May 25, 1937. J. MORGENSTERN ET AL 2,081,832

INSULATOR

Filed Nov. 21, 1935

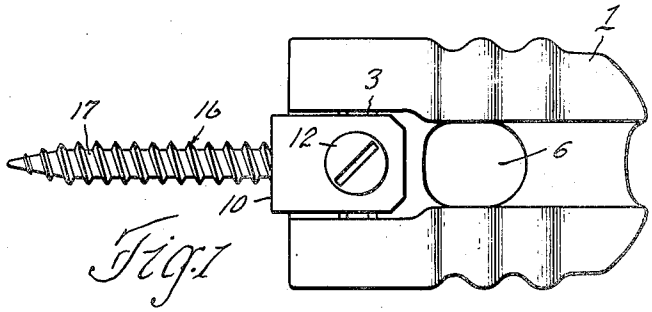


Fig. 1

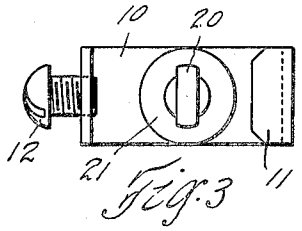


Fig. 3

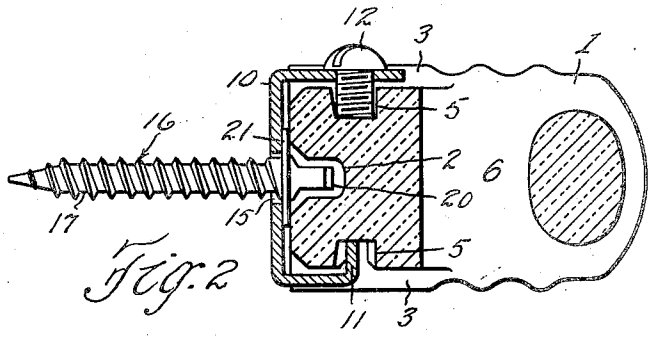


Fig. 2

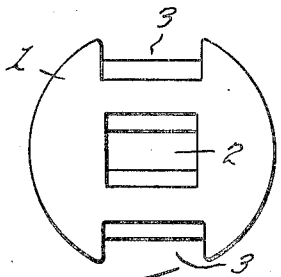


Fig. 4

Fig. 7

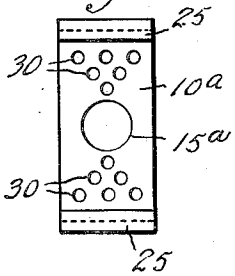
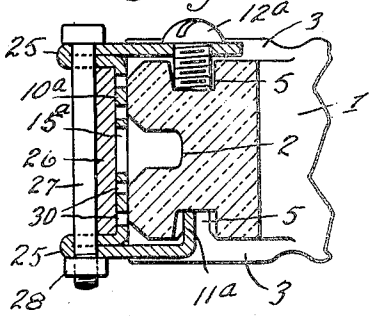


Fig. 6



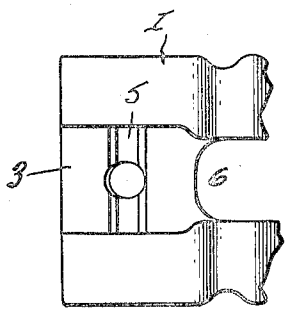


Fig. 5

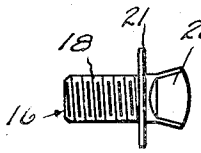


Fig. 8

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Patented May 25, 1937 2,081,832

UNITED STATES PATENT OFFICE

2,081,832

INSULATOR

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Application November 21, 1935, Serial No. 50,902

11 Claims. (Cl. 173—321)

This invention relates to improvements in insulators of the class employed on low tension transmission lines, in house service connections, and like situations.

Heretofore in devices of this kind, an attaching means of a specific character, depending upon the nature of the support to which the insulator is to be attached, as, for example, a wood screw for fastening the insulator to a wooden support; a metal screw or bolt for fastening it to a support of similar material, etc., has been permanently fastened to the insulator body, usually by means of a sulphur containing cement which confined a part of the attaching means within a recess of the body. Under this practice an insulator was restricted in its use to association with a particular kind of support.

It is the principal aim of our invention to provide a combination of insulator body, attaching means, and a separable clamp for connecting said means to the body so that attaching means of various kinds may be readily secured to an insulator body thereby enabling it to be used with different kinds of supports, attaching means being selected best suited to the particular nature of the support.

Another object of our invention is to provide a connection between the attaching means and insulator body that obviates the use of cement, thereby to avoid corrosion that usually attends cemented connections.

A further object contemplated by our invention is to provide a connection between the attaching means and the insulator body of porcelain or the like that will prevent crushing strains being imposed upon the body when drawn up firmly against a support.

A still further and more specific object of the invention is to provide, in combination, an insulator body having a recess, an attaching means having a head disposed within said recess, and confined thereby against turning especially if the attaching means comprises a screw, and a clamp detachably secured to the insulator body and cooperating with the attaching means in such manner as to retain its head within the aforesaid recess. It is desired that the parts be so proportioned that the clamp is placed under tension when the screw is firmly drawn up thereby to more rigidly connect the attaching means to the body. The principal advantage in the beforementioned combination lies in the fact that attaching means of different characters, such as wood screws, metal screws or rivets, may be interchangeably secured to the insulator body.

A still further object of the invention is to provide a mounting for the insulator body that is adapted to be secured to supports of cement, plaster or similar composition by having a part thereof embedded in the support.

By virtue of our improvements, insulator bodies may be salvaged from abandoned structures, even though the attaching means cannot be economically or practically dislodged, by disconnecting the bodies from the clamps.

Other objects and advantages will appear as we proceed to describe the invention in detail by reference to the accompanying drawing wherein Fig. 1 is a side elevation of an insulator embodying the invention; Fig. 2 is a longitudinal section through the same at right angles to the plane of Fig. 1; Fig. 3 is an inside view of the clamp and an attaching means carried thereby; Fig. 4 is an elevational view of the end of the insulator body to which the clamp is applied; Fig. 5 is a fragmentary side elevation of the insulator body; Fig. 6 is a view similar to Fig. 2 of a modification of the clamp or mounting and the attaching means; Fig. 7 is an elevation of the clamp or mounting shown in Fig. 6, and Fig. 8 shows an attaching means in the nature of a screw or bolt for use especially with metal supports.

The insulator body, made of porcelain or other non-conducting material, is designated 1 and within the end thereof that is intended to be placed adjacent the support is a cavity 2, the same preferably being rectangular, as will appear from Fig. 4. In transverse alignment with the cavity 2, relatively wide and shallow grooves or channels 3 are formed in the sides of the body, and opening outwardly into these grooves or channels are recesses 5. In other respects, the insulator body 1 may be of the common and well known design shown, having the usual through opening 6 for the accommodation of a conductor or tie-wire (not shown), and the axis of which opening is parallel to the common axis of the opposed recesses 5.

10 is a clamp that is preferably constructed of a piece of strap metal of required length, and thick enough to insure the necessary strength and stiffness, the same being in the form of a C clamp having an inturned lug 11 at one end and a threaded aperture at the other substantially in axial alignment with the lug 11 for the reception of a clamping screw 12. At about the middle of its central portion the clamp has an open-

ing 15. An attaching means, designated generally by the reference numeral 16, is adapted to be connected to the insulator body by means of the clamp 10, and it may include a so-called wood screw 17, as shown in Figs. 1 and 2, for use with wooden supports, or a bolt or screw 18, such as that shown in Fig. 8, that is intended for use with metal or other supports, with or without a nut depending upon the nature of the connection; or the attaching means may consist of a rivet, the same being such a common form of connection that specific illustration is deemed unnecessary. The attaching means is shown as having a flat and relatively broad wing-like head 20 and, adjacent said head a collar 21.

Prior to applying the clamp to the insulator body, the attaching means is projected through the opening 15 with the collar 21 engaging the inner side of the surrounding portion of the clamp. The lug 11, at one end of the clamp, may now be inserted in one of the recesses 5 of the insulator body and the clamp swung to a position in which its opposite end occupies the groove or channel 3 on the remote side of the body, the head 20 of the attaching means being inserted within the cavity 2. The clamping screw 12 is then turned inwardly until its inner end is firmly engaged with the inclined side of the adjacent recess 5, the screw being drawn up tightly to place the clamp under tension. The parts are now in assembled condition and the device is ready for use. Assuming that the attaching means involving the wood screw 17 is employed, the insulator may be attached to a wooden support according to prevailing practice. It is evident that in turning the body 1 the screw 17 of the attaching means 16 will be similarly turned because of the fact that its head 20 is confined against relative turning within the rectangular cavity 2. It is also clear that when the device is screwed up tightly against the support, all resulting strains between the attaching means 16 and the metal clamp 10 will be confined to these parts and will not be transmitted to the frangible insulator body.

In the modification shown in Figs. 6 and 7, the clamp or mounting 10^a is formed adjacent its ends with arms 25, the same being effected preferably by turning parts of the metal strap from which the same is constructed back upon themselves in right angular relation to the central portion of the clamp, said parts being continued beyond the plane of said central portion in parallel relation to each other, one terminating in the lug 11^a and the other carrying the clamping screw 12^a. The central portion of the clamp has an opening 15^a for the accommodation of the attaching means 16, provided such is used, the present form of the invention being equally well adapted to the different kinds of attaching means above described. However, by means of the modified form of the invention the insulator may be attached to a flat bar 26, or other similar support, by engaging the clamp transversely against the broad side of the bar with its arms 25 overhanging the edges of the same, and a bolt 27 may then be extended through holes in the arms 25 and a nut 28 applied thereto for clamping the mounting to the bar.

Also, the form of the invention shown in Figs. 6 and 7 may be embedded in walls or supports of cement, concrete or the like, at the time of pouring, and to enhance the hold or anchorage between the support and central portion of the clamp, the latter is punched with a plurality of holes 30 which become filled with the material of the wall or support thereby to cause an interlocking between the support and clamp.

Having thus described our invention, what we claim is:

1. In combination, an insulator body having a through opening and a cavity in one of its ends and outwardly facing recesses on its opposite sides adjacent said end but in spaced relation thereto, said recesses having a common axis parallel to that of the through opening, attaching means having a head disposed within said cavity and a shank projecting therefrom, and a clamp having an opening engaged over said shank and having parts that approach each other and interlock within said recesses.

2. In combination, an insulator body having a through opening and a cavity in one of its ends and outwardly facing recesses in its opposite side walls adjacent said end but in spaced relation thereto, said recesses having a common axis parallel to that of the through opening; an attaching means having a head disposed within said cavity, a shoulder adjacent the same, and a shank projecting beyond the said shoulder; and a clamp having an opening engaged over said shank with parts surrounding said opening contacting the shoulder, the clamp having at one end a lug extending into one of the aforesaid recesses, and a screw carried by the opposite end and engaging within the other recess.

3. In combination, an insulator body having a through opening and a cavity in one of its ends and outwardly facing recesses in its opposite side walls adjacent said end but in spaced relation thereto, said recesses having a common axis parallel to that of the through opening; an attaching means having a head disposed within said cavity, a shoulder adjacent the same, and a shank projecting beyond the said shoulder; and a clamp having an opening engaged over said shank with parts surrounding said opening contacting the shoulder, the clamp having at one end a lug extending into one of the aforesaid recesses, and a screw carried by the opposite end and engaging within the other recess and contacting with a wall thereof in such manner as to enable the clamp to be placed under tension by tightening the screw.

4. In combination, an insulator body having a cavity in one of its ends and channels in its opposed walls adjacent said end and outwardly opening recesses communicating with the channels; an attaching means comprising a head occupying the cavity and an outwardly facing shoulder adjacent the head and a shank projecting therebeyond; and a clamp adapted to fit over the aforesaid end of the body provided with an opening for the accommodation of the shank of said attaching means, the ends of the clamp extending into the aforesaid channels, one end terminating in a lug for engagement within the adjacent recess, and a screw threaded through the opposite end of the clamp and confined within the other recess.

5. In combination, an insulator body having a substantially axial cavity in one of its ends that is other than circular, a screw having a head fitting within said cavity in such manner as to be held against turning with respect to the body, a collar surrounding the screw adjacent the head, the body having diametrically opposed channels in its side walls adjacent said end and recesses opening outwardly into said channels, and a coupling in the nature of a C clamp having an aper-

ture at about its middle for the passage of the screw and having its ends disposed within the opposed channels, a lug extending from one end of the coupling into the adjacent recess, and a screw threaded through the opposite end of the coupling and confined within the other recess.

6. In combination, an insulator body having outwardly facing channels in its opposed walls adjacent one end of the body and recesses opening into said channels, and a member for attachment to said body comprising a central portion adapted to be disposed across the end of the body and end portions extending at right angles therefrom away from the body and thence over and back upon themselves and projecting beyond the plane of said central portion into the aforesaid channels, a lug extending from one end of the member into the adjacent recess, and a screw threaded through the opposite end of said member into the other recess.

7. In combination, an insulator body having outwardly facing channels in its opposed walls adjacent one end of the body and recesses opening into said channels, and a member for attachment to said body comprising a central portion adapted to be disposed across the end of the body and end portions extending at right angles therefrom away from the body and thence over and back upon themselves and projecting beyond the plane of said central portion into the aforesaid channels, a lug extending from one end of the member into the adjacent recess, and a screw threaded through the opposite end of said member into the other recess, the central portion of the member having an aperture, and the end of the insulator body having a cavity underlying said aperture.

8. In combination, an insulator body having outwardly facing channels in its opposed walls adjacent one of its ends and recesses opening into said channels, and a member for attachment to said body comprising a central portion adapted to be disposed across the end of the body and end portions extending at right angles therefrom away from the body and thence over and back upon themselves and projecting beyond the plane of said central portion into the aforesaid channels, a lug extending from one end of the member into the adjacent recess, and a screw threaded through the opposite end of said member into the other recess, the central portion of the member having a plurality of apertures.

9. In combination, an insulator body having outwardly facing channels in its opposed walls adjacent one of its ends and recesses opening into said channels, and a member for attachment to said body comprising a central portion adapted to be disposed across the end of the body and end portions extending at right angles therefrom away from the body and thence over and back upon themselves and projecting beyond the plane of said central portion into the aforesaid channels, a lug extending from one end of the member into the adjacent recess, and a screw threaded through the opposite end of said member into the other recess, the aforesaid portions of the member that are bent back upon themselves constituting arms, the two arms having axially aligned apertures.

10. In combination, an insulator body having diametrically opposed channels in its side walls adjacent one of its ends and recesses opening outwardly into said channels, and a coupling in the nature of a C clamp having its ends disposed within the opposed channels, a lug extending from one end of the coupling into the adjacent recess, and a screw threaded through the opposite end of the coupling and confined within the other recess, the central portion of the coupling being provided with means through which the coupling is adapted to be attached to a support.

11. In combination, an insulator body having a substantially axial cavity in one of its ends that is other than circular, a screw having a head fitting within said cavity in such manner as to be held against turning with respect to the body, a flange on the screw adjacent the head, and a coupling in the nature of a C clamp having an aperture at about its middle for the passage of the screw and having its ends disposed on opposite sides of the body and suitably connected thereto, the flange on the screw being clamped between the coupling and the adjacent end of the body.

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