with a solder wipe-joint and to provide a novel construction of a disconnecting top member, which can be readily adapted for either screw clamp or slip contact, or a combination of both, according to the character of the service required, my device being equally applicable to the connection of overhead or underground lines where a quick, detachable feature is or is not desired.

By my novel construction, I am further enabled to effect the disconnection of the conductors, when desired, by making provision for an insulating cap where desired, which is independent of the leading-out wire, so that when the circuit is disconnected, the wire can be readily coiled up and is not liable to damage connections or become broken, and I am therefore enabled by my novel construction of insulating cap and its adjuncts, to manually lock the disconnecting parts together without the use of a wrench or other appliances, and still provide means for disconnecting without removing the cap.

In devices of the prior art with which I am familiar, which employ an insulating protective cap, it has been necessary in order to disconnect the cables, to lift off the entire

heavy porcelain cap, and if the cables are left disconnected, this cap of heavy porcelain or other heavy insulating material and the metal connections are left dangling from the aerial lines, which is oftentimes dangerous, and in many instances causes a breakage of the line wire tap. In addition, when this cap is removed, there is nothing to prevent snow, sleet or rain from falling on the top of the open body, comprising the lower portion of the device, which condition will frequently cause a leakage of moisture around the metal conducting parts inside, surrounded by the insulating compound down to the insulation of the cable, and in cases where this prior construction has been used, extreme care must be taken in filling in the compound, since any cracks in said compound caused by cooling or changing weather conditions will obviously permit a leakage if the cap is removed.

Another device with which I am familiar embodies an insulating tube provided with a metal disconnecting cap and lug, which are arranged to be threaded through the insulator in such a way as to be practically a snug fit, and provided with an abutting shoulder, so that when the entire device is completed, the metal lug and insulator will be firmly clamped together. This device, while providing a means external to the body, for connecting the two cable ends, and also providing a partial seal against water leakage, does not provide any means for pouring compound around the end of the cable, other than into the main body of the bell. This particular feature is not desirable, as it makes necessary the provision of an absolute water-tight joint at the top of the insulating cap, which is oftentimes very hard to secure.

In my present invention, the disadvantages as noted in both the above prior devices have been overcome, since my construction embodies both a novel outside disconnecting feature, in combination with a body and construction which enables the pouring of an insulating compound completely surrounding the inclosed cable. By my novel construction, I am further enabled to provide a pressed metal top which superimposes the heavy porcelain bell-shaped top employed, and to make the parts so interchangeable, as to secure a ready means for taking care of any current carrying capacity

or type of disconnecting devices, either slip or screw clamp, without any great expense in the manufacture of the individual parts, or differences in shop construction, which enables me to materially cheapen the product for this class of electrical work. By my novel device, provision is further made, so that there is absolutely no means of leakage around the threads from the outside to the inside of the pothead, and after the parts have been assembled and the internal metal cap screwed in place, the only possible means for a leakage of water is up the side of the pothead between the metal cap and the outer wall, through the insulating packing rings, and then on to the top of the compound, which in practice is a condition which ordinarily can never exist.

To the above ends my invention consists of a novel construction of pothead for electric cables, which while applicable for use in a variety of situations, is equally effective for connecting two cables or a cable and an overhead conductor, or in a variety of other situations, such as making the connections of cables in underground systems, in all of which situations it is of the utmost importance that there should be provided for the cable terminals a moisture-proof joint or coupling, whereby the cable terminals can, if desired, be quickly connected or disconnected, according to requirements, and wherein this can be done manually or without the employment of tools or skilled labor, means being also provided for dispensing with the use of a solder wipe-joint.

To the above ends, my invention consists of the novel features of construction hereinafter described, illustrated in the accompanying drawings, and pointed out in the claims.

For the purpose of illustrating my invention, I have shown in the accompanying drawings, a preferred embodiment thereof which is at present preferred by me, since the same will give in practice satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a side elevation of a novel construction of pothead or connector for electrical conductors embodying my invention. Fig. 2 represents on an enlarged scale a longitudinal, sectional view of Fig. 1. Fig. 3 represents a perspective view of the insulating bell-end cap or top employed, in detached position, a portion thereof being broken away for the sake of clearness of illustration. Fig. 4 represents a perspective view of a portion of the connecting coupling

and its adjuncts, which are common to the two cables, in detached position. Fig. 5 represents in detached position a perspective view of the metallic base member employed in Fig. 2. Fig. 6 represents a longitudinal, sectional view of a pothead and its adjuncts, showing a slightly different construction from that seen in Fig. 1. Fig. 7 represents a sectional view of the upper portion of another embodiment of my invention. Fig. 8 represents a side elevation of a pole and overhead wire and cable connected together by a connector or pothead embodying my invention. Fig. 9 represents a sectional view of a multiple conductor pothead embodying my invention.

Similar numerals of reference indicate corresponding parts in the figures.

Referring first to Fig. 2, 1 designates my novel construction of pothead or connector for electrical conductors, the same comprising a body portion 2, with a cap member 3, both of which are preferably made of some rigid, non-deteriorating suitable non-conducting or insulating material, as porcelain or the like. The cap or top member 3 is provided with a conical top and a depending annular wall 4, which completely overhangs the top of the body portion 2, having the appearance of a bell-end, so that in case of the pothead becoming submerged, an air cushion will be formed within the bell end, which has somewhat of the function of a diving bell, whereby dampness and moisture are effectively prevented from leaking into or having access to the interior of the body 2 or its adjuncts. The bottom inner wall 5 of the cap 3 has a polygonal or hexagonal opening 6 therein, which is provided with a metallic lining member 7, which projects from said bottom wall 5 to the shoulder 8, the opening 9 above said shoulder being preferably cylindrical and serving to receive the upper terminal lug 10 of the internal coupling member 11, said member 10 being provided at its upper extremity with the socket 12 for the reception of the end or terminal 13 of the conductor 14, which is held in position by the auxiliary cap or top member 15, which is preferably made of insulating material and wound with insulating tape or other material 16, as will be evident from the upper portion of Figs. 1 and 2.

17 designates a left-handed threaded stem, which depends from the upper terminal lug 10, and is in threaded engagement with the upper left-handed thread in the upper portion of the polygonal body or hexagonal nut 18, which is of the same contour as the polygonal opening 6, the length of said nut 18 being preferably substantially the same as that of the metal sleeve 7, as will be apparent from Fig. 2, said nut having in threaded engagement with the bottom there-

of, the right-handed threaded stem 19, which is preferably secured to or integral with the plate 20, which has the annular, depending flange 21, said plate and flange forming an internal metallic cap or sealing device adapted to engage the upper top portion 22 of the body 2, a gasket 23 of rubber or other suitable material being interposed between the bottom of said plate 20 and said top 22, whereby a tight joint is formed after the parts are assembled, so that no moisture can enter the chamber 27 of the body 2.

24 designates an exteriorly threaded apertured plate or spider having openings 49 therein, which is located below the plate 20, and is in threaded engagement with the internally threaded ring 25, which is secured within the upper, inner portion of the bore 26 of the body 2, the latter containing the chamber 27 therein, for the reception of the insulating compound, which may be any suitable plastic insulating material or compound which hardens.

28 designates a threaded stem which passes through the plate 20 and is in threaded engagement therewith so as to depend therefrom, said stem 28 having the lower terminal lug 29 secured thereto or depending therefrom, which is provided with the socket 30 therein, in which is received the reduced end or terminal 31 of the cable 32, the latter extending upwardly through the base portion 33 of the pothead, whose construction will now be described.

The base of my novel construction of pothead comprises the metal cup-shaped member 34, which has the depending neck 35, which may be roughened or otherwise shaped so as to be readily turned, said base member 34 being provided with the upwardly extending flange 35*, which is internally threaded, as indicated at 36, for the reception of the threaded flange 37 of the metal ring 38, which has the upwardly flaring opening 39 therein, through which the cable 32 passes.

When the parts are assembled, the ring or coupling member 38, by reason of its downward annular projection 39, serves to lock the extremity 40 of the lead sheathing 41 in position between said extension 39 and the shoulder 42, as will be evident from Fig. 2.

The base member seen in Fig. 5 and the lower portion of Fig. 2 conforms substantially to the construction seen in my prior Patent No. 1,115,447, granted to me October 27th, 1914, and requires no further description.

43 designates an intermediate coupling ring having the lower threaded portion 44, which engages the threads 36 and is provided with an annular, outer bead 45, which is interposed between the top edge 46 of the

base member 34 and the bottom edge 47 of the insulating body portion 2, said metal ring 43 being secured to the lower, inner periphery of said body portion 2 by means of an intermediate ring 48 or other suitable device.

The manner of assembling the parts will now be apparent to those skilled in the art, and is preferably as follows:—I first remove the base member 34, and place the lead sheathing 41 in the position seen in Fig. 2, and secure it, as shown in substantially the manner described in my prior Patent No. 1,115,447. I next remove the insulation from the end of the cable 32 to form the terminal, as indicated at 31, and cut off said cable to the proper length and fasten the terminal lug 29 to the terminal 31. I next slip the insulating body 2 down over the cable 32, and screw it onto the base member. I then center the threaded stem 28 and its adjuncts by screwing on said stem the apertured plate or spider 24, which centers the terminal 31 and also secures the latter and its adjuncts properly in position with respect to the body 2. The insulating compound, which may be any suitable plastic material, which after pouring will set or harden, is then poured into the chamber 27 through the ports or openings 49, and upon being allowed to harden or set, forms a practically water-tight joint, as will be apparent to those skilled in the art, but not a hermetical seal. I have omitted said insulating compound from the chamber 27, as the manner of the application thereof will be apparent. The gasket 23 or its equivalent is next placed in position, and the inner metal cap formed by the plate 20 and flange 21 is screwed upon the threaded stem 28, tightly upon the gasket 23. The socket 12 of the upper terminal lug 10 is next engaged by the terminal 13 of the upper conductor 14, and the clamping nut 18 is screwed on to the right-handed threaded stem 19. The bell end cap 3 is next placed upon the nut 18 and allowed to drop into the position seen in Fig. 2. The upper terminal lug 10 which has the upper conductor 14 secured thereto, together with the upper auxiliary cap 15 is then dropped into the opening 8 and the top 3 turned in a right-hand direction, whereupon the engagement of the left-hand threads of the stem 17 will cause the parts to appear as seen in Fig. 2. To disconnect the pothead, it is only necessary to rotate the cap 3 manually from left to right, whereupon the left-hand threaded stem 17 backs out of the threaded nut 18 and the upper terminal lug 10, top 15 and cable 14 become detached from the cap 3, as shown dotted in Fig. 8, the latter remaining on the body, but being capable of being lifted therefrom, if desired.

In the construction shown in Fig. 8, 50 designates a pole or post, alongside of which extends a pipe 51 containing the cable 32, the upper end of the latter entering the 5 body 2 of the pothead, which may be secured by a strap or band 52 to a block 53 on said pole. The pole is shown as provided with a pair of insulators 54, to which is connected the overhead conductor 55, 10 which is connected to the conductor 14, which enters the cap 3; it being apparent that after disconnecting, only the light cap 15 will be suspended, as seen dotted as above explained, the heavy conical bell-end cap 3 15 remaining in position on the body of the pothead and serving as a closure therefor.

It will be apparent that a very efficient closure or seal is afforded for the interior coupling devices of the pothead and its adjuncts, and when desired, the pothead can be 20 disconnected manually, without requiring the use of extraneous tools, and after disconnecting, as above explained, if it should be desired to lift up or remove the cap 3, the 25 interior of the pothead is still protected by the plate or closure 20 and its adjuncts, as it will be apparent that there is no possibility of moisture entering the chamber 27, by reason of the provision of said plate 20 with its overhanging flange 21 and the interposed 30 gasket 23.

My novel construction obviously prevents snow, sleet or rain from falling on the top of the open body, since it will be apparent 35 that the same is efficiently sealed by the plate 20, gasket 23 and its adjuncts, and the compound within the chamber 27 also forms an effective seal.

By my novel provision of an insulating 40 cap 3, which is independent of the leading-out wire, and can be permitted to remain on the body 2, after disconnection, it will be apparent that when the circuit is disconnected, the wire, as 14, can be readily coiled 45 up and is not liable to damage the connections or become broken. It will also be apparent that the manual rotation of the insulating cap 3 in the proper direction effects the assembling and disconnection of the terminals 13 and 31 without necessitating the 50 use of a wrench or other tools, said cap serving as an outer coupling member and providing means for disconnecting without removal of said cap 3, and I also employ the 55 auxiliary cap or top 15. It will further be apparent that in my novel device, there is ample provision for preventing leakage around the coacting threads of the parts 24 and 25 from the outside to the inside of the 60 pothead, since after the internal cap composed of the metal plate 20 and its flange 21 has been screwed in place, the only possible means for leakage or access of moisture to the interior is up the side of the pothead between the metal flange 21 and the outer wall, 65

thence through the insulation and packing ring or rings 23, and then on to the top of the compound, which ordinarily never arises in practice. It will further be apparent that my novel construction lends itself very 70 readily to the connection of overhead and underground lines where a quick, detachable feature is not desired or is not essential. Great objection in practice to this latter construction arises from the fact that unless 75 precaution is taken, the covering or braid of the outgoing wire will act as a wick and carry moisture down into the body of the pothead, causing in time a breakdown. In my construction, this is obviated, since there 80 is no possibility of water seeping along the cable or its connection, particularly to the outside or the inside of the pothead.

The metal base and its adjuncts which I have here shown and preferably employed, 85 serve as a convenient and effective means of assembling the lead sheathing 41 and the cable 32, and said base and its adjuncts protect from static strain and also act as an efficient support for the insulating body. 90 This particular feature of my invention patented to me in my prior Patent No. 1,115,447, granted October 27th, 1914, in conjunction with my present novel construction, in addition to protecting from static strain, affords 95 a very efficient moisture-proof protection when the insulating compound is poured around the end of the cable 32, the chamber 27 of the insulating body 2 serving as a container for this compound. 100

While my aforesaid construction of metal base and its adjuncts is not absolutely necessary to be employed with my novel pothead, in its entirety, yet in case of lead-covered cables, this feature is very essential, and in 105 combination with the porcelain body 2 and bell-ended cap 3 and its adjuncts, makes a very compact and highly efficient cable end protection, which possesses features of novelty and advantage over any prior construction with which I am familiar. 110

In Fig. 6, I have shown another embodiment of the broad features of my invention as described with reference to Figs. 1 to 5, 115 the construction of the porcelain body 2 and the porcelain bell-ended cap 3, as well as the metal base 33 and its adjuncts being the same as already described, as is the construction above, the bell-ended conical top 3 comprising the metal top cap, ring or member 120 15, cable 14 and their adjuncts. In said Fig. 6, the lower terminal lug 29 has its threaded stem 28 secured to a cross bar or spider 56, which is rigidly secured by screws 57 to lugs 58, which are supported within the 125 upper end 22 of the body 2 by any suitable means, the bar 56 forming openings on each side thereof to permit the pouring of the compound into the chamber 27. The gasket 23 is placed on the top of the body 2 and 130

held in position by the internal metal cap or sealing device composed of the plate 59 and the depending flange 60, said cap being secured to the sleeve 61 by any suitable means which is internally threaded at 62, so that when said sleeve and plate 59 are screwed into the position seen in Fig. 6, a water-tight seal will be formed for the top of the body 2. I employ the same hexagonal sleeve 6 in Fig. 6 which has already been described, the same coacting with the hexagonal nut 63, which has the lower internal flange 64, which engages the shoulder 65 of said sleeve 61, the lower portion of said sleeve passing through said nut before being engaged or secured to the plate 59, so that it will be seen that the nut 63 is swiveled with respect to said sleeve 61. The upper terminal lug 65 has a socket 66 therein for the conductor terminal 13 and has a socket 67 therein for the reception of the upper end 68 of the sleeve 61, the lower end of said upper lug 65 being externally threaded as at 69 to engage the coacting internal threads of the nut 63.

It will be seen from Fig. 6 that upon the rotation of the outer conical cap 3 in the proper direction, the nut 63 will also be rotated and the threads 69 will be engaged with or disengaged from the threads of the nut, so that the light auxiliary cap 15, the upper terminal 13 and the upper terminal lug 65 can be readily removed, leaving the heavy porcelain cap remain in position, said cap having the same function as described in Fig. 2, to wit, that of a rotary coupling member. When the parts 15 and 65 are lifted from position, the coupling devices in the body 2 are effectively protected from the elements and the cap 3 also can be readily lifted off, if desired.

In the construction seen in Fig. 7, the upper portion of the body 2 is equipped and described as shown in Fig. 6, the sealing device 59 for the top of the body being substantially the same, and the threaded stem 28 of the lower terminal lug having the sleeve 70 in engagement therewith, over the end of which slips the hollow bottom member 71 of the open ended upper terminal lug 72, whose upper end 73 is engaged by the lead out terminal 13, a slip joint connection being employed in the construction seen in said Fig. 7 and the manner of effecting the coupling and uncoupling of the parts being readily apparent.

It will be apparent that in all the embodiments of my invention as seen in Figs. 2, 6 and 7, I have made provision for the threaded stem 28 or its equivalent, which is attached to the lower terminal lug 29 to extend upwardly and to be fastened to or centered by the sealing device and its adjuncts; which is supported upon or attached to the top portion of the body 2, whereby provision is made in each instance for preventing mois-

ture from entering the chamber 27 of said body, said chamber being filled in each instance with the compound prior to the placing of the sealing device on its gasket 23. In all the embodiments of my invention, it will be further apparent that I can effect the uncoupling or lifting off of the light metal cap 15, and the upper terminal lug carried thereby without necessitating the removal of the heavy porcelain, bell-ended conical cap 3, the upper conductor 14, auxiliary cap 15, terminal 13 and the upper terminal lug being detachable as a unit, thereby keeping the upper end of the device well protected. In case said cap 3 is removed for any purpose, the top of the body 2 is still efficiently protected by the sealing plate 20, or 59, as is evident, my invention lending itself with equal facility to the slip joint or other form of coupling. It will also be apparent that in my novel construction, there is no necessity for using any kind of insulating compound in the top or cap member.

In Fig. 9 I have shown my invention as applied to a multiple conductor pothead, 74, wherein 75 designates the lower member and 76 the upper or top member, the parts being held together by the bolts 77 passing through the flanges 78 and 79, which are packed by the gasket 80. Two or more potheads are secured in the top member 76, said potheads having the extensions 81 projecting through openings in said top member, the conductors 82 being suitably connected to the cable 32 and the compound being introduced through the opening 83 after the removal of the closure 84. The interior construction of the potheads can conform to the construction seen in either Figs. 2, 6 or 7, as is evident.

It will be seen that the lower body portion 2 in Figs. 2, 6 and 7, is referably provided with large corrugations or flutings 85, while the upper portion thereof is provided with smaller flutings 86 which are inclosed by the depending overhanging wall 4 of the insulating intermediate cap 3, the space inclosed by said overhanging portion 4 being known as dry leakage space, while the surface below the edge of said overhanging portion 4 down to the base of the body 2 is what is known as wet leakage surface. The advantages of this construction are a material increase, first, in the leakage path from the top cap to the wet leakage surface, this entire portion increasing the total leakage path from the top cap over the entire outer surface of the lower porcelain member 2 to the metal supporting base. This construction obviously enables the use of a much shorter insulating tube and still does not decrease the leakage path from the live sealing cap to the metal base.

It will be understood by those skilled in the art that in some instances and under

some conditions, I may desire to employ merely the lower body portion 2, and the internal metal sealing cap composed of the plate 20 and flange 21, or the plate 59 and the flange 60, in conjunction with the lower terminal lug fastened in said sealing device, the cap 3 and its adjuncts being omitted and the connections from the lower terminal lug to an upper terminal lug or the upper conductor 14 to be made by any suitable means.

It will be apparent that if desired, the upper auxiliary cap 15 may be sealed or otherwise secured to the intermediate insulating cap 3, if desired, and as any suitable sealing device may be employed, I have deemed it unnecessary to show or describe the same in greater detail.

So far as I am aware, I am the first in the art to employ a pothead body having an internal sealing device closing the top thereof and serving as a support or centering device for the lower terminal lug, and wherein provision is made for pouring the compound into the chamber 27 prior to screwing or otherwise securing said sealing device in position, and my claims to these features are to be interpreted with corresponding scope. I am also the first to employ a pothead body having an internal sealing device of the character stated, and an intermediate insulating top 3 and an upper auxiliary detachable cap 15 of insulating or other material, in conjunction with an upper and lower terminal lug and connecting or conducting devices common thereto.

It will now be apparent that I have devised a novel and useful construction of pothead or connector for electrical conductors which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description and while I have, in the present instance, shown and described preferred embodiments thereof which will give in practice satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character stated, a lower terminal lug, an upper terminal lug, a lower insulating body containing said lower lug, an upper insulating cap containing said upper lug, a sealing device covering the top of said lower body, and coupling devices for said lugs contained in said cap.

2. In a device of the character stated, a pair of terminal lugs, an insulating member inclosing each of said lugs, an upper auxiliary cap inclosing one of said terminal lugs and supported by one of said members, and

coupling devices for said lugs, said auxiliary cap, a cable terminal, and one of said lugs being detachable as a unit.

3. In a device of the character stated, a lower terminal lug, an upper terminal lug, a lower insulating body in which said lower lug is centered and contained, an upper, insulating, bell-end, conical cap containing said upper lug, a sealing device covering the top of said lower body, and coupling devices for said lugs contained in said conical cap.

4. In a device of the character stated, an upper and lower terminal lug, a lower insulating body in which said lower lug is centered and contained, an upper, insulated, bell-end, conical cap containing said upper lug, a sealing device covering the top of said lower body, an auxiliary cap containing the lead-out conductor and seated on the top of said bell-end insulating cap, and coupling devices for said terminal lugs contained on said upper bell-end cap.

5. In a device of the character stated, an upper and lower terminal lug, a lower insulating body in which said lower lug is centered and contained, an upper insulated cap containing said upper lug, a sealing device covering the top of said lower body, an auxiliary cap containing the lead-out conductor and seated on the top of said insulating cap, and coupling devices for said terminal lugs contained in said upper cap.

6. In a device of the character stated, a lower body of insulating material open at its top and adapted to be closed at its bottom, a sealing device for closing the top of said body after the latter is filled with compound, a lower terminal lug centered in said sealing device, a non-conducting cap supported on said sealing device, an auxiliary cap containing the lead-out terminal supported on said non-conducting cap, an upper cable lug and disconnectible devices contained in said non-conducting cap for enabling the connection and disconnection of said lugs.

7. In a device of the character stated, a lower body of insulating material open at its top and adapted to be closed at its bottom, a sealing device for closing the top of said body after the latter is filled with compound, a lower terminal lug supported by said sealing device, said lug being provided with a threaded upper end and a lower open end for the reception of the lower cable terminal, a cap of insulating material supported upon said sealing device, an upper terminal lug, and disconnectible devices contained within said cap and connected to said upper threaded end for enabling said upper terminal to be disconnected.

8. In a device of the character stated, a body of insulating material open at its top and adapted to be closed at its bottom and to be filled with an insulating compound, a

member extending transversely across the top of said body, a lower cable lug in engagement with said transverse member and having an upper threaded member, and open at its bottom for the reception of a cable terminal, an internal sealing device on the top of said body for closing the latter after it is filled with compound, a non-conducting, conical, bell-end cap supported upon said sealing device, coupling devices connected to the upper threaded end of said lower terminal lug, and contained within said cap, an upper terminal lug, and means for effecting the connection and disconnection of the coupling members within said cap.

9. In a device of the character stated, an upper and lower terminal lug, a lower insulating body in which said lower lug is supported and contained, an upper insulated cap containing said upper lug, a sealing device for covering the top of said lower body after said body is filled with compound, the upper end of said lower lug being threaded and passing through said sealing device, and coupling members in said cap coacting with said threaded upper end of said lower lug for permitting the disconnection of said lugs.

10. In a device of the character stated, an upper and lower terminal lug, a lower insulating body in which said lower lug is centered and contained, an upper insulated, bell-end, conical cap having its lower portion overhanging the top of said body, containing said upper lug, a sealing device for covering the top of said lower body after said body is filled with compound, the upper end of said lower lug being threaded and passing through said sealing device, and coupling members in said cap coacting with said threaded upper end of said lower lug for permitting the disconnection of said lugs.

11. In a device of the character stated, a lower body of insulating material, a sealing device for closing the top of said body after it has been filled with insulating compound, a lower terminal lug open at its bottom for a cable terminal and having its upper end threaded and passing through said sealing device, a non-conducting cap adapted to be seated on said sealing device, an upper terminal lug contained within said cap, and coupling devices common to said lugs.

12. In a device of the character stated, a lower body of insulating material, a sealing device for closing the top of said body after it has been filled with insulating compound and comprising a gasket and a cap, a lower terminal lug open at its bottom for a cable terminal and having its upper end threaded and supported by said sealing device, a non-conducting cap adapted to be seated on said sealing device, an upper terminal lug contained within said cap, and coupling devices

common to said lugs, said cap being conical and having its lower portion overhanging said sealing device and the top of said body.

13. In a device of the character stated, a lower body of insulating material, a sealing device for closing the top of said body after it has been filled with insulating compound, a lower terminal lug open at its bottom for a cable terminal and having its upper end threaded and passing through said sealing device, a non-conducting cap adapted to be seated on said sealing device, an upper terminal lug contained within said cap, coupling devices common to said lugs, and an upper auxiliary cap engaging said insulating cap, the latter being conical and having its lower portion overhanging said sealing device and the top of said body.

14. In a device of the character stated, a pair of outer members of insulating material, a terminal lug contained in each of said members, coupling devices within said members common to said lugs, one of said coupling devices having a polygonal-shaped body interlocking with one of said outer members, and means actuated by the rotation of one of said outer members for effecting the connection and disconnection of one of said lugs.

15. In a device of the character stated, a pair of separable members of insulating material, a cable terminal lug contained in each of said members, conducting coupling devices common to said lugs, and means actuated by the rotation of one of said members for effecting the connection and disconnection of one of said lugs.

16. In a device of the character stated, a pair of members of insulating material, a terminal lug contained in each of said members, coupling devices within said members common to said lugs, one of the latter having a threaded connection to said coupling devices, and means common to one of said members and one of said lugs for effecting the coupling and uncoupling of said lugs by the rotation of one of said members.

17. In a device of the character stated, a lower body of insulating material, a cap also of insulating material, means for securing a lower terminal lug within said body, an upper terminal lug within said cap, and means common to said cap and upper terminal lug for effecting the coupling and uncoupling of said lugs.

18. In a device of the character stated, a lower body of insulating material, an upper cap also of insulating material, a lower cable having its terminal secured within said body, an upper cable lug, contained within said cap, connections common to said lug and terminal, and means common to said upper lug and cap, whereby the rotation of the latter will effect the connection and disconnection of said upper lug.

19. In a device of the character stated, a body portion of insulating material, a rotatable conical cap of insulating material, said cap having a depending portion forming a bell-end which surrounds the upper end of said body, means for securing a cable terminal in said body portion, and a disconnectible connection in said cap for an upper terminal, the connecting and disconnecting of said upper terminal being effected by the rotation of said cap.

20. In a device of the character stated, a body of insulating material, a sealing device for the top thereof and comprising a gasket and a cap, a lower terminal lug supported and centered in said body, a rotatable cap supported on said body and overhanging its top and said sealing device, an upper terminal lug contained in said cap, and means actuated by the rotation of said cap for effecting the coupling and uncoupling of said terminal lugs.

21. In a device of the character stated, a body of insulating material, a sealing device for the top thereof, a lower terminal lug supported and centered in said body, and having an upper threaded end projecting above said sealing device, a rotatable conical cap supported on said body and having its lower portion overhanging the top of said body and said sealing device, an upper terminal lug contained in said cap, coupling devices common to said upper threaded end of said lower lug and said upper lug, and means common to said coupling devices and cap, whereby the rotation of the latter will couple or uncouple said coupling devices.

22. In a device of the character stated, a lower body of insulating material, a lower terminal lug supported thereby, a rotatable cap supported on said body and having a polygonal opening therein, a polygonal coupling nut located in said opening, an upper terminal lug contained in said cap, and threaded connections common to said nut and lugs.

23. In a device of the character stated, a lower body of insulating material, a lower terminal lug supported thereon, a rotatable cap supported on said body and having a polygonal opening therein, a polygonal coupling nut located in said opening, an upper terminal lug contained in said cap, and threaded connections common to said nut and lugs, in combination with a sealing device for the top of said body.

24. In a device of the character stated, a lower body of insulating material, a lower terminal lug supported thereon, a rotatable cap supported on said body and having a polygonal opening therein, a polygonal coupling nut located in said opening, an upper terminal lug contained in said cap, and threaded connections common to said nut and lugs, in combination with a sealing device

for the top of said body, said cap being supported on said sealing device and having its lower portion overhanging and inclosing the top of said body and said sealing device.

25. In a device of the character stated, a lower terminal lug, an upper terminal lug, a lower insulating body in which said lower lug is centered and contained, an upper insulating cap containing said upper lug, a sealing device covering the top of said lower body, a sealing device covering said cap, and coupling devices for said lugs contained in said cap.

26. In a device of the character stated, a lower terminal lug, an upper terminal lug, a lower insulating body in which said lower lug is centered and contained, an upper insulating bell-end conical cap containing said upper lug, a sealing device covering the top of said lower body, a sealing device covering said cap, and coupling devices for said lugs contained in said conical cap.

27. In a device of the character stated, a lower body of insulating material, an intermediate cap of insulating material, an upper auxiliary cap supported on said intermediate cap, an upper terminal lug contained in said intermediate cap, a lower terminal lug contained in said body, and coupling devices common to said upper and lower lugs.

28. In a device of the character stated, a body portion and an upper member having a depending portion overhanging the top of said body portion, the portion of said body below the lower edge of said overhanging portion being provided with large flutings or corrugations, and the portion of said body within said overhanging portion being provided with smaller flutings or corrugations of lesser diameter, whereby there is formed within said overhanging member a dry leakage path to the exposed wet leakage path of said body.

29. In a device of the character stated, a body portion and an upper member having a depending portion overhanging the top of said body portion, the portion of said body below the lower edge of said overhanging portion being provided with large flutings or corrugations, and the portion of said body within said overhanging portion being provided with smaller flutings or corrugations of lesser diameter, whereby there is formed within said overhanging member a dry leakage path to the exposed wet leakage path of said body, in combination with an upper terminal lug, a lower terminal lug and coupling devices common to said lugs.

30. In a device of the character stated, a body portion, an intermediate cap, and an upper auxiliary cap supported on said intermediate cap, said caps being detachable, and said intermediate cap having a depending portion overhanging the top of said body portion, the portion of said body be-

low the lower edge of said overhanging portion being provided with large flutings and the portion of said body within said overhanging portion having smaller flutings of less diameter, whereby there is formed within said overhanging member a dry leakage path to the exposed wet leakage path of said body.

31. In a device of the character stated, a lower hollow body portion of insulating material having its bottom closed, thereby forming a chamber to receive a sealing compound, and a spider at the top of said chamber, through which spider said sealing compound is poured, a sealing device for the top thereof, comprising a plate having an annular depending flange and a gasket between the plate and body portion, said plate and flange inclosing the top of said body, means for securing said sealing device to the top of said body, and a lower terminal lug fastened to said sealing device.

32. In a device of the character stated, a lower body portion of insulating material having a chamber therein for the reception of the insulating compound, a supporting device located in the upper portion of said chamber, a sealing device for the top of said

body and secured to said supporting device, said sealing device comprising a plate having a depending flange, said plate and flange inclosing the top of said body, and a lower terminal lug fastened to said sealing device.

33. In a device of the character stated, a lower hollow body portion of insulating material having its bottom closed, thereby forming a chamber to receive a sealing compound, and a spider at the top of said chamber, through which spider said sealing compound is poured, a sealing device for the top thereof, comprising a metallic plate having an annular depending flange and a gasket between the plate and the body portion, said plate and flange inclosing the top of said body, means for securing said sealing device to the top of said body, an upper coupling device, and a lower terminal lug centered in said sealing device and connected so as to form a continuous electrical connection between said lower terminal lug and said upper coupling device.

HORACE P. LIVERSIDGE.

Witnesses:

E. HAYWARD FAIRBANKS,
C. D. McVAY.