

Jan. 24, 1967

E. E. HOCKADAY

3,299,586

CROSSARM ASSEMBLY

Original Filed May 15, 1962

3 Sheets-Sheet 1

Fig. 1.

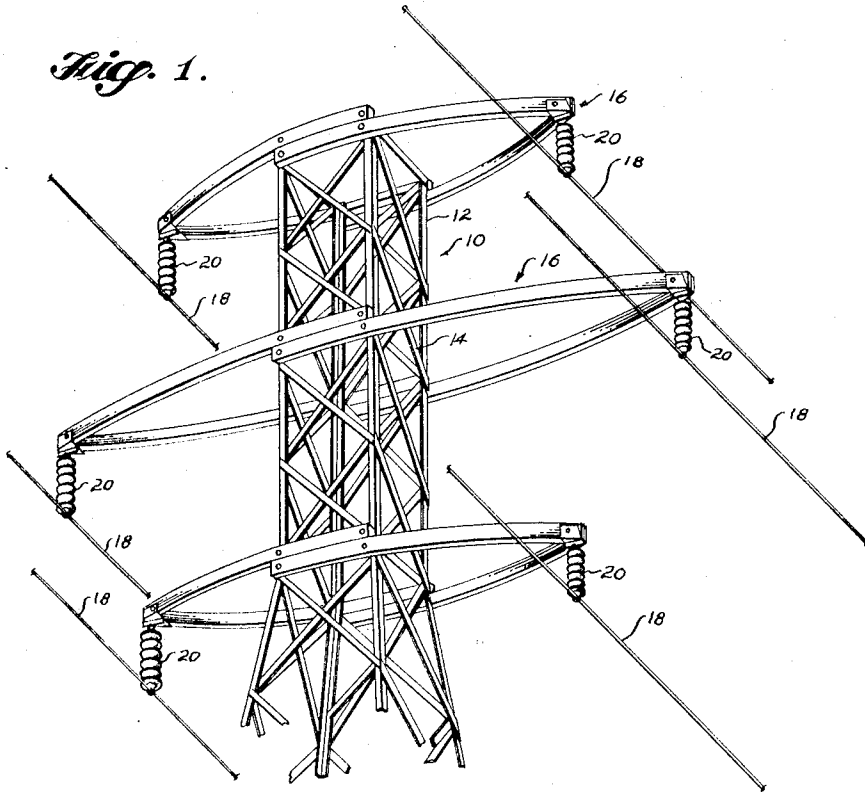


Fig. 2.

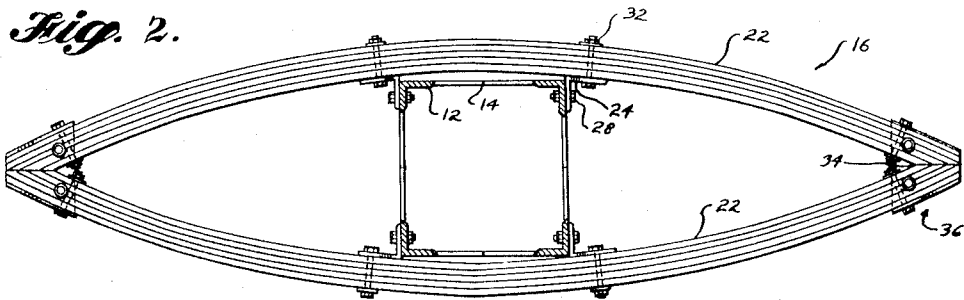
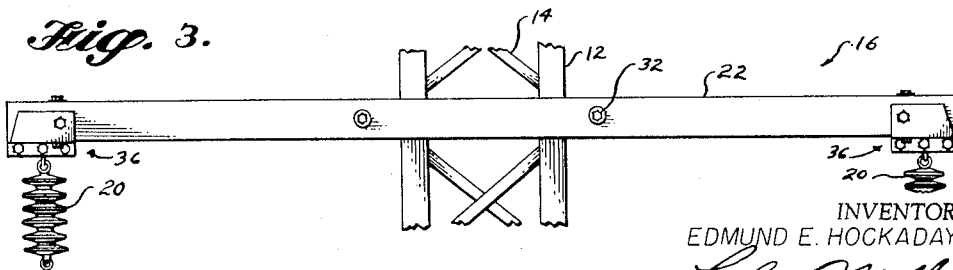


Fig. 3.



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Fig. 4.

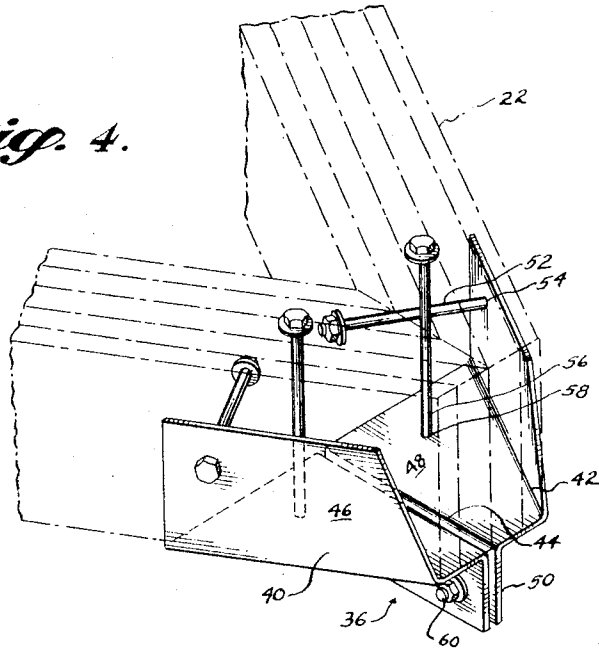


Fig. 5.

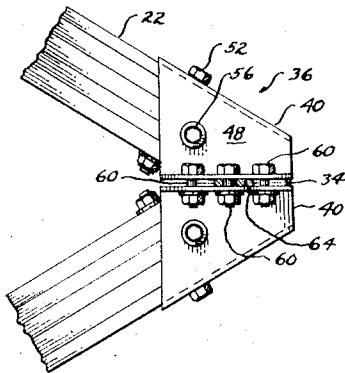
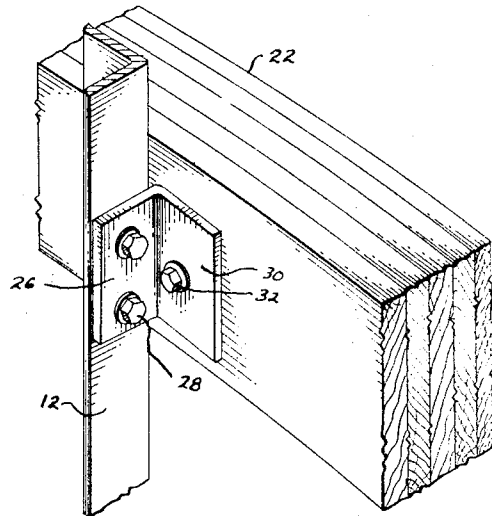


Fig. 6.



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Fig. 7.

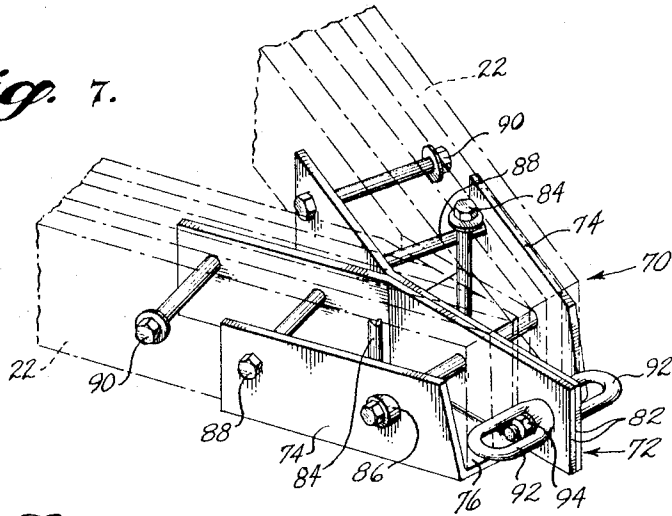
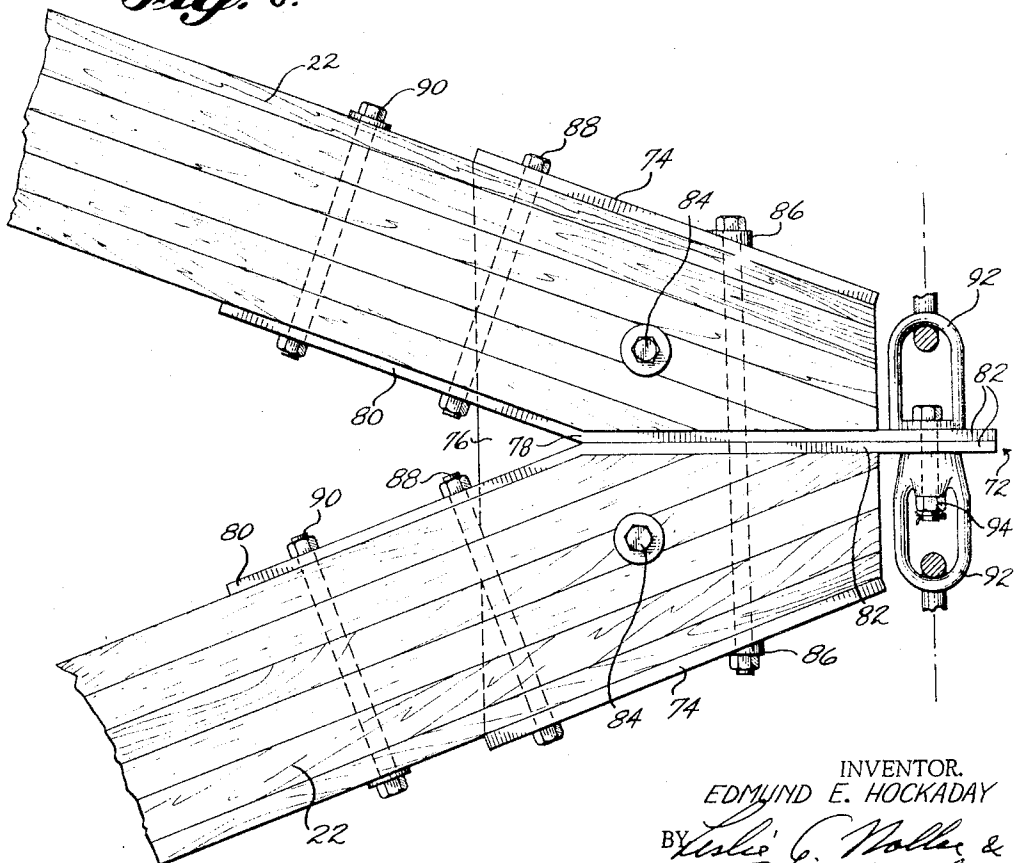


Fig. 8.



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CROSSARM ASSEMBLY

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Continuation of application Ser. No. 196,033, May 15, 1962. This application Oct. 22, 1965, Ser. No. 510,435 4 Claims. (Cl. 52-40)

This is a continuation of my copending application, Serial No. 196,033, filed May 15, 1962, now abandoned.

This invention relates to a crossarm structure for power lines, and specifically relates to a crossarm structure for high voltage lines having a pair of curved wooden members which fit around a tower and are tied together at their ends, and further relates to the means for tying the ends of the members together.

The metal crossarm usually found on high voltage towers has a number of disadvantages. It is both costly and hazardous to perform the necessary anticorrosion maintenance on the arms. The lines must also be maintained at a great distance from the tower and from the arms, requiring a greater right of way.

Certain of these disadvantages can be overcome by the use of wooden arms. The lines may be closer to the tower requiring less right of way, and the corrosion problems are minimized so the maintenance problems will be fewer.

It is, therefore, an object of this invention to provide wooden arms for use on high voltage power lines and a further object of this invention to provide wooden crossarms which may be used to replace existing metal arms on high voltage power lines, and which may be placed on the towers with a minimum period of line de-energization.

It is another object of this invention to provide a wooden crossarm assembly for high voltage power lines having a pair of curved members which extend around the outside of the tower and which are tied together at their ends. It is also an object of this invention to provide members for tying together the ends of the crossarm members and for suspending or anchoring the insulators and lines.

These and other objects of this invention will become readily apparent upon a reading of the following specification in conjunction with the attached drawings.

FIGURE 1 is an isometric view of a high voltage tower. One form of the crossarm assembly is shown in position on the tower.

FIGURE 2 is a top plan view of another form of crossarm assembly shown in place on the tower. Portions of the tower are shown in cross section.

FIGURE 3 is a side elevational view of the crossarm and tower of FIGURE 2.

FIGURE 4 is an isometric view of the insulator suspension member which also holds the ends of the crossarm members together. The crossarm members are illustrated in skeletal outline.

FIGURE 5 is a bottom plan view of the insulator suspension members and sections of the crossarm members.

FIGURE 6 is an isometric view of a section of crossarm member illustrating its connection to the tower.

FIGURE 7 is an isometric view of an insulator anchor member which also holds the ends of the crossarm members together. The crossarms are shown in skeleton.

FIGURE 8 is a top plan view of the insulator anchor members and crossarms of FIGURE 7.

A high voltage tower is illustrated in FIGURE 1. It has a cage 10 formed of a number of angular uprights 12 and crossbrace members 14. A number of crossarm assemblies 16 are mounted on the cage 10. These assem-

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blies carry high voltage power lines 18 on insulators 20. The crossarm assemblies comprise a pair of curved laminated wood arms 22 which are fastened to two opposed faces of the tower and which are fastened together at their ends.

The arm 22 may be a single section as shown in FIGURES 2 and 3 or a double section as shown in FIGURE 1. The double section shown in FIGURE 1 will normally be used as a replacement for an existing arm and will be installed after the lines 18 have been placed. It may then be necessary to have the short length of arm in order to maneuver it through the existing wires 18 and into place on the tower.

The arms 22 are attached to the tower by angle plates 24, shown in FIGURE 6. Each angle plate 24 has one face 26 attached to a tower upright 12 by bolts 28, and has its other face 30 attached to the crossarm member 22 by means of a bolt 32 which extends through the face 30 and the crossarm member 22 and is fastened to the outer faces of face 30 and member 22.

The crossarm members 22 are mitered at their juncture 34, and are held together by either the insulator suspension assembly 36 shown in FIGURES 4 and 5 or the insulator anchoring assembly 38 shown in FIGURE 7.

The insulator suspension assembly 36 comprises a pair of members 40 bent at 42 and 44 to form a side plate 46, a base plate 48, and a downwardly extending suspension plate 50. The bend at 42 is angularly disposed with relationship to the bend at 44 and the precise angle between the bends will depend on the degree of curvature of the members 22 at their juncture. Each of the members 40 is attached to the end of a crossarm member 22 by means of bolts which extend through the side and base plates and through the member 22, and is attached to the other member 40 by bolts which extend through the suspension plates 50 of each of the members. The side plate 46 is contiguous with the outer side wall of member 22 adjacent its end and is fastened to the member 22 by a bolt 52 which extends horizontally through the member 22 and through an aperture 54 in plate 46 and is fastened to the outer faces of member 22 and plate 46. The base plate 48 is fastened to member 22 by a bolt 56 which extends vertically through the member 22 and through an aperture 58 in plate 48 and is fastened to the outer faces of member 22 and plate 48. The members 50, adjacent and parallel to the juncture line 34 to the members 22, are joined together by bolts 60 which extend through apertures 62 in the plate 50 and are fastened on the outer faces of the plates 50.

In addition to holding the plates 40 and members 22 together, the bolts 60 also support the insulator 20. One of the bolts 60 has a support member 64 fastened around it which supports the insulator 20 and the line 18.

It is necessary to anchor the lines 18 at specified distances, and the crossarm members 22 at these points are tied together at their ends by insulator anchor assemblies 38 instead of the suspension assemblies 36. The anchor assembly 38 comprises an outer member 70 and a pair of inner anchor members 72. The outer member 70 has a pair of side plates 74 which are contiguous with the outer sides of the adjoining crossarm members 22, and a base plate 76 which extends between the two side plates 74 and across the lower faces of the adjoining members 22. The member 72 ties the members 22 together and supports the anchor members 72. Each of the anchor members 72 extends along the inner face of one of the members 22 and is bent at 78 to provide an inner side plate 80 which is contiguous with the inner face of the member 22 and which extend inwardly of the inner edge of member 70, and an anchor plate 82 which extends between the members 22 at the juncture 34 and outwardly of the ends of

members 22 and is contiguous with the other anchor plate 82.

The outer plate 70 and the anchor plates 72 are fastened to the members 22 and to each other by a series of bolts extending through the members 22 and through the plates. The member 70 is fastened to each of the members 22 by a vertical bolt 84 which extends through the face 66 and through the member 22 and is fastened to the outer faces of the member 22 and plate 66.

The member 70 is also fastened to each of the members 22 and to the anchor members 72 by a horizontal bolt 86 which extends through the plate 74, through members 22, and through anchor plates 82 and is fastened to the outer faces of plates 74 to tie member 70, members 22, and members 72 together. The members 72 are also fastened to their individual crossarm members 22 by two horizontal bolts 88 and 90. A bolt 88 extends through the inner side plate 80, member 22, and the plate 74 opposed to plate 80, and is fastened on the outer faces of plate 80 and plate 74. The bolt 90 extends through the plate 80 and member 22 and is fastened to the outer faces of plate 80 and member 22.

The outer face of each of the extending ends of anchor plates 72 has an anchor ring 92 mounted thereon. The anchor rings 92 and the plates 82 are tied together by a bolt 94 extending through the anchor rings and plates and fastened to the rings. The insulator 20 and the line 18 are anchored to the ring 92.

While specific details of preferred embodiments have been set forth above, it will be apparent that many changes and modifications may be made therein without departing from the spirit of the invention. It will therefore be understood that what has been described herein is intended to be illustrative only, and is not intended to limit the scope of the invention.

I claim:

1. A support for an electrical conductor comprising an upright structure;
 - a pair of opposed and aligned curved relatively non-conducting crossarms fastened to said upright structure, said crossarms extending outwardly from said structure on at least one side of said structure, the outer ends of said arms meeting at a miter joint;
 - a member fastened to each of said arms for holding said arms together at said miter joint and for supporting said electrical conductor,

said member having
 a side plate extending along the outer side face of said crossarm,
 a base plate extending along the lower face of said crossarm, and
 a downwardly extending suspension plate; and
 means fastening said suspension plates together, said means supporting said electrical conductor.

2. The structure of claim 1 in which said crossarm is wood.

3. A support for an electrical conductor comprising an upright structure;

a pair of opposed and aligned curved relatively non-conducting crossarms fastened to said upright structure, said crossarms extending outwardly from said structure on at least one side of said structure,

the outer ends of said arms meeting at a miter joint; means fastened to each of said arms for holding said arms together at said miter joint and for supporting said electrical conductor, said means comprising

an outer member having a pair of side plates extending along the outer sides of each of the crossarms and a base plate extending between the side plates and along the lower face of each of the crossarms,

an inner anchor member extending along the inner face of each of the crossarms and extending between the juncture of the crossarms and outwardly of the ends of said crossarms; and

means fastened to the extending ends of said anchor member, said means fastening said anchor member together and supporting said conductor.

4. The structure of claim 3 in which said crossarms are wood.

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