

[54] **FUSE AND ARRESTER INSERT BRACKET**

[72] Inventor: **Randolph A. Pasen**, Dearborn Heights, Mich.

[73] Assignee: **The Detroit Edison Company**, Detroit, Mich.

[22] Filed: **Mar. 20, 1970**

[21] Appl. No.: **21,420**

[52] U.S. Cl. .... **174/158 R**, 248/65

[51] Int. Cl. .... **H01b 17/16**

[58] Field of Search..... 248/65, 66, 67.7, 221, 300, 248/73; 174/158 R, 149 R

[56] **References Cited**

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*Primary Examiner*—Chancellor E. Harris  
*Attorney*—Whittemore, Hulbert & Belknap

[57] **ABSTRACT**

A bracket for attachment to a standoff insulator bracket having a generally horizontally upper arm, a downwardly and slightly outwardly inclined insulator support portion, and a downwardly and inwardly inclined lower brace arm. The insert bracket extends laterally of the insulator bracket and provides extending arms to which electrical components such as fuse and lightning arrester devices may be mounted. The insert bracket is designed to support the electrical components generally within an area limited by the outer ends of insulators carried by the insulator brackets.

**10 Claims, 10 Drawing Figures**

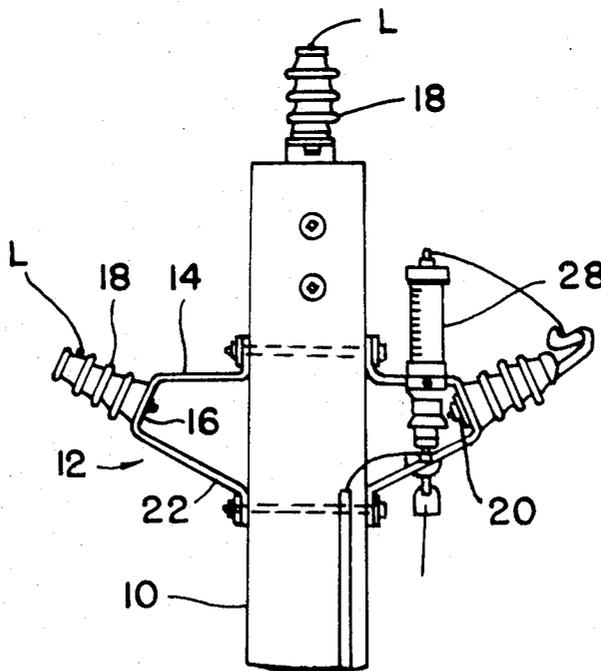


FIG. 1

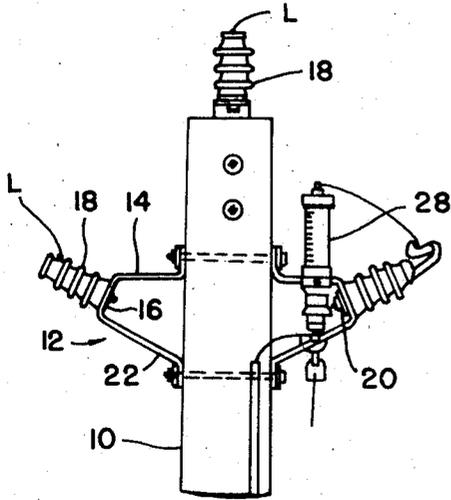


FIG. 2

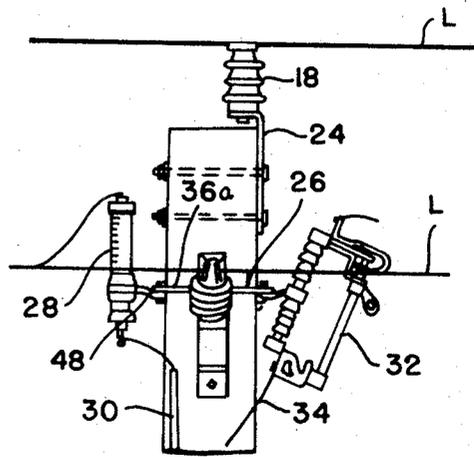


FIG. 8

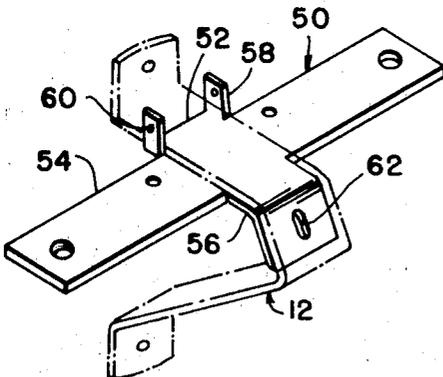


FIG. 9

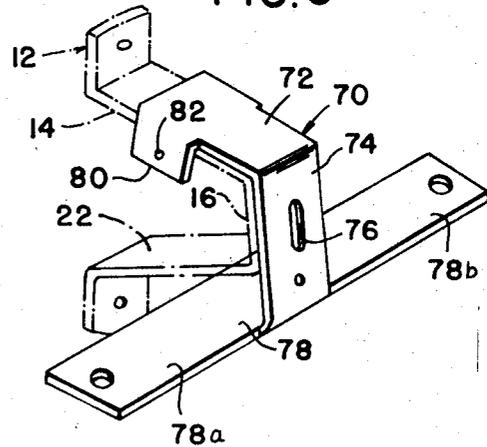
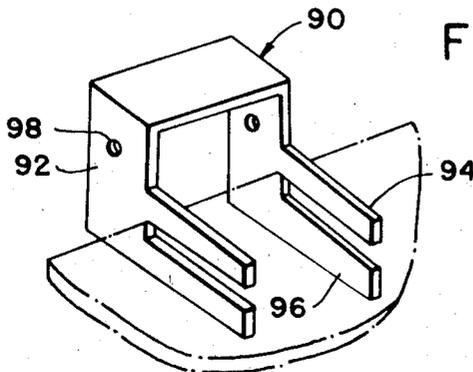
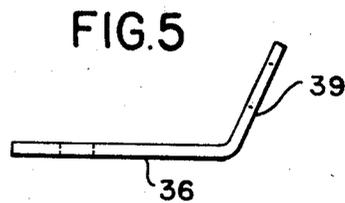
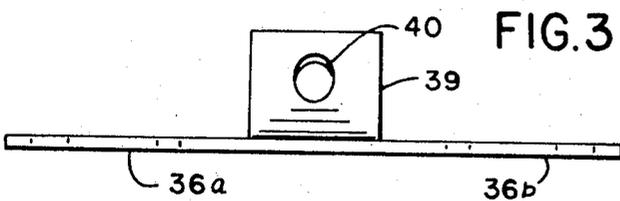
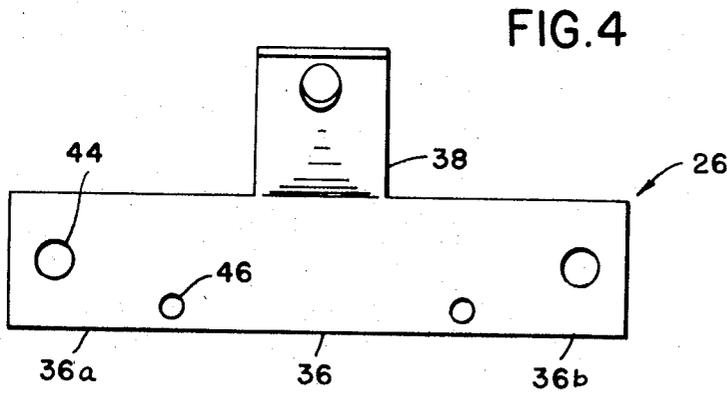
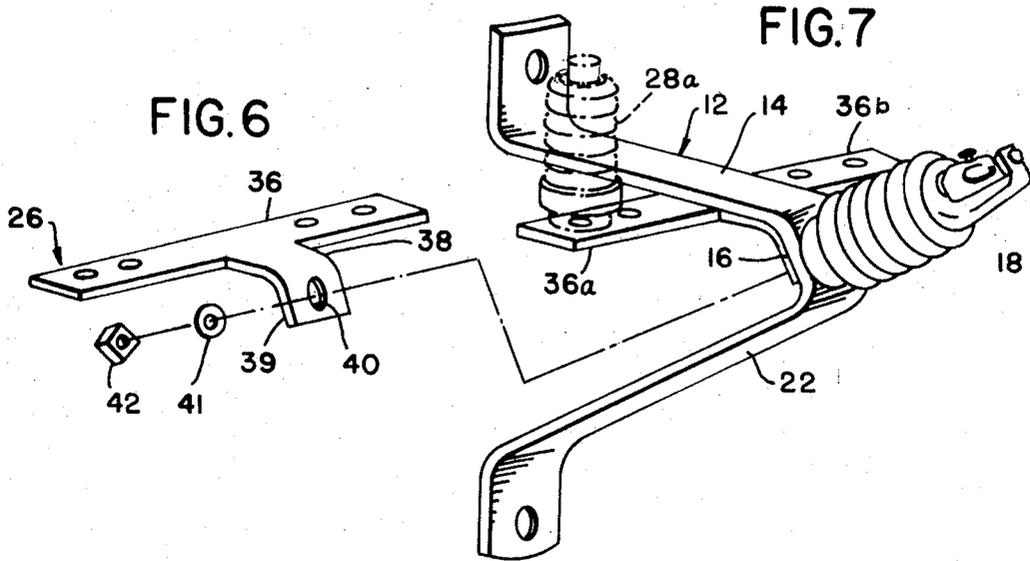


FIG. 10



INVENTOR.  
RANDOLPH A. PASEN

BY *Whittmore*  
*Zachert & Belknap*  
ATTORNEYS



INVENTOR.  
RANDOLPH A. PASEN  
BY *J. Hittmors*  
*Hulbert & Hulkenap*  
ATTORNEYS

## FUSE AND ARRESTER INSERT BRACKET

## BRIEF SUMMARY OF THE INVENTION

The present invention relates particularly to brackets for mounting circuit components such as lightning arresters, fuses, or the like, in which the bracket is designed to be attached to a standoff insulator bracket of the type disclosed in prior U.S. Pat. No. 3,309,047, to Kane.

Since one of the attractive features of the standoff insulator bracket as disclosed in the aforementioned patent is its appearance and the fact that it provides for desirable spacing between the electrical lines which takes advantage of the length of generally elongated insulators, it is desirable to provide for mounting the ancillary electrical components in such a way as to retain the attractive appearance of the assembly.

For this reason the insert bracket includes an elongated support body which provides a pair of oppositely extending support arms which extend transversely of the general plane occupied by the standoff insulator bracket, the arms extending laterally of the bracket.

In general, the insert bracket may be applied within the space between the upper and lower arms of the insulator bracket, or conversely, it may be applied externally thereto. In both cases however, the transversely extending support arms essentially underlie the upper generally horizontal arms or the lower inclined brace arms.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary elevational view of the top of a pole on which three insulators are supported in proper position, the lower two being supported by standoff insulator brackets.

FIG. 2 is a side elevational view of the construction shown in FIG. 1.

FIG. 3 is a front elevational view of an insert bracket of a preferred form.

FIG. 4 is a plan view of the bracket shown in FIG. 3.

FIG. 5 is an end view of the bracket shown in FIG. 3.

FIG. 6 is a perspective view of the insert bracket shown in FIGS. 3-5.

FIG. 7 is a view of the insert bracket mounted on an insulator bracket of the type referred to.

FIG. 8 is a perspective view of a modified insert bracket.

FIG. 9 is a perspective view of yet another form of insert bracket.

FIG. 10 is a perspective view showing a tool for use in association with insert brackets disclosed herein.

## DETAILED DESCRIPTION

Referring first to FIGS. 1 and 2 there is shown the top of a pole 10 adapted to provide an intermediate support for a three-wire overhead line system in which the lines are shown at L. The pole 10 is provided with a pair of standoff insulator brackets 12 of the type disclosed in the Kane U.S. Pat. No. 3,309,047. Each of these brackets comprises an upper generally horizontally extending arm 14, a downwardly and slightly outwardly extending support portion 16 to which elongated insulators 18 are secured by suitable means such for example as nuts and bolts as indicated at 20, and an inwardly and slightly downwardly extending brace arm 22. A separate insulator mounting bracket 24 is provided at the top of the pole for supporting the third insulator 18 in proper position to cause the wires to define approximately an equilateral triangle. Certain components of the complete electrical system require mounting adjacent the top of the pole and in order to retain the attractive appearance attributable to the use of the standoff insulator brackets and the resulting elimination of the conventional horizontal cross arms, the present invention contemplates the provision of suitable support means for these components in the form of a separate insert bracket adapted to be attached to the standoff insulator brackets 12. Details of these standoff insulator brackets are best seen in FIGS. 3-7 but before referring to these Figures it will be noted that the insert bracket designated generally at 26 is adapted to support

a lightning arrester 28 having a connection to ground as indicated at 30, and a fuse 32 in the connection 34 leading to a transformer (not shown).

Referring now to FIGS. 3-7, the insert bracket is formed of flat sheet material which may be metal or which may be an insulating reinforced plastic material. The insert bracket 26 comprises an elongated support portion 36 which is adapted to extend transversely of and substantially laterally beyond the sides of the insert bracket 12, as best seen in FIG. 7. The support portion 36 thus provides laterally extending support arms 36a and 36b. Extending laterally of the elongated support portion 36 is an attaching arm 38 having a downwardly bent portion 39 provided with an aperture 40 for the reception of an attaching bolt which extends from the lower end of the insulator 18 and is secured in place by the washer 41 and nut 42 shown in FIG. 6.

It will be observed that the attaching arm 38 and its downwardly bent portion 39 are shaped to conform to the upper horizontal arm 14 and the downwardly inclined insulator support 16 of the standoff insulator bracket 12. The arms 36a and 36b are apertured as indicated at 44 and 46 for attachment of the electrical components such for example as the arrester 28a, as seen in FIG. 7.

It will be observed that in FIG. 7 the arrester 28a is illustrated as attached at its bottom to the arm 36a of the insert bracket. In FIG. 2 the arrester 28 is shown as connected by a separate arm 48 to the arm 36a of the insert bracket.

It will be observed particularly from FIG. 1 that the insert bracket is designed to provide a support which locates the electrical components primarily within an area determined by the outer ends of the elongated insulator bodies 18.

The construction is particularly simple and economical because the insert bracket is attached to the standoff insulator bracket by the same single bolt which attaches the insulator body to the insulator bracket.

Referring now to FIG. 8 there is illustrated a modification in which the insert bracket 50 includes an extension 52 at the opposite side of the elongated support portion 54 from the attaching arm 56. The extension 52 is provided with two upwardly bent ears 58 apertured as indicated at 60 for the reception of a clamping bolt. This bolt provides for permanent attachment of the insert bracket 50 to the standoff insulator bracket 12 which will retain the insert bracket in place even though the bolt normally attaching an insulator 18 through the opening 62 to the insulator bracket 12 is removed. Thus, in the event of failure or breakage of an insulator 18, it may be replaced without the necessity of providing temporary support for the insert bracket while the insulator is replaced.

Referring now to FIG. 9 there is illustrated a second embodiment of the invention in which the insert bracket 70 is provided with a horizontal arm portion 72 adapted to overlie the upper generally horizontal arm 14 of the standoff insulator bracket 12. The bracket 70 includes a downwardly extending and slightly outwardly inclined portion 74 which engages the outer surface of the insulator support portion 16 of the insulator bracket, this portion being provided with an elongated opening 76 for the reception of the bolt which attaches the insulator 18 to the bracket. In this case the elongated support for the electrical components comprises arms 78a and 78b, these arms together defining an elongated support portion which extends generally transversely of the plane occupied by the insulator bracket 12. In this case the support portion 78 underlies the downwardly and inwardly inclined brace arm 22 of the insulator bracket, but it extends inwardly beyond the insulator support portion 16 so that again, it will locate the electrical components such as the arrester and fuse unit within the space transversely of the direction of the lines L, which is determined generally by the outer ends of the insulator bodies. In this case, the arm 72 may if desired be provided with downwardly extending ears 80 apertured as indicated at 82 for the reception of a bolt which will provide for permanent attachment of the insert bracket to the insulator bracket.

Referring now to FIG. 10 there is illustrated a tool 90 comprising a generally U-shaped body having downwardly extending arms 92 each of which terminates in a pair of laterally extending clamping fingers 94 and 96. The downwardly extending arms 92 are apertured as indicated at 98 for the reception of a clamping bolt. The tool is intended to provide temporary support between an insert bracket such as the insert bracket 26 seen in FIGS. 1-7, or the insert bracket 50 of FIG. 8, or the insert bracket 70 of FIG. 9, and an insulator bracket 12. This is accomplished by moving the tool 90 into a position such that the fingers 94 and 96 embrace the upper arm 14 of the standoff insulator bracket and the matching portion of the insert brackets 26, 50 or 70. At this time a bolt extending through the openings 98 may be tightened to bend the arms 92 towards each other, setting up a clamping or binding action between the fingers 94 and 96 and the associated parts of the insulator and insert brackets.

I claim:

1. In combination, a standoff insulator bracket for attachment to a pole, comprising an elongated continuous member having in cross section a width at least several times its thickness and shaped to provide a substantially horizontal outwardly extending upper arm, a downwardly and slightly outwardly inclined insulator support portion apertured for the reception of an insulator supporting bolt, an inwardly and slightly downwardly inclined lower brace arm, the inner ends of said arms having means for attachment to the side of a pole, an insert bracket formed of substantially flat sheet material comprising an elongated support portion extending transversely of and laterally beyond the sides of the insulator bracket, and an attaching arm extending laterally of said elongated support portion and having a width substantially equal to the width of the material of the continuous member, said attaching arm being bent intermediate its ends to provide a first portion to conform to and engage the outer end of the upper arm of the standoff insulator bracket and a second portion to conform to and engage the insulator support portion of said insulator bracket, said second portion of the attaching arm having an aperture in position to match the aperture in the insulator support portion of said insulator bracket to receive an insulator support bolt which thereby secures both an insulator and said insert bracket to the standoff insulator bracket.

2. The combination as defined in claim 1 in which the attaching arm of said insert bracket is conformed to the inner surface of the standoff insulator bracket to engage the underside of the upper arm thereof and the inner side of the insulator support portion thereof, and said elongated support portion is located directly beneath and extends laterally from the upper arm of the standoff insulator bracket intermediate the ends thereof.

3. The combination as defined in claim 1 in which said insert bracket is conformed to the outer surfaces of the standoff insulator bracket to engage the upper surface of the upper arm thereof and the outer surface of the insulator support portion thereof, and in which the said second portion of the attaching arm extends downwardly beyond the lower end of the insulator support portion of the standoff insulator bracket, and said elongated support portion is connected to the inner lower end

of said second portion of said attaching arm and extends substantially horizontally in spaced relation below the lower brace arm of said standoff insulator bracket.

4. The combination as defined in claim 1 in which the first portion of said attaching arm which conforms to the upper arm of the standoff insulator bracket is provided with ears extending perpendicular to the plane of the said attaching arm portion to engage the sides of the upper arm of said insulator bracket.

5. The combination as defined in claim 2 comprising a generally U-shaped temporary securing clip having parallel legs having slotted arms extending laterally from the legs to the U-shaped clip for the reception of the said first portion of the attaching arm of the insert bracket and the upper arm of the insulator bracket, the legs being apertured for the reception of a clamping bolt, said legs being slightly flexible to provide for flexing by the clamping action of a nut on the bolt to jam the slotted arms against the attaching arm of the insert bracket and the upper arm of the insulator bracket.

6. The combination as defined in claim 3 comprising a generally U-shaped temporary securing clip having parallel legs having slotted arms extending laterally from the legs of the U-shaped clip for the reception of the said first portion of the attaching arm of the insulator bracket, the legs being apertured for the reception of a clamping bolt, said legs being slightly flexible to provide for flexing by the clamping action of a nut on the bolt to jam the slotted arms against the attaching arm of the insert bracket and the upper arm of the insulator bracket.

7. The combination as defined in claim 4 in which said ears are apertured for the reception of a bolt which will retain the insert bracket on the standoff insulator bracket when the bolt securing the insulator thereto is removed.

8. The combination as defined in claim 1 comprising further in combination an elongated insulator body having a mounting bolt extending from one end thereof through the registering apertures in the inclined insulator support portion of said insulator bracket and the said second portion of the attaching arm of said insert bracket, a nut on said bolt, said insulator body, nut and bolt constituting a single releasable connection for maintaining said insulator body and both of said brackets in assembly.

9. The combination as defined in claim 8 in which the end of said first portion of the attaching arm of said insert bracket remote from the said second portion of said attaching arm has ears engaging the sides of the upper arm of said insulator bracket.

10. The combination as defined in claim 8 comprising a generally U-shaped temporary securing clip having slotted arms extending laterally from the legs of the U-shaped clip for the reception of the first portion of the attaching arm of the insert bracket and the upper arm of the insulator bracket, the legs being apertured for the reception of a clamping bolt, said legs being slightly flexible to provide for flexing by the clamping action of a nut on the bolt to jam the slotted arms against the attaching arm of the insert bracket and the upper arm of the insulator bracket.

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