Feb. 11, 1947. I. F. MATTHYSSE 2,415,649

INSULATOR SUPPORTED ADJUSTABLE BUS CLAMP

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Fig. 1.

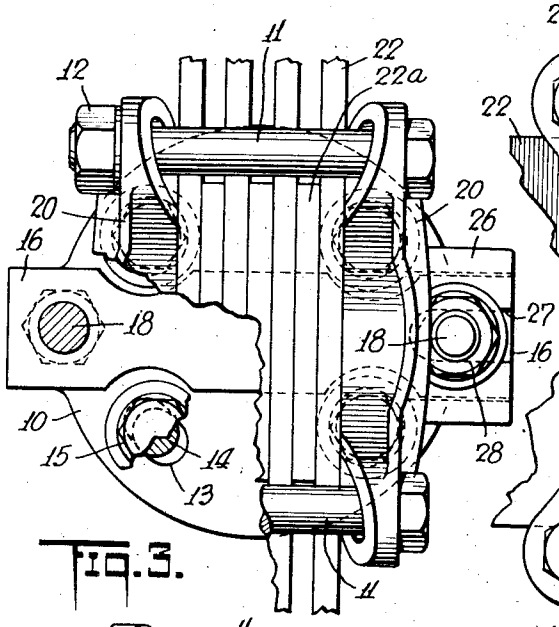


Fig. 2.

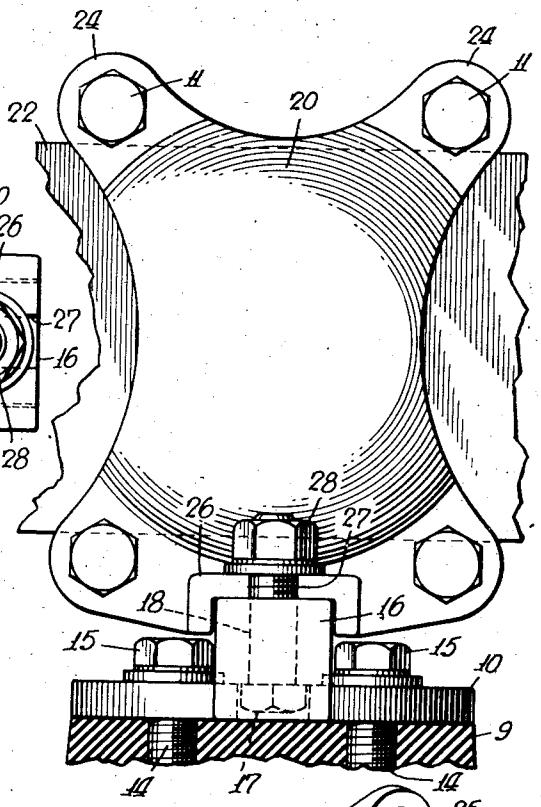


Fig. 3.

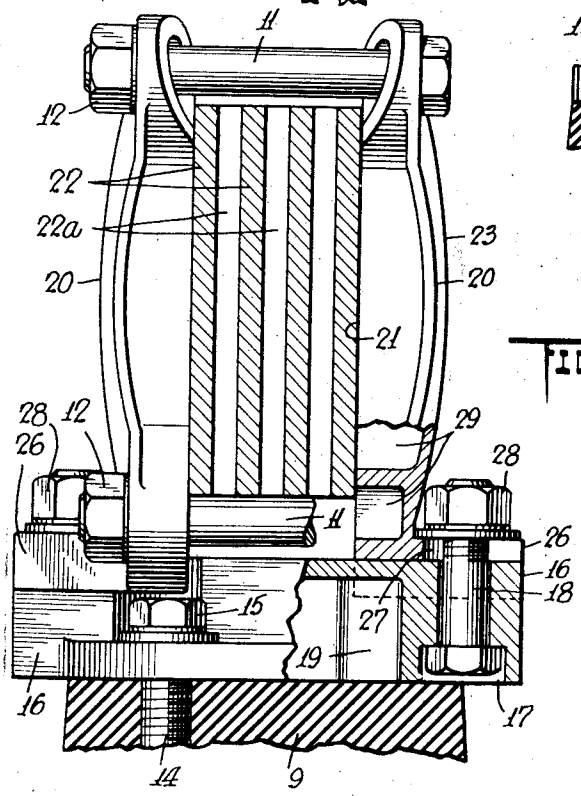
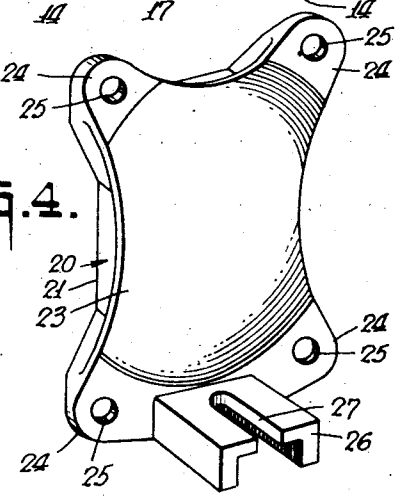


Fig. 4.



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Fig. 5.

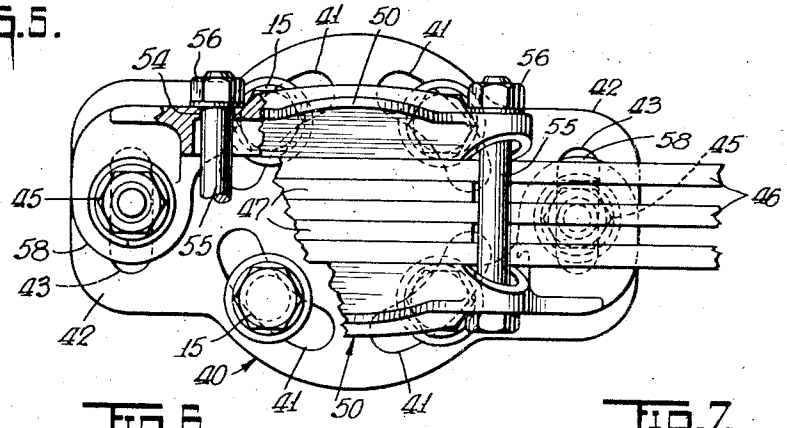


Fig. 6.

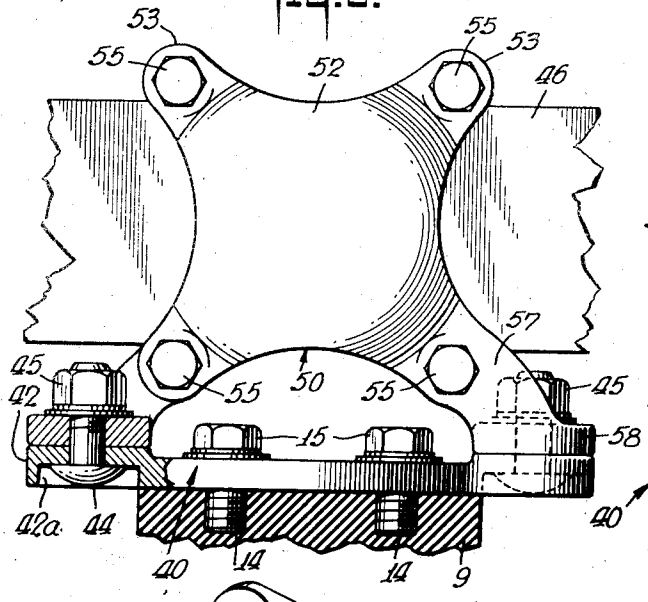


Fig. 7.

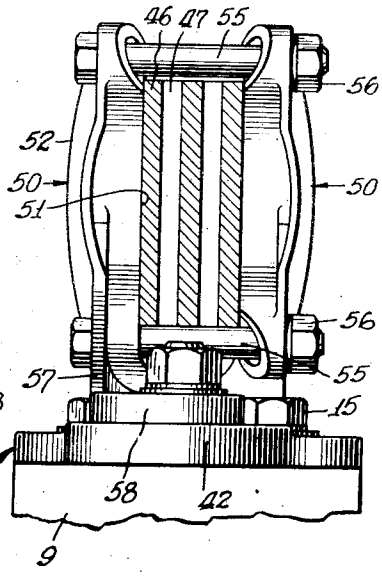
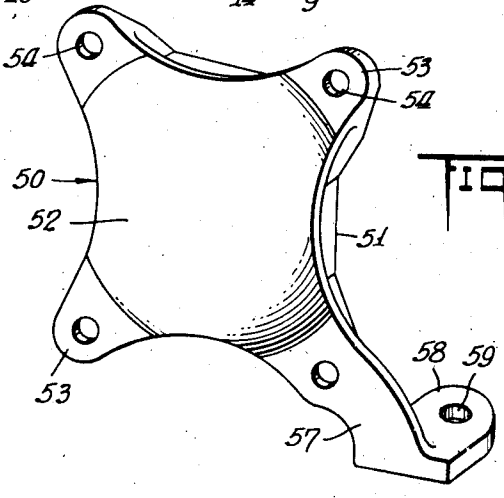


Fig. 8.



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Fig. 9.

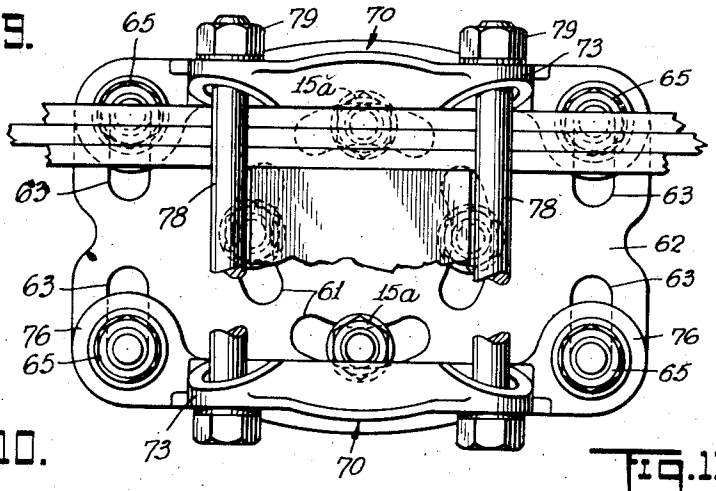


Fig. 10.

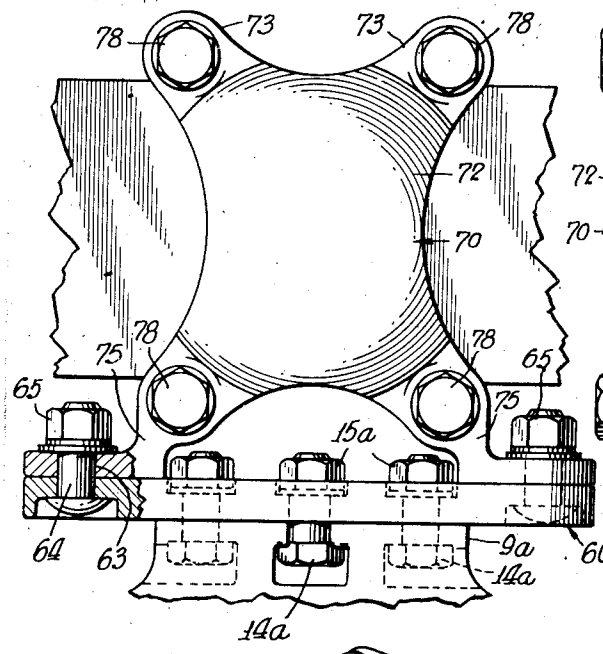


Fig. 11.

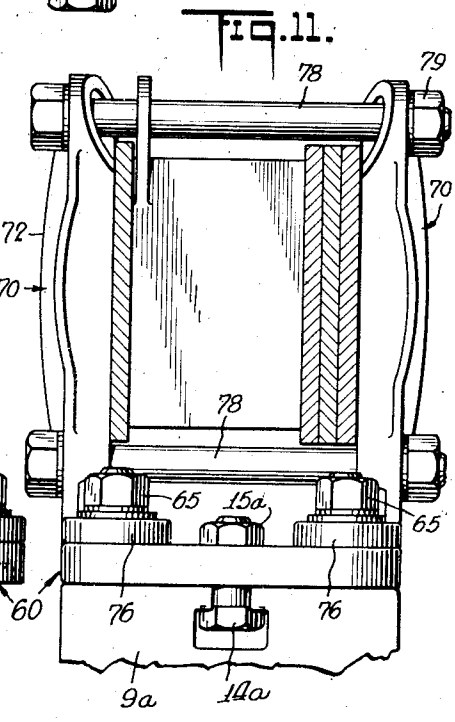
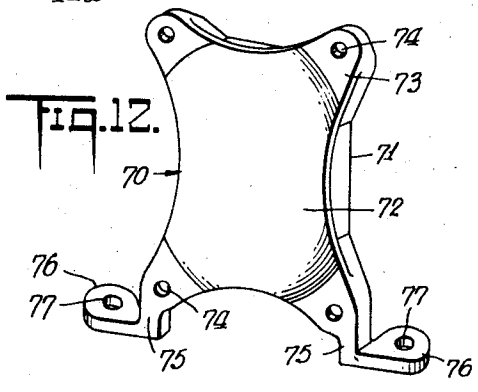


Fig. 12.



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INSULATOR SUPPORTED ADJUSTABLE BUS CLAMP

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Application August 12, 1942, Serial No. 454,621

5 Claims. (Cl. 174—171)

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This invention relates to improvements in bus support clamps for supporting electrical conductors, and more especially, bus support clamps for flat electrical conductors designed to be mounted on an insulator support.

Flat bar conductors are generally used either singly or in multiple and mounted with their wide faces in a vertical plane. For example, a popular size of flat bar is ¼" thick by 4" wide and it is frequently used either singly or in multiples of 2, 3 or 4 with the wide faces parallel to each other and ¼" apart. The group of flat bars are generally mounted on the conventional insulator and the usual position of the bars relative to the insulator provides for the bars crossing the top or cap of the insulator with the longitudinal centerlines of the bars and insulator mutually perpendicular. The wide faces of the bars are generally parallel to the longitudinal centerline of the insulator.

It is a distinct advantage to provide a support clamp that may be adjusted to take a wide range in the number and thickness of the flat bars without change of parts. It is one object of this invention to provide such an adjustable feature.

Another object of this invention is to provide a bus support clamp which will permit of lateral adjustment of the bus with respect to the insulator. This is advantageous when the centerlines of a row of insulators on which the bus is to be mounted are slightly out of line.

Other objects are to provide a bus support clamp having transverse rails to permit the clamping elements to be adjustably positioned thereon; to provide adjustable clamping elements which project a minimum distance beyond the walls of the clamping elements; and to provide angular as well as transverse adjustments of the clamping elements.

I accomplish these and other objects and obtain my new results as will be apparent from the devices described in the following specification, particularly pointed out in the claims, and illustrated in the accompanying drawings, in which:

Fig. 1 is a partially sectioned top view of one form of my device.

Fig. 2 is a side view of the same.

Fig. 3 is a partially sectioned end view.

Fig. 4 is a perspective view of one of the clamping plates.

Fig. 5 is a partially sectioned top view of a modification thereof.

Fig. 6 is a partially sectioned side view of the same.

Fig. 7 is an end view.

Fig. 8 is a perspective view of one of the clamping plates of my modification.

Fig. 9 is a partially sectioned top view of another modification.

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Fig. 10 is a partially sectioned side view of the same.

Fig. 11 is an end view.

Fig. 12 is a perspective view of one of the clamping plates thereof.

Referring more particularly to the drawings, reference numeral 9 in Fig. 2 indicates the top or cap of an insulator upon which my clamping device is normally mounted. The bus-clamping device, in the form shown in Figs. 1 to 4, consists primarily in the base element 10, and two lateral clamping elements 20, all held together by various bolts, as will be hereinafter described.

The circular base element 10 is provided with four angularly elongated apertures 13, through which are inserted the insulator bolts 14, provided with heads 15, which lock the base 10 to the insulator cap 9. The elongated apertures 13 enable the clamping elements to be rotated on the insulator cap to obtain proper alignment thereof.

The base 10 is also provided with a transversely extending rail section 16 formed integrally therewith, which is hollowed at each end thereof as at 17, to allow the bolts 18 to project therethrough. The base is hollowed as at 19 to reduce its weight.

The clamping elements 20, shown in perspective in Fig. 4, are two in number, and identically formed. One face 21 is flat for applying pressure to the bus-bars 22 and the intermediate spacers 22a, and the other face 23 is rounded to give additional strength. Four extending ears 24 are provided with apertures 25 for insertion of the bolts 11, which lock the two clamping plates 20 together about the bus-bars by means of nuts 12. At the base of the clamping plates, a channel 26 outwardly extends, which rides the rail section 16 of the base member 10. A slot 27 is formed in the upper side of the channel 26, to provide for the insertion of the bolt 18, which locks the channel to the base rail section by means of the nut 28. The clamping plates 20 are hollowed out as at 29 to reduce the weight thereof.

This embodiment of my device is characterized by the employment of base rails which cause the clamping plates to be maintained in parallel position, yet transversely adjustable to accommodate varying sizes and numbers of bus-bars and intermediate spacers.

In Figs. 5 to 8, I have shown a modified form of my device. Reference numeral 40 designates the base section, and 50 the clamping members. The base section 40 contains four angularly elongated apertures 41, through which are inserted the insulator bolts 14, provided with heads 15 for locking the base 40 to the insulator cap 9. The base 40 is provided with two longitudinally extending sections 42, each having transversely elongated apertures 43. The underside of the extending

section 42 is hollowed out as at 42a around each aperture to accommodate the bolt 44.

A clamping member 50 is shown in perspective in Fig. 8, and two of them are used in juxtaposition. They are flat on the bus-bar side as at 51, and rounded off, as at 52 on the opposite side. Each member is provided at its four corners with extending ears 53, each ear apertured as at 54 to receive the bolts 55 which lock the two clamping members to each other by their corresponding nuts 56. One ear adjacent the lower portion is provided with a base extension 57 which terminates in an inwardly extending right angle lug 58, perforated at 59 to accommodate the bolt 44 of the base section.

Each clamping member has its inwardly extending right angle lug locked to the base member by means of nut 45 threaded to base bolt 44.

The transversely elongated apertures 43 in the base member 40 permit the two clamping members to be spaced to satisfactorily accommodate the proper number and thickness of bus-bars and intermediate spacers 46 and 47 respectively.

This modification thus discloses means for the angular adjustment of the base section, and the transverse adjustment of the clamping members. In addition, there is provided transverse adjusting means which does not extend beyond the curved outer walls of the clamping members, thus reducing the lateral dimensional requirements, where compactness is important.

In the modification shown in Figs. 9 to 12, the clamping members are each provided with two supporting inwardly extending legs, where greater structural strength is necessary. Here the base member 60 is attached to the insulator cap 9a by insulator bolts 14a through angularly elongated apertures 61 and locked thereto by nuts 15a. The longitudinally extending base portions 62 are each provided with a pair of inwardly extending elongated apertures 63 for the base bolts 64.

The clamping members 70, two in number, are each provided with flat and round sides, 71 and 72 respectively, and corner ears 73, apertured as at 74 to receive the clamping bolts 78 locked together by nuts 79. The lower ears have extensions 75 with inwardly extending right angle lugs 76 apertured at 77 for receiving the base bolts 64, which are locked thereto by nuts 65.

By the foregoing constructions, I have in each instance retained the angularly adjustable base member, and the transversely adjustable clamping members. In addition, I have disclosed means for providing the lateral adjustments having the necessary structural strength with minimum dimensional space requirements.

I have thus described my invention, but I desire it understood that it is not confined to the particular forms or uses shown and described, the same being merely illustrative, and that the invention may be carried out in other ways without departing from the spirit of my invention, and, therefore, I claim broadly the right to employ all equivalent instrumentalities coming within the scope of the appended claims, and by means of which, objects of my invention are attained, and new results accomplished, as it is obvious that the particular embodiments herein shown and described are only some of the many that can be employed to attain these objects and accomplish these results.

What I claim and desire to secure by Letters Patent, is as follows:

1. An adjustable bus support for adjustably supporting a bus bar to an insulator provided with a fixedly positioned cap or plate member, said bus support comprising a movable upper plate member angularly adjustable with respect to the fixed plate member of the insulator and in contact therewith; means for locking the movable plate member of the bus support to the fixed plate member of the insulator in the desired position; and transversely movable clamping members mounted on said movable upper plate member for securing a bus bar thereto, said movable plate member and movable clamping members provided with transversely positioned guide means and locking means for locking the clamping members to the movable plate member in any desired position thereon.

2. The bus support of claim 1 wherein the transversely positioned guide means comprise parallel mounted rails forming a part of the upper movable plate, upon which rails, channel members, forming a part of the movable clamping members are mounted for maintaining the movement of the clamping members.

3. The bus support of claim 1, wherein the upper movable plate member is provided with arcuate slots and bolt means are positioned in the slots for locking the upper movable plate member to the fixedly positioned plate of the insulator in any desired angular position with respect thereto.

4. The bus support of claim 1, wherein the upper movable plate member is provided with arcuate slots, and transversely extending parallel slots; and bolt means, for securing the upper movable plate member to the fixedly positioned plate of the insulator through the arcuate slots, and for securing the movable clamping members to the upper movable plate member through the transversely extending parallel slots.

5. The bus support of claim 1, wherein the movable clamping members are each provided with a face for clamping the bus bar thereagainst and each of the clamping members terminate in a single supporting lug having an inwardly extending lug section for support on the movable upper plate member, said lug having an aperture there; and bolt means for locking the lug section to the movable upper plate member.

IRVING FREDERICK MATTHYSSE.

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