March 26, 1968 J. L. SALMON ETAL 3,374,978

TRANSFORMER MOUNTING DEVICE AND METHOD

Filed Feb. 25, 1966 3 Sheets-Sheet 1

FIG-1

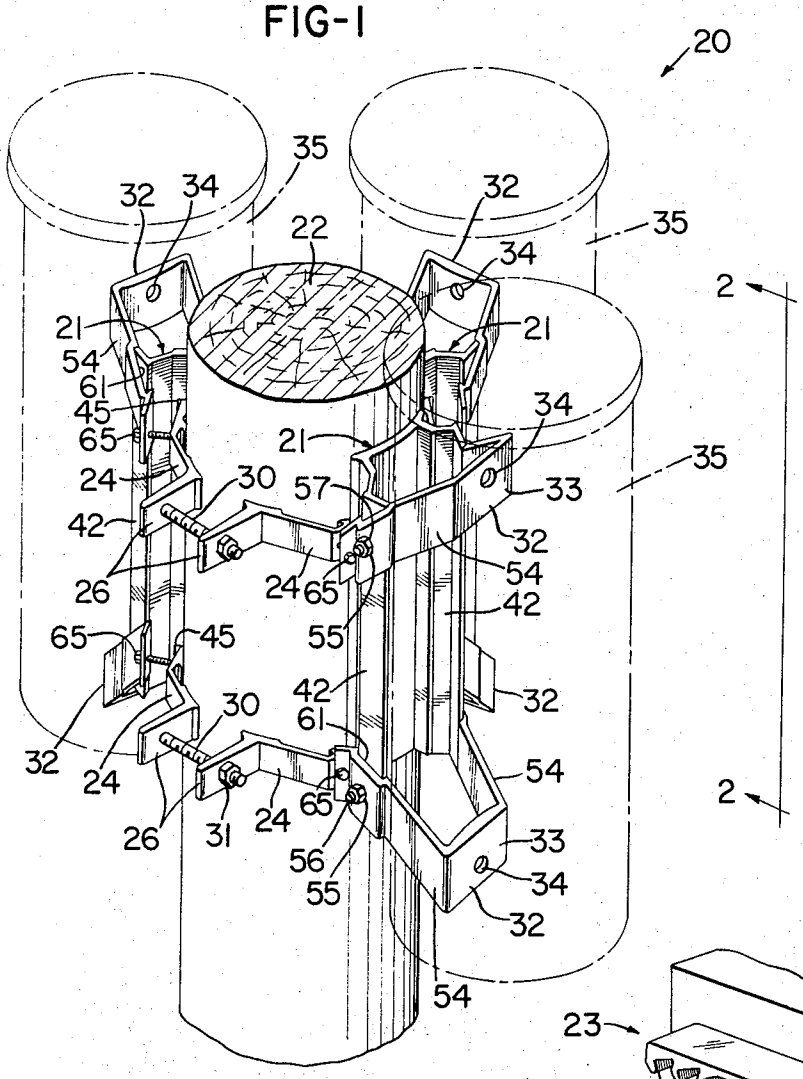


FIG-8

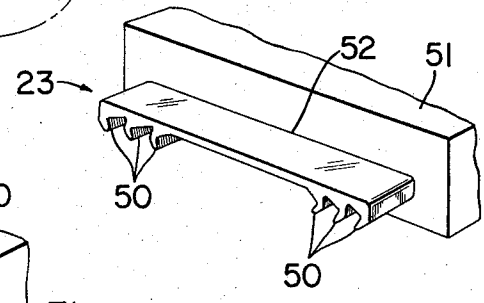
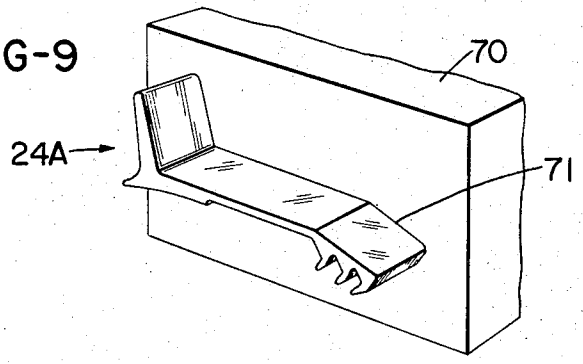


FIG-9



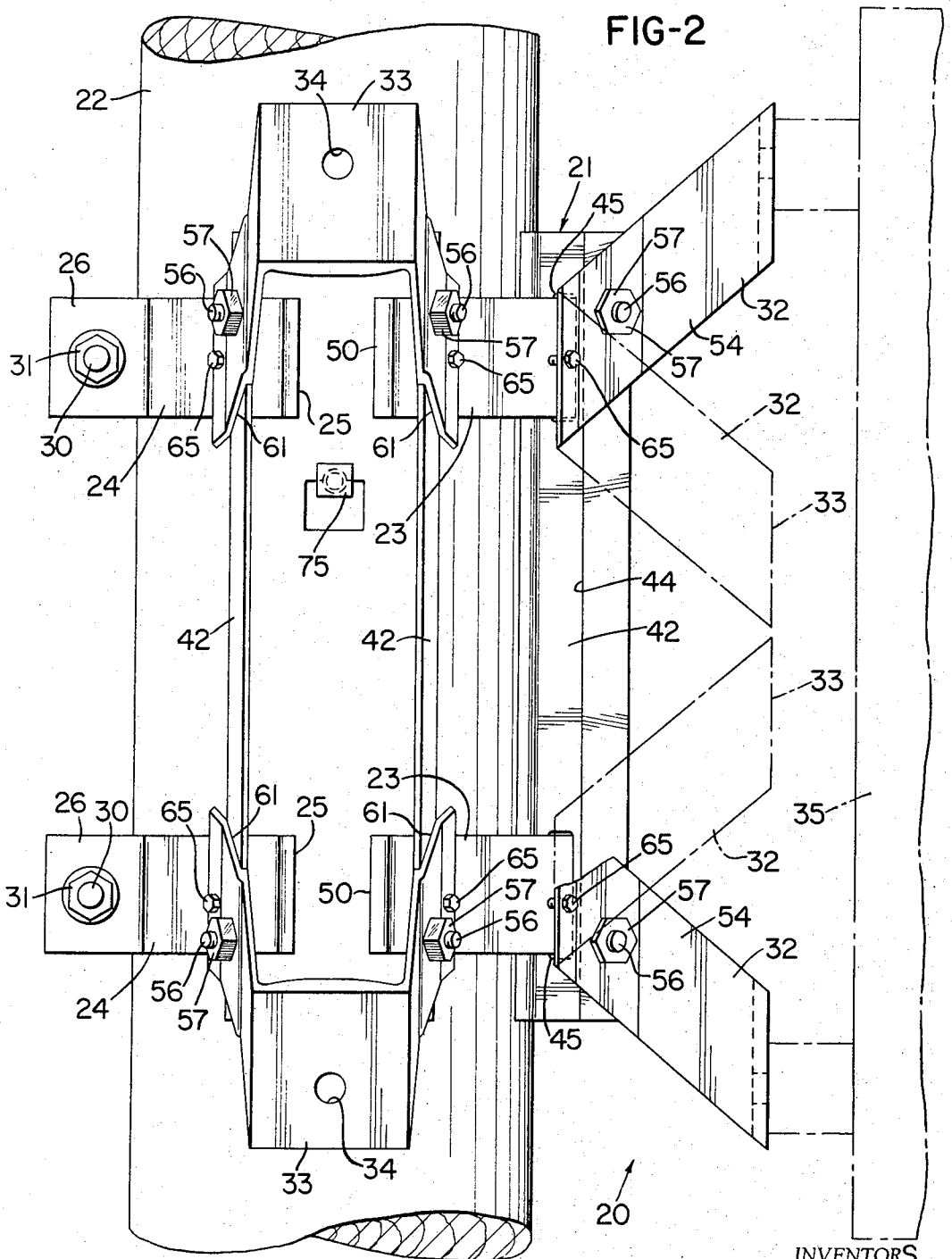
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TRANSFORMER MOUNTING DEVICE AND METHOD

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FIG-2



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TRANSFORMER MOUNTING DEVICE AND METHOD

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FIG-3

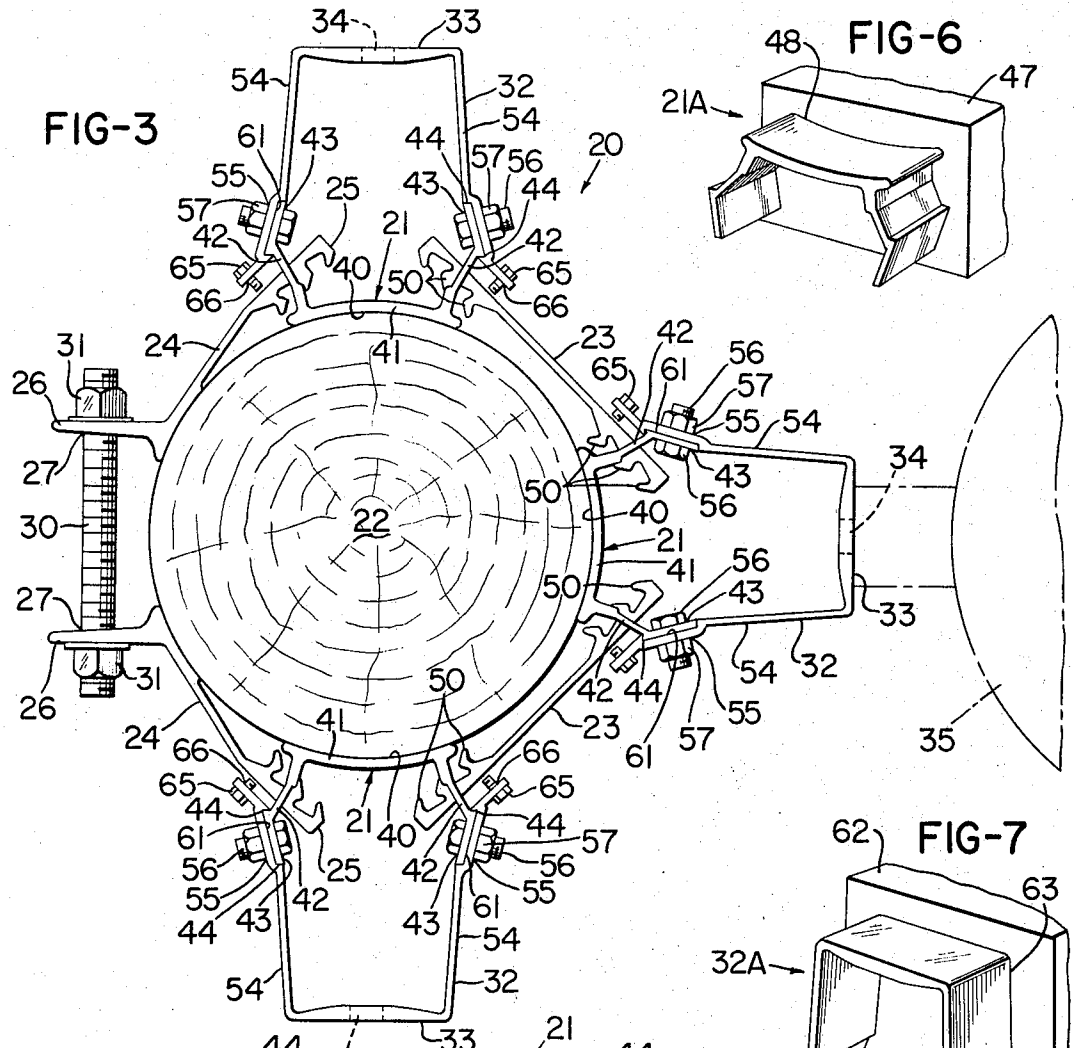


FIG-6

FIG-7

FIG-4

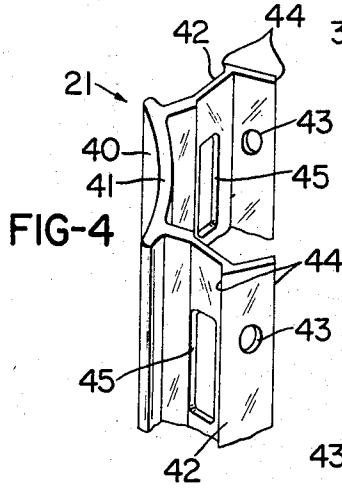
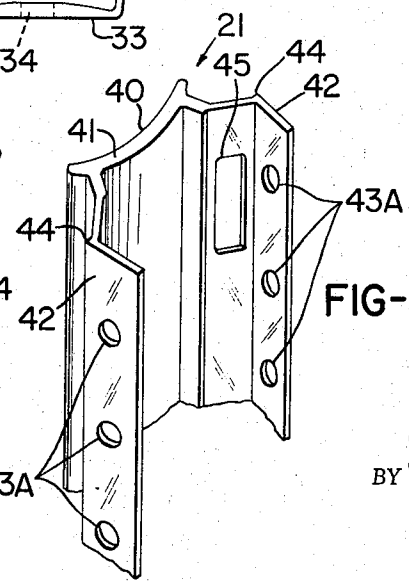


FIG-5



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United States Patent Office 3,374,978
Patented Mar. 26, 1968

3,374,978

TRANSFORMER MOUNTING DEVICE AND METHOD

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Filed Feb. 25, 1966, Ser. No. 530,059
12 Claims. (Cl. 248—221)

ABSTRACT OF THE DISCLOSURE

This invention pertains to an improved method and device for supporting apparatus, such as electrical transformers, on poles. Elongated bearing plates are employed which may be fastened about poles using link means having hooks in their outer end portions designed to permit selective compensation for variations in pole circumferences. Brackets upon which said apparatus will be mounted may be attached to said plates at a plurality of positions and may be rotated with respect to said plates to compensate for different sizes of apparatus to be supported.

This invention pertains to supporting devices and more particularly to an improved device for supporting apparatus on associated pole means and to an improved method for supporting such apparatus on such pole means.

Currently available supporting devices of the type used to support electrical power transformers on vertical pole means do not provide optimum load carrying capability yet are generally expensive to produce, complicated to assemble because of the large number of component parts required, and have comparatively little versatility in application.

The objects of this invention are to produce an improved device for supporting apparatus on pole means, with the following characteristics. The device should be inexpensive to produce, easy to assemble, simple to attach to the pole means, adjustable for variously sized pole means, adjustable for variously sized apparatus to be supported, and designed to keep small the magnitude at the point of attachment of the load supported per unit pole means supporting area.

These objects and others, of this invention, are realized by providing an elongated bearing plate for attachment to the pole means, and by providing adjustable connecting links which hook into slots in the bearing plate for attaching that plate to the pole means. The invention further requires providing adjustable offset brackets, adapted to be fastened to the bearing plate, upon which the apparatus will be mounted, providing a plurality of positions on the bearing plate at which the offset brackets can be mounted, adapting the offset brackets to be rotated 180° with respect to the bearing plate and with respect to each other so as to reverse the offset relation of the brackets, and providing a cooperating land and groove construction in the brackets and bearing plate to prevent these parts from rotation with respect to one another when desired.

Therefore, it is an object of this invention to provide an improved device for supporting apparatus on associated pole means and an improved method for supporting such apparatus on such pole means having one or more of the novel features of this invention as set forth above or hereinafter shown or described.

Other objects, uses, and advantages of this invention are apparent from a reading of this description, which proceeds with reference to the accompanying drawings forming a part thereof and wherein:

FIGURE 1 is a perspective view illustrating an exemplary device of this invention attached to vertical pole means with parts of the pole means cut away and also illustrating by dotted lines the position of three transformers carried thereby.

FIGURE 2 is an enlarged view on the line 2—2 of FIGURE 1 particularly showing two of the elongated bearing plate means and their associated bracket means mounted with their offset mounting faces offset away from each other and by dotted lines showing the bracket means associated with one of the bearing plate means offset toward each other.

FIGURE 3 is a top view of the exemplary device of FIGURE 1 particularly showing the attaching means including the connecting link means thereof for attaching the bearing plate means to such pole means and also showing the cooperating relation of the U-shaped bearing plate means and U-shaped bracket means.

FIGURE 4 is a fragmentary perspective view showing an end portion of the bearing plate means of FIGURE 1 particularly showing slot means therein for receiving hook means provided in the connecting link means.

FIGURE 5 is a fragmentary perspective view illustrating another embodiment of the elongated bearing plate means having fastening means, shown as a plurality of holes therein, for fastening the bracket means at a plurality of positions therealong.

FIGURE 6 is a perspective view with parts broken away illustrating die means used to extrude the blank used to make the generally U-shaped elongated bearing plate means.

FIGURE 7 is a fragmentary perspective view illustrating die means used to extrude the blank for the generally U-shaped bracket means.

FIGURE 8 is a perspective view with parts broken away illustrating die means used to extrude a blank from which the connecting link means are made simply by cutting to the desired width.

FIGURE 9 is a perspective view with parts broken away of die means used to extrude a blank from which the attaching brackets are made.

While the various features of this invention are hereinafter illustrated and described as being particularly adaptable for providing an improved device and method for supporting apparatus such as electrical apparatus on generally vertical pole means, for example, supporting electrical transformers on vertical poles used to carry electrical power lines, the various features of this invention can be utilized singly or in any combination thereof to provide an improved device and method for supporting apparatus of all types, irrespective of the intended use of such apparatus. Therefore, this invention is not to be limited to only the embodiments illustrated in the drawings because the drawings are merely utilized to illustrate an example of the wide variety of uses of this invention.

In the exemplary embodiment of this invention illustrated in FIGURES 1–3, a supporting device for electrical transformers is illustrated comprising elongated bearing plate means shown in this example as three bearing plates suitably positioned about a vertical pole. Each bearing plate is preferably an extruded member and its length along the vertical pole is considerably greater than its width to assure provision of a large bearing surface with minimum load per unit area. Each elongated bearing plate is preferably U-shaped and in this example has a pair of bracket means fastened thereto at its opposite end portions. Each bracket means is also generally U-shaped and has an offset mounting face which is arranged substantially vertically with each bracket means fastened to its associated bearing plate. Each oppositely

arranged pair of U-shaped bracket means is readily mounted with its mounting face offset away from the center of its associated bearing plate to provide a high strength support for comparatively long transformers. A high strength support for comparatively shorter transformers is provided simply by rotating the bracket means 180 degrees with the offset mounting faces extending toward each other and toward the center of such bearing plate. A plurality of easily connectable connecting link means is provided as part of the bearing plate attaching means. Each connecting link means has hook means at its terminal ends which are easily insertable in associated cooperating slots in the elongated bearing plates to fasten together the three bearing plates of this example in the desired spaced apart manner. Fastening means is provided which cooperates with the connecting link means to attach the device of this invention to vertical pole means. The attaching action may be accomplished in several ways; however, knowing the approximate diameter of the vertical pole the device can be partially preassembled on the ground by using the correct hook means corresponding to the pole diameter. The partial preassembly defines an assembly resembling an elongated C-shaped structure. The entire C-shaped structure is carried up the vertical pole and hung on a suitable lag screw or the like fixed to such pole at the desired location. The C-shaped structure is placed around the pole in an embracing manner at such location. The open end of such C-shaped structure is then fastened together using the fastening means and associated nuts and bolts to thus define the elongated ring shaped device of this invention. The device is rigidly fastened in position about the vertical pole by further tightening of such bolts. The device of this invention provides a stable high strength support having a large load bearing surface area yet is easy to install in position.

In the exemplary embodiment of FIGURE 5, the bracket means is slidable along the elongated bearing plates and easily attached at a plurality of positions therealong to provide a high strength mount for electrical transformers or the like. Such an arrangement provides great installation versatility yet without requiring moving of the elongated bearing plate means.

The method for supporting the exemplary electrical transformers on the vertical pole means is quite simple in that through the use of the elongated bearing plate means, reversible bracket means, connecting link means, and merely one bolting arrangement in association with each set of connecting link means it is possible to quickly and simply fasten a supporting device on vertical pole means. The method provides great versatility making it possible to make adjustments to compensate for installation defects of associated electrical equipment used on the vertical pole means without disturbing the basic supporting structure.

The exemplary device of this invention is illustrated in FIGURE 1 and is indicated generally by the numeral **20**. Supporting device **20** comprises bearing plate means shown in this example as a plurality of three elongated generally U-shaped bearing plates each designated by the numeral **21**. The bearing plates are attached to a vertical pole **22** used to carry electric lines and associated equipment. Plates **21** in this example are attached to pole **22** using a set of attaching means associating with each opposite end portion of such plates. However, it will be appreciated that plates **21** may also be attached to pole **22** using only one set of attaching means. When using only one set it has been found better to offset such set from the center of plates **21** to obtain maximum loading capacity.

As shown particularly in FIGURE 3, the attaching means used at each opposite end portion of elongated bearing plates **21** comprises a plurality of connecting link means or connecting links each designated by the numeral **23** and which extend between the three bearing plates **21**. A pair of identical cooperating attaching brackets each designated by the numeral **24** is also provided. Each attaching bracket **24** has hook means indicated by the numeral **25** at one end thereof which hooks into an associated slot means in U-shaped bearing plate **21** and has an angled flange **26** at its opposite end. Each flange **26** has a hole therein shown at **27** for receiving an associated bolt **30** therethrough. A nut **31** and associated washer is provided for threading on each end of bolt **30**.

Plates **21** are held firmly in position about pole **22** by suitably fastening connecting links **23** and attaching brackets **24** to such plates, inserting bolt **30** through its associated holes **27** in each flange **26**, and tightening nuts **31** to firmly clamp bearing plates **21** against vertical pole **22**. The preferred procedure used to fasten device **20** on pole **22** will be described in detail subsequently.

A pair of bracket means or brackets each designated by the numeral **32** is provided in this example of the invention for association with each elongated U-shaped bearing plate **21**. Brackets **32** are fastened at the opposite end portions of each plate **21** preferably adjacent each terminal outer end. Each bracket **32** has a mounting face **33** with suitable provisions therein shown in this example as a hole **34** for receiving an associated bolt therethrough and bolting an associated electrical apparatus or transformer designated by the numeral **35** thereto. Each bracket **32** is suitably fastened to its associated elongated bearing plate as will be described subsequently.

In this example of the invention the U-shaped bearing plates **21** are attached to vertical pole **22** having a generally round cross section. Therefore, the bearing surface or face indicated by the numeral **40** of each bearing plate **21** is generally arcuate in shape to correspond to the configuration of vertical pole **22**.

U-shaped bearing plate **21** has transverse base means or a transverse flange indicated at **41** and a pair of outwardly extending supporting flange means or outwardly extending supporting flanges each indicated by the numeral **42**. Each flange **42** in this example of the invention has hole means or holes therein at its opposite ends as shown in FIGURES 1, 3, and 4 and each indicated by the numeral **43**. Corresponding holes **43** in flanges **42** are used in cooperation with associated holes in each bracket **32** and with associated nut and bolt means to fasten each bracket **32** to opposite ends of U-shaped bearing plate **21**.

Each flange **42** also has projection or land means indicated as a pair of surfaces each designated by the numeral **44**. Surfaces **44** cooperate with associated surfaces in bracket **32** to prevent relative rotation between elongated bearing **21** and bracket **32**.

Each flange **42** of U-shaped bearing plate **21** has elongated slot means or slot **45** therein at its opposite ends and arranged generally parallel to and adjacent base portion **41**. Each slot **45** receives an end portion of an associated connecting link **23** to provide the firm fastening action for elongated U-shaped bearing plate **21** about the periphery of pole **22**.

Suitable die means **47**, shown in FIGURE 6, is provided for extruding an elongated blank **21A** therethrough from which each bearing plate **21** is made. Die means **47** has an opening **48** therein corresponding to the cross-sectional outline of U-shaped bearing plate **21**. Each bearing plate is cut to the desired length from blank **21A** and then the various holes and slots are formed therein. Blank **21A** is used to form bearing plates as illustrated in both FIGURES 4 and 5 of the drawings. It will also be appreciated that the detailed configuration of bearing surface **40** can also be simply changed to correspond to the detailed outline of associated pole means merely by suitably changing the configuration of opening **48** in die **47**.

Each connecting link means or connecting link **23** has a plurality of generally identical hook means or hooks each designated by the numeral **50** adjacent opposite side edges thereof, see FIGURE 3. Each hook **50** associated

with a given side edge is spaced therefrom a different distance. In this example three hooks **50** are shown associated with each side edge, one at each terminal edge of connecting link **23** and the other two spaced inwardly therefrom an equal amount from each other.

It will be appreciated that this arrangement enables the use of hooks **50** corresponding to the size of pole **22** being used. Thus, for a very large vertical pole **22** the hooks **50** at the terminal edges of each connecting link **23** are used, while for a pole **22** of a comparatively small diameter the hooks **50** most remote from the terminal edges are inserted in associated slots **45** of associated elongated U-shaped bearing plate **21**. Each hook **50** extends generally toward the center of connecting link **23** in a hooking manner so that by inserting each connecting link **23** with its hook **50** in a slot **45** of an associated plate **21** and firmly attaching the plates in position by threading nut **31** on associated bolt **30**, the tendency is to urge each connecting link **23** into firmer engagement with its associated elongated U-shaped bearing plate **21**.

As illustrated in FIGURE 8 each connecting link **23** is preferably made by extruding through a suitable die **51** having a configurated opening **52** therein corresponding to the overall configuration of each connecting link **23** and its projecting hooks **50**. By extruding each connecting link **23** it is possible to produce such links economically yet providing links having maximum strength and having integral hooks providing maximum structural integrity. This extruding process also makes it possible to provide an elongated blank having the integral hooks therein in which it is only necessary to cut such link to the desired length for any given application without requiring expensive additional tooling.

In the example of this invention illustrated in FIGURES 1 and 4, a pair of generally U-shaped bracket means **32** is used in association with each elongated bearing plate **21** as previously mentioned. Each bracket **32** has its transverse mounting face portion **33** provided with hole **34** therein as required for mounting an associated electrical transformer **35** thereto. Each bracket **32** also has a pair of spaced apart legs each designated by the numeral **54**. Legs **54** extend in the same direction from mounting face **33** and generally at an angle with the plane of face **33**. Each leg **54** also has hole means or a hole **55** therein adjacent its terminal end portion for association with a corresponding hole **43** in an associated flange **42** of elongated U-shaped bearing plate **21**.

As illustrated particularly in FIGURE 2 of the drawings each bracket **32** may be arranged on opposite end portions of an elongated bearing plate **21** so that its mounting face **33** is offset toward the center of the plate **21** to accommodate electrical apparatus of small size. This arrangement is shown in dotted lines in FIGURE 2; however, as snown in solid lines, merely by rotating each bearing plate 180 degrees the mounting face **33** is arranged so that its extends away from or offset from the center of bearing plate **33** to accommodate electrical apparatus or a transformer **35** of large size.

Another embodiment of elongated U-shaped bearing plate **21** is illustrated in FIGURE 5. Except for the mounting holes therein, plate **21** of FIGURE 5 is identical to the previously described bearing plates; thus, all parts thereof will bear the same numbers except such mounting holes which will each be designated by the numeral **43A**. A plurality of holes **43A** are provided at spaced apart intervals along the terminal edge of each flange **42**. This makes it possible to mount brackets **32** at a plurality of positions along the full length of each bearing plate **21** merely by aligning the holes therein corresponding to the desired position and bolting bracket **32** in position. The brackets **32** may also be rotated 180 degrees, as previously described, in association with any of the sets of holes **43A** to provide even greater mounting versatility.

Irrespective of whether a U-shaped bearing plate **21** as shown in FIGURE 4 or as shown in FIGURE 5 is used, a bolt **56** is inserted through each set of cooperating holes of bracket **32** and plate **21** and a nut **57** threaded on the opposite end thereof to firmly fasten each bracket to its associated plate **21**.

Each flange **54** of generally U-shaped bracket **32** also has groove means shown generally as a shallow U-shaped groove **61** having a pair of short spaced apart parallel surfaces. The projections **44** in elongated U-shaped bearing plate **21** are received within cooperating shallow groove **61** and upon fastening each bracket **32** to plate **21**, by using bolts **56** and nuts **57**, prevent relative rotation between the associated brackets and bearing plate.

The brackets **32** are also preferably formed by the extrusion process. FIGURE 7 illustrates a portion of a die **62** having an opening **63** corresponding to the configuration of bracket **32** and through which an elongated blank **32A** from which each bracket **32** is made. Each bracket **32** is made by suitably cutting sections from blank **32A** and forming the required holes therein. It can be seen that by using this preferred manufacturing method the exact detailed configuration of each bracket is easily and simply produced.

Lock means is provided for locking each of the connecting links **23** in position once it has been inserted with its oppositely arranged hooks **50** in cooperating slots **45** of associated elongated bearing plates **21**. The lock means in this example is preferably a lock bolt **65** which is threaded through a cooperating threaded hole **66** at the terminal end of each flange **54** of bracket **32**.

With each connecting link **23** installed in position and with each bracket **32** suitably mounted on elongated bearing plate **21**, bolt **65** is threaded inwardly into engagement with an end portion of connecting link **23** to thereby hold the connecting link urged toward pole **22**. Each bolt **65** not only assures that an associated connecting link is held in position during initial assembly steps but also assures that once nuts **31** have been tightened on bolt **30** of the attaching means that each connecting link **23** is securely locked against outward movement.

As previously described, the elongated brackets **21**, the connecting links **23**, and the U-shaped brackets **32** are all preferably formed by extruding through suitable die means. In addition, each attaching bracket **24** is also preferably formed by extruding through a suitable die **70** as illustrated in FIGURE 9. Die **70** has an opening **71** therein corresponding to the cross-sectional outline of bracket **24** and enables forming of an elongated blank **24A** from which brackets **24** are made.

Thus, the four major components of the device of this invention are all preferably formed in an economical manner by extruding only four blanks from which the various members are simply cut to the desired length and the required holes formed therein. In addition, the preferred extrusion process enables production of components of high structural strength because the novel intermeshing structural members are all formed as an integral part of the particular component in question.

The four major components of this invention, previously mentioned, are preferably made from metal. In one application of this invention in which a supporting device for electrical transformers was provided all major components were made from metals containing aluminum thereby providing a structure of high strength and yet of light weight for easy handling by workmen in the field.

Having described the detailed component members comprising the device of this invention it will be appreciated that such device can be readily fastened on an associated vertical pole **22** in a simple and efficient manner. Three exemplary ways of fastening each device **20** on pole **22** will now be presented.

The preferred way of installing supporting device **20** on pole **22** will be presented first and is accomplished by partially preassembling such unit on the ground. The mounting provisions on each electrical device which is

to be supported on device 20 are generally known in advance and this enables brackets 32 to be fastened as required on their associated bearing plates 21 using bolts 56 and cooperating nuts 57.

The approximate diameter of vertical pole 22 is also known, which enables the correct hooks 50 of each connecting link 23 corresponding to such pole diameter to be inserted in associated slots 45 of plates 21. Each connecting link 23 is engaged at its opposite end portions by bolts 65 threaded thereagainst. Each bolt 65 holds an associated hook 50 in a cooperating slot 45 to assure that each connecting link is held fastened to its associated plates 21.

A pair of fastening brackets 24 are preferably similarly held at opposite ends of one of the plates 21 using a bolt 65 to hold each bracket 24 in its associated slot 45 in a similar manner as described above. A bolt 30 is inserted through each hole 27 in mounting flange 26 of bracket 24 and nuts 31 are started at opposite ends of bolt 30 to loosely attach such bolt and its nuts 31 to the preassembled structure.

As will be apparent from the drawings such preassembled structure defines an elongated structure which is roughly C-shaped and has brackets 24 fastened along one open side thereof. The C-shaped structure is then carried up the vertical pole 22 and hung on a pre-driven positioner such as a lag screw 75 or the like so as to embrace pole 22 therewithin.

Another pair of brackets 24, necessary to complete device 20, are then simply hooked into associated slots 45 in the plate 21 defining the other open side of the C-shaped structure. One of the nuts 31 is removed from each bolt 30 enabling the insertion of such bolt through a cooperating hole 27 in a newly installed bracket 24. The removed nuts 31 are threaded on their associated bolts 30 to thereby close the open end of the C-shaped preassembled structure and define device 20. Device 20 is rigidly fixed to pole 22 by securely tightening bolts 31.

Another way of installing device 20 on pole 22 will now be described. The three bearing plates 21 are each positioned as desired about vertical pole 22. This positioning may be accomplished in any suitable manner as by suspending each bearing plate 21 along pole 22 by hanging on an associated suitably positioned spike means or lag screw 75 driven into pole 22. With plates 21 thus positioned connecting links 23 are then inserted so that the hooks 50 at their opposite terminal ends are inserted withinslot 45 of an associated plate 21 at each end. At this point it will be appreciated that with vertical poles having different diameters or different cross-sectional areas, compensation is made for this different diameter by merely selecting the proper hook means to be inserted in the associated slot means to thereby provide an interim relatively snug attachment between the elongated bearing plates 21. The bracket means 24 are then installed on opposite sides of device 20 and bolt 30 is inserted through associated hole 27 in each bracket 24 and nuts 31 are threaded on opposite ends of bolts 30 so that device 20 is now loosely fastened about the periphery of vertical pole 22. The bolts 31 are then firmly tightened thereby attaching plates 21 to pole 22 by applying clamping forces thereagainst which urge such vertical elongated bearing plates 21 into fixed engagement with pole 22.

The brackets 32 are then preferably fastened in position along bearing plates 21 using bolts 56 and associated nuts 57. In this example a bracket 32 is fastened at each opposite end of the bearing plate 21 so that the mounting surface 33 thereof is angled away from the center of the bracket 21 thereby accommodating a transformer 35 of relatively large size.

Each connecting link 23 of the embodiment of FIGURE 1 is preferably locked in position by threading associated bolts 65 into engagement therewith at its opposite ends.

To accommodate a transformer 35 of much smaller size without moving the position at which brackets 32 are mounted on bearing plate 21 it is necessary merely to rotate each bracket 180 degrees as previously described. Also, it will be appreciated that brackets 32 can also be readily moved along a bearing plate 21 of the type illustrated in FIGURE 5 to satisfy any local installation requirements and thus provide greater installation versatility.

Each transformer 35 is mounted against mounting face 33 in any suitable manner and in this example of the invention includes extending bolt means through hole 34 in mounting face 33 and fastening to associated cooperating structure in transformer 35.

The third way for installing the device of this invention on vertical pole 22 is to completely loosely preassemble device 20 on the ground basically as described in the preferred way of installation; however, in this latter way the preassembly is completed so as to define an elongated ring-like structure. The ring-like structure is then lowered over the top of a pole 22 to the desired vertical position along such pole. Using this preassembly technique it is easier to rotate the preassembled device about the vertical pole 22 as desired prior to rigidly fixing such device thereto. The preassembled device is temporarily hung on a suitable lag screw 75 which may be installed either prior to or at the time of lowering the preassembled device in position. Device 20 is then rigidly fixed to pole 22 by tightening bolts 31.

In all of the above described ways or modes of assembling device 20, bracket 32 is of course installed so that its shallow U-shaped groove 61 cooperates with projections 44 in each flange 42 of elongated bearing plate 21 to thereby assure that there will be no rotation of bracket 32 relative to elongated bearing plate 21.

The exemplary device of this invention has been illustrated in association with vertical pole means 22 having a round cross section. It will be appreciated that the pole means with which such device 20 is associated may be of any cross-sectional configuration and that the elongated bearing plate 21, connecting link 23, and mounting bracket 24 may be suitably configurated to correspond to the vertical pole means to which they are attached.

Thus, it is seen that an improved device has been provided for supporting apparatus along pole means which uses a minimum of component parts, provides high structural strength, and provides optimum installation versatility.

Further, this invention provides an improved method for supporting apparatus on generally vertical pole means which provides efficient and economical assembly yet without compromising structural integrity.

While the form of the invention now preferred has been disclosed as required by statute, other forms may be used, all coming within the scope of the claimed subject matter which follows.

What is claimed is:

1. An improved device for supporting electrical apparatus on generally vertical pole means comprising an elongated bearing plate means adapted for bearing along said pole means, a pair of generally U-shaped bracket means each having spaced apart leg means fastened to an associated end portion of said plate means and having a transverse mounting face portion for mounting said electrical apparatus thereon, each transverse mounting face being offset away from the center of said bearing plate means in one mounting position and being offset toward said center in another mounting position obtained by rotating each bracket means 180°, such that in said one mounting position a wider spacing is obtained between said mounting faces than in said other position to accommodate electrical apparatus of different sizes, attaching means for attaching said plate means to said pole means, said bearing plate means comprising generally U-shaped bearing plate means having transverse base means adapted for bearing along said pole means and

outwardly extending supporting flange means substantially parallel to each other, and each of said U-shaped bracket means being fastened to the terminal end portion of said flange means along said associated end portion of said plate means.

2. An improved device as set forth in claim 1 further comprising holding means for holding said bracket means against rotation relative to said plate means.

3. An improved device for supporting apparatus on associated pole means comprising, bearing plate means adapted for bearing against said pole means and having slot means therein adjacent opposite side edges thereof, said bearing plate means being generally U-shaped and having transverse base means adapted for bearing along said pole means and outwardly extending supporting flange means substantially parallel to each other, bracket means fastened to said plate means and having mounting means for mounting said apparatus thereto, and attaching means for attaching said plate means to said pole means, said attaching means having connecting link means having a plurality of generally identical hook means fixed adjacent at least one side edge thereof for insertion in said slot means for holding said plate means firmly against said pole means, said plurality of hook means each being spaced from said side edge of said connecting link means a different distance enabling the use of said device on pole means of different sizes by inserting a pre-selected hook means corresponding to the size of the said pole means in an associated slot means in said plate means.

4. An improved device as set forth in claim 3 in which said bearing plate means comprises a plurality of bearing plate means each having slot means therein adjacent opposite side edges thereof, said bracket means comprises bracket means associated with each of said bearing plate means, and said connecting link means comprises a plurality of identical connecting link means each having said plurality of generally identical hook means adjacent opposite side edges thereof.

5. An improved device as set forth in claim 3 wherein, said bracket means comprises generally U-shaped bracket means associated with each of said bearing plate means, each of said bracket means having each of its spaced apart leg means fastened to a corresponding end portion of an associated flange means, and said connecting link means comprises a plurality of identical connecting link means each having said plurality of generally identical hook means adjacent opposite side edges thereof.

6. An improved device for supporting electrical apparatus on associated pole means comprising: elongated U-shaped bearing plate means having its transverse base means adapted for bearing along said pole means, said plate means having outwardly extending supporting flange means substantially parallel to each other, each of said flange means having a plurality of hole means extending therealong adjacent its terminal outer end and having slot means adjacent the base thereof, bracket means having hole means adjacent each side edge cooperating with said hole means in said flange means for fastening said bracket means to said plate means at a plurality of positions extending along said plate means, said bracket means having mounting means for mounting said apparatus thereto, and attaching means for attaching said plate means to said pole means, said attaching means comprising connecting link means having a plurality of generally identical hook means fixed adjacent a side edge of said connecting link means, each being spaced therefrom a different distance enabling use of said device on pole means of different sizes by inserting a hook means corresponding to the size of pole means in an associated slot means in said flange means upon attaching said attaching means.

7. An improved method for supporting electrical apparatus on generally vertical pole means comprising the steps of providing elongated bearing plate means adapted for bearing along said pole means, positioning said plate means to a desired position on said pole means, attaching said plate means to said pole means at said desired position by applying forces thereagainst which urge said plate means into fixed engagement with said pole means, providing a pair of generally U-shaped bracket means having a transverse mounting face portion and spaced apart leg means extending at an angle therefrom, fastening said bracket means on opposite end portions of said plate means so that said mounting faces of said bracket means are offset toward the center of said plate means to accommodate electrical apparatus of small size, and to accommodate electrical apparatus of larger size by rotating each of said bracket means 180° prior to fastening to said plate means, mounting said electrical apparatus to both of said bracket means assuring that the load therefrom is effectively transferred to said plate means, said step providing elongated plate means comprises providing generally U-shaped bearing plate means having transverse base means adapted for bearing along said pole means and outwardly extending supporting flange means substantially parallel to each other, and said fastening step comprises arranging said bracket means so that each leg means thereof engages a corresponding flange of said plate means at an associated end portion and is fastened thereto.

8. An improved method as set forth in claim 7 in which said steps providing U-shaped bearing plate means and U-shaped bracket means comprise providing groove means in one of said U-shaped means and cooperating land means in the other of said U-shaped means, and said fastening step comprises positioning said land means within said groove means to prevent rotation of said bracket means relative to said bearing plate means.

9. An improved method for supporting electrical apparatus on generally vertical pole means comprising the steps of, providing bearing plate means adapted for bearing against said pole means and providing slot means therein adjacent opposite side edges thereof, positioning said plate means to a desired position on said pole means, providing attaching means having connecting link means for attaching said plate means to said pole means and further providing hook means in said connecting link means adjacent a side edge thereof, inserting said hook means in said slot means to a position determined by the size of said pole means to provide an interim relatively snug attachment, firmly attaching said plate means to said pole means at said desired position by applying forces thereagainst acting through said connecting link means which urge said plate means into fixed engagement with said pole means, providing bracket means having mounting means for mounting said apparatus thereto, fastening said bracket means to said plate means, mounting said electrical apparatus to said bracket means, said step providing bearing plate means comprising providing a plurality of elongated generally U-shaped bearing plate means each having transverse base means adapted for bearing along said pole means and a pair of outwardly extending supporting flange means substantially parallel to each other and further providing slot means therein adjacent the base of each flange means, said step providing attaching means having connecting link means comprises providing a plurality of connecting link means each having a plurality of generally identical hook means adjacent opposite side edges thereof with each hook means associated with a side being spaced therefrom a different distance, said inserting step comprising selection of a pair of oppositely arranged hook means in each connecting link means coresponding to the size of said pole means whereby compensation for pole means of large size variation is readily made during said inserting step by quickly selecting the pair of hook means providing the most snug interim attachment, said step providing bracket means comprises a pair of generally U-shaped bracket means for association with each plate means at its op-

posite ends and each bracket means having a transverse mounting face portion and spaced apart leg means, said fastening step comprising arranging said bracket means so that each leg means thereof engages a corresponding flange of said plate means at an associated end portion and is fastened thereto, and further comprising the step of locking said connecting link means in position.

10. An improved method as set forth in claim **9** in which said step providing bracket means comprises providing a pair of generally U-shaped bracket means for association with each plate means at its opposite ends and each bracket means having a transverse mounting face portion and spaced apart leg means, said fastening step comprises arranging each bracket means so that each leg means thereof engages a corresponding flange of said plate means at an associated end portion and is fastened thereto, and further comprising the step of locking said connecting link means in position.

11. An improved method as set forth in claim **9** in which said step of providing bearing plate means comprises providing bearing plate means with first fastening means extending generally axially therealong, said step of providing bracket means comprising providing bracket means with second fastening means thereon adapted for cooperation with said first fastening means, said step of fastening said bracket means to said plate means comprising aligning said bracket means to any desired vertical position along said elongated bearing plate means and fastening said bracket to said plate means with said first and second fastening means in cooperating relation, whereby with said elongated bearing plate means fixed in position against said pole means the position of said electrical apparatus may be shifted along said plate means to provide easier installation thereof.

12. An improved method as set forth in claim **11** in which said step providing elongated bearing plate means comprises providing a plurality of said bearing plate means having slot means in their parallel flanges, said step providing attaching means comprises providing a plurality of connecting link means each having a plurality of generally identical hook means adjacent opposite side edges thereof with each hook means associated with a side being spaced therefrom a different distance, such that during said attaching step compensation can be readily made for pole means of different sizes by selecting corresponding hook means and inserting such hook means in associated slot means to connect said plate means together and apply said forces through said attaching means including through said connecting means.

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