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2,139,332

WIRE HOLDER

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Fig. 1

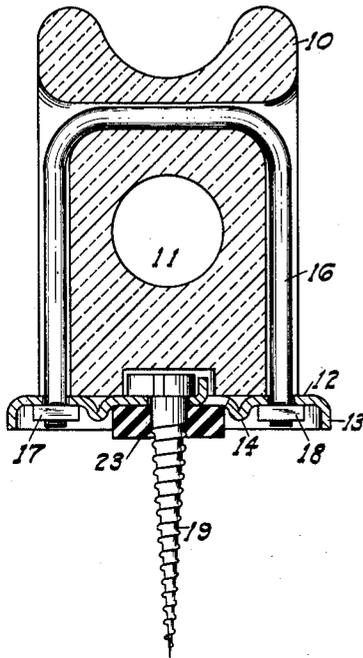


Fig. 2

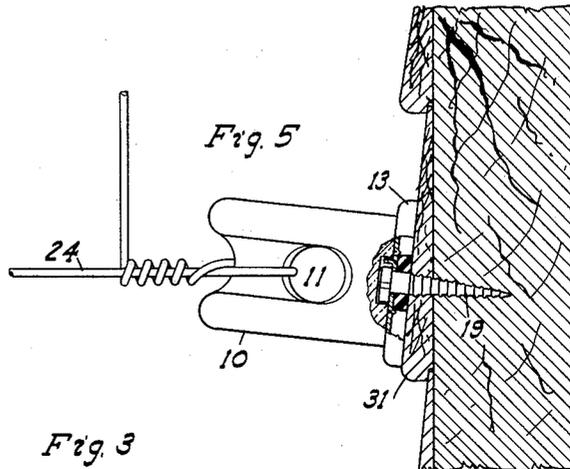
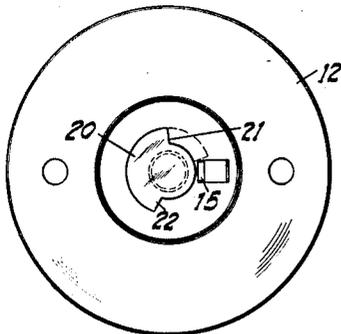


Fig. 3

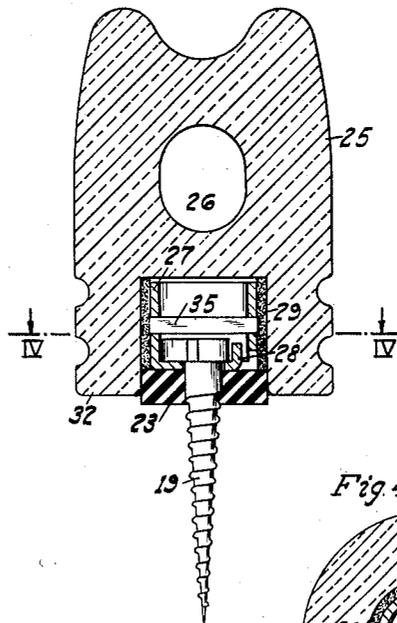
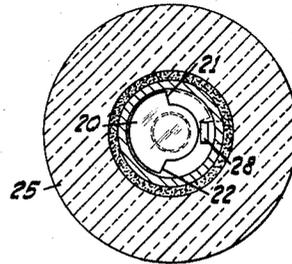


Fig. 4



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WIRE HOLDER

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5 Claims. (Cl. 173—321)

This invention relates to insulators for use in supporting electrical conductors, and particularly to a combined insulator and wood screw, such an article being commonly known in this art as a wire holder.

An object of the invention is to provide in a wire holder means for adjusting the position of the insulator to its normal upright position after the full length of holding screw has been inserted in the supporting structure without disturbing, loosening or unscrewing the holding screw, whereby the wire holder may be adjusted to the service position while its base remains tightly seated against the mounting surface.

Another object of the invention is to provide means for preventing the decay of that portion of the wood structure surrounding the screw, as the usual application of these articles is to buildings constructed of wood not treated to resist decay.

A further object is to provide a simple and inexpensive wire holder embodying the above mentioned improvements which may be easily and quickly installed and removed.

With these and other objects in view which appear from the description to follow, our invention resides in the novel construction and combination of the elements constituting the device, as described in detail herein, and set forth in the appended claims.

In the drawing:

Fig. 1 is a side elevational view of the device, shown partly in section;

Fig. 2 is a plan view of the device with the insulator removed;

Fig. 3 is a side elevational view of another embodiment of the invention, shown partly in section;

Fig. 4 is a sectional view of the device taken along the line IV—IV of Fig. 3;

Fig. 5 illustrates the device shown in Figs. 1 and 2 in the service position, being also shown partly in section.

Fig. 1 of the drawing illustrates the invention shown in section, while Fig. 5 shows its appearance in the usual service position.

In Fig. 1, an insulator 10, of porcelain or other suitable material, is rigidly secured, by means of the U-bolt 16, and the nuts 18 and 17 cooperating therewith, to the metal base 12, with its principal axis normal to the base. An opening 11 forms a wire passageway through the insulator 10, extending therethrough in a direction parallel to the base 12, and normal to the principal axis of the insulator.

The head of the mounting wood screw 19 is positioned in a hollow of the insulator 10 adjacent the base 12, near the midpoint thereof, and the shank of the screw 19 extends outwardly through a central opening in the base 12 along the projected principal axis of the insulator, or normal to the direction of the wire passageway 11. The opening in the base 12 through which the screw 19 passes is slightly larger than the portion of the screw within the opening, so that the base 12 may be turned, for a limited amount, as later described, without movement of the screw 19.

As shown in Fig. 2, a portion 15 of the base 12 is cut and bent inwardly toward the insulator 10. The head of the screw 19 is provided with an outwardly extending or enlarged sector-shaped portion 20, which portion is cut along the surfaces 21 and 22, and the head of the screw 19 is so positioned with respect to the portion 15 of the base 12, that, upon clockwise rotation of the base 12 (Fig. 2) the portion 15 engages the surface 22 to turn the screw 19 in a direction to drive it. It will also be apparent that counter-clockwise rotation of the base 12 will cause the portion 15 to engage the surface 21, to turn the screw 19 in a direction to unscrew it.

The base 12 is provided with the peripheral flange 13, the outer edge of which engages the mounting surface 31, as shown in Fig. 5. Between the center and circumference of the base 12, the metal is first bent outwardly and then back, to form a circular ridge or recess flange 14, thus providing a recess into which is fitted the resilient or yieldable washer or filler 23, the screw 19 extending through the opening at the midpoint thereof. The filler 23 may be of rubber compound, cork, or other yieldable gasket material, and if desired, may be impregnated with a wood preserving compound, such as Wolman salt, or a zinc compound.

As stated heretofore, the principal object of the invention is to prevent decay of the wood surrounding the wood screw 19, as the buildings to which these devices are attached are in general constructed of untreated lumber. Since the wire holders have a normal upright position in which the wire passageway is horizontal, so that horizontal wire runs may be supported thereon, it is essential, in order to tightly seal the screw and prevent entrance of the moisture necessary for life of wood decaying fungi, that means be provided for adjusting the insulator without disturbing or unscrewing the screw.

This invention provides the solution to this

problem. The wood screw of the present invention is driven into the wood mounting surface by turning the insulator 10 in a direction to drive the screw 19, the motion being transmitted through the base 12 to the screw 19 by contact of the base portion 15 with the portion of the screw 22. The driving is continued until the filler 23 is tightly seated about the screw 19, and compressed between the mounting surface 31 (Fig. 5) and the flanges 14 of the recess of the base 12. At this time the flange 13 abuts the mounting surface 31. It is obvious that it is unlikely under these conditions, that the wire passageway 11 will be in the necessary normal horizontal position.

With present available wire holders the holder is either unscrewed or the screw not driven its full length. To make the adjustment, either method not only fails to make use of the full holding power of the screw, but also leaves a space between the base of the holder and the mounting surface. Rain water flows through this exposed space, and immediately sets up a condition favorable to rotting or decay of the wood adjacent the screw.

In the present device, the holder may be adjusted to the position in which the base is tightly seated against the mounting surface, and the insulator and base may be then rotated in the opposite direction for at least one half of one revolution (through the angle between the surfaces 21 and 22), without any movement of the screw. The holder may thus be adjusted to the necessary position without opening a path for moisture to the screw hole, and the wire then attached thereto, as the conductor 24.

Figs. 3 and 4 illustrate another embodiment of the invention, in which a hollow metal insert 27 is rigidly secured, by means of some insert retaining material 29, such as lead, cement or sulphur, within the recess at the base of the insulator 25. The metal insert 27 is provided with the upturned portion 28, the latter cooperating with the surfaces 21 and 22 of the screw 19 in the same manner as the portion 15 of the base 12 cooperates in the embodiment illustrated by Figs. 1 and 2. The filler 23 is fitted into the recess at the base of the insulator, and extends outwardly therefrom so that it may be compressed about the screw 19 when the latter is driven through the surface of a mounting structure, and the base portion 32 seated tightly thereagainst. Following this action, the wire passageway 26 of the insulator 25 may be adjusted to the necessary horizontal position without unscrewing the screw, as heretofore described.

It will be apparent from the above description that our improved wire holder will greatly retard the decay of wood structures to which it is attached, while costing substantially the same as present devices lacking this important advantage.

The description of the embodiments of the invention herein disclosed has been set forth in specific language to facilitate a clear understanding thereof, but it will be understood that the invention is to be limited only as is necessitated by the prior art and the appended claims.

What we claim is new, and desire to secure by Letters Patent is:

1. A wire holder comprising an insulator having a centrally positioned recess in one end

thereof, a wood screw extending into said insulator and concentrically into said recess, and a filler in said recess encircling said screw, said filler being impregnated with a fungicide of wood preserving character in sufficient amount to effect impregnation of the adjacent wood with which said filler is adapted to be associated.

2. A wire holder comprising an insulator having a wire passageway therethrough, a wood screw, a base having a centrally positioned cup-shaped recess rigidly secured to said insulator, and a filler of deformable material within said recess, said screw being attached to said base and extending outwardly through said filler in concentric relation with said recess in a direction normal to that of said passageway, said base being combined with said screw to initially permit the latter to be driven in response to rotation of the insulator until said filler is compressed within said recess, and to finally permit subsequent limited rotation of said base in the opposite direction without releasing the pressure on said filler.

3. A wire holder comprising an insulator, a base including a centrally positioned recess and a peripheral flange rigidly secured to said insulator, a disk of deformable material fitted into said recess, and a screw passing through central coaxial openings in said recess and disk and extending outwardly therefrom along the principal axis of said insulator, the opening in said recess being slightly larger than the portion of the screw extending therethrough so that said base may be rotated about said screw, and means including a stop on said base arranged to engage a portion of said screw for limiting the rotative movement, whereby said screw may be driven into a mounting member until said filler is compressed within said recess by contact with the mounting surface and said peripheral flange engages the latter in response to rotation of said insulator, and the latter may subsequently be rotated in the opposite direction for adjusting the position of the insulator without unscrewing said screw.

4. In combination, elements constituting a wire holder including an insulator, a base associated with said insulator and a wood screw joined to said base, said wood screw being adapted to be driven into a supporting structure in response to rotation of said insulator until said base engages the surface of the supporting structure, said insulator being free to turn about said screw whereby the position of the insulator may be changed without disengaging said base from the surface of the supporting structure.

5. In combination, elements constituting a wire holder, including an insulator, a base at one end of said insulator, a wood screw joined thereto and extending outwardly therethrough, a washer of yieldable material encircling said wood screw between the outer end thereof and the base, said wood screw being adapted to be driven into a supporting structure in response to rotation of said insulator until said base is seated against the surface of the supporting structure and said washer is compressed therebetween, said insulator being free to turn about said screw without reducing the pressure on said washer and without disengaging said base from the surface of the supporting structure.

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