April 3, 1928. 1,664,922

C. M. GOODRICH

SUPPORT FOR OVERHEAD CABLES

Filed July 31, 1926 2 Sheets-Sheet 1

Fig. 1.

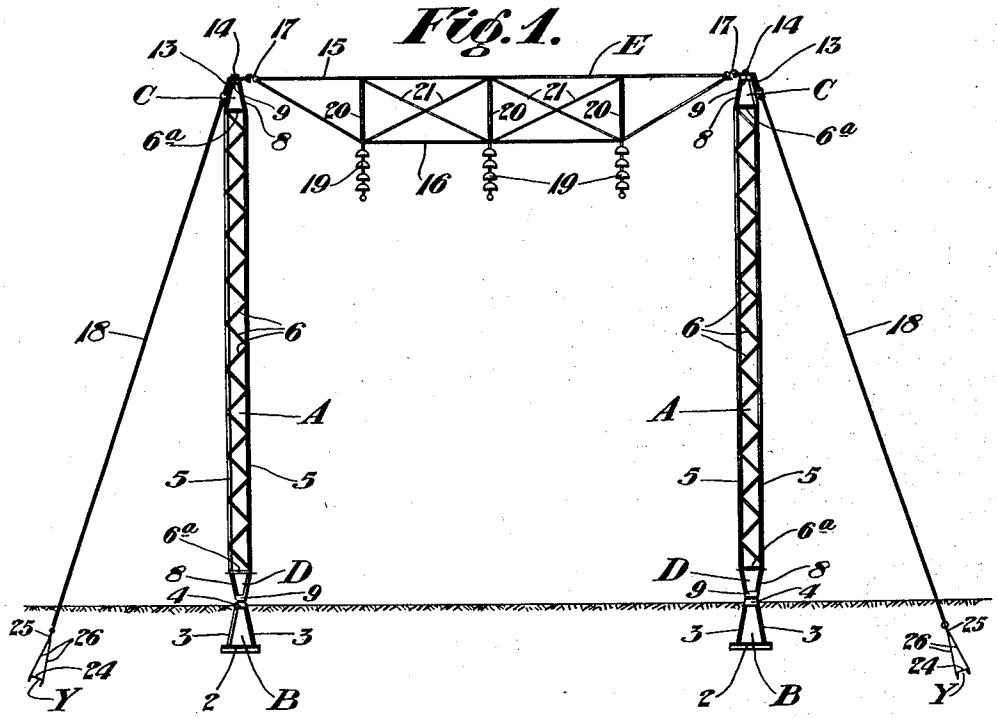
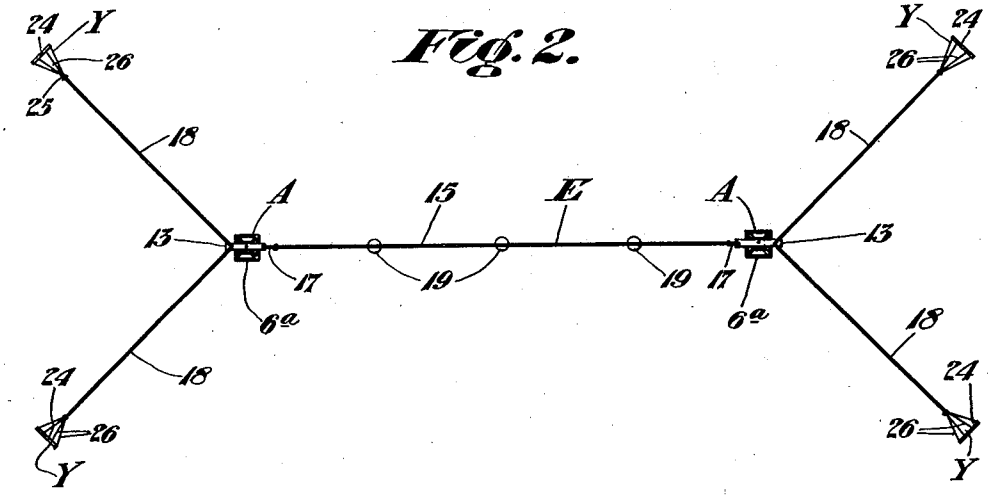


Fig. 2.



Witnesses:

Edwin Trueb

Inventor:

CHAUNCEY MARSH GOODRICH,

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C. M. GOODRICH

SUPPORT FOR OVERHEAD CABLES

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Fig. 3

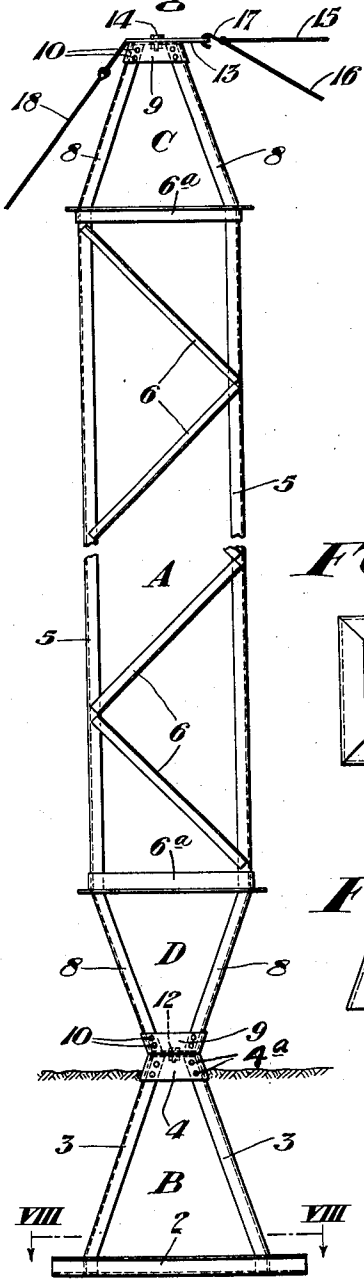


Fig. 5.

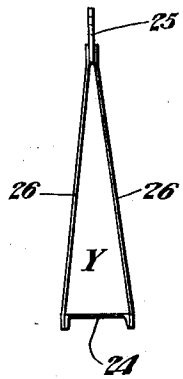


Fig. 4.

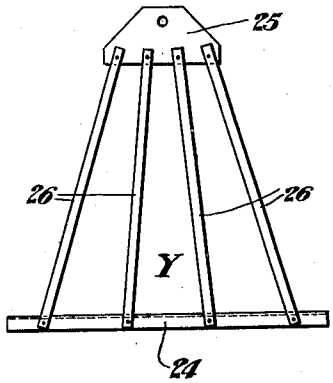


Fig. 6.

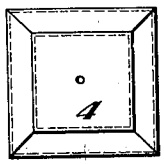


Fig. 9.

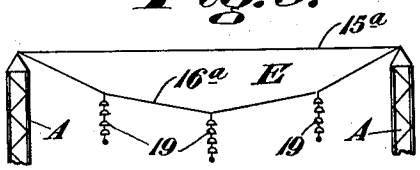


Fig. 10.

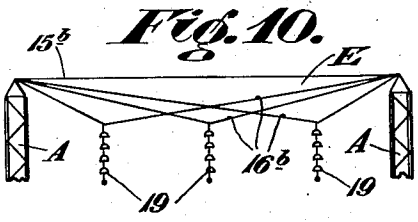


Fig. 7.

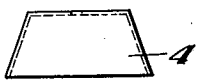
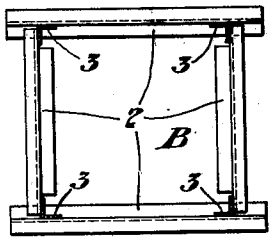


Fig. 8.



Witnesses:

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his Attorney.

Patented Apr. 3, 1928. 1,664,922

UNITED STATES PATENT OFFICE.

CHAUNCEY MARSH GOODRICH, OF WINDSOR, ONTARIO, CANADA.

SUPPORT FOR OVERHEAD CABLES.

Application filed July 31, 1926. Serial No. 126,250.

This invention relates to supports for overhead cables, and while not limited thereto, relates more particularly to supports for overhead transmission lines, or for the catenary and contact cables for railway lines and the like, and has for one of its objects the provision of supports of this class which will be flexible and may readily be mounted on uneven ground.

Another object is to provide a novel form of support which will be relatively cheap to manufacture, may be readily erected in the field, and which is readily adjustable for varying field conditions.

A further object is to provide a support of the class described having the novel construction, design and combination of parts hereinafter described and illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a side elevation of a support constructed in accordance with this invention.

Figure 2 is a top plan thereof.

Figure 3 is an elevation of one of the masts.

Figure 4 is a plan view, and Figure 5 is a side elevation of one of the guy line anchor members.

Figure 6 is a plan, and Figure 7 is a side elevation of one of the dished bearing caps.

Figure 8 is a sectional plan of the mast base taken on the line VIII—VIII of Figure 3.

Figures 9 and 10 are fragmentary elevations of supports embodying this invention and showing modified forms of flexible trusses.

Referring more particularly to the drawings, the letter A designates the masts of the support as a whole, which are mounted on base members B.

The base members B comprise a rectangular base frame 2 composed of four lengths of Z-bar section or the like, which are connected to the flanges of four angle-shaped upright members 3. The members 3 are bent inwardly toward each other to form a pyramid-like structure, and joined at their upper ends by a dished bearing cap 4 which is secured by rivets or bolts 4^a to the upright angle members 3.

The masts A comprise a shaft or body portion composed of four angle corner members or uprights 5 joined by suitable lacing members 6 intermediate their ends and by transverse horizontal connecting angles 6^a at each end. The corner members or uprights 5 may extend beyond the ends of the shaft portion of the masts, or separate lengths of angle sections may be secured to the shaft and project beyond the ends of the shaft to form uprights 8 of a pyramid C at the upper end of the shaft, and an inverted pyramid D at the lower end of the shaft. The uprights 8 are bent or converged inwardly toward each other, and have their free ends joined by bearing caps 9, which caps are secured to the uprights by rivets or bolts 10.

The masts A are positioned on the bases B in a vertical position, so that the bearing cap 9 of the inverted pyramid portion D, rests on the bearing cap 4 of the base and are held in position by a bolt or pintle 12, which passes through the caps 9 and 4. The mounting of the masts A on the bases B, as above described, forms a flexible connection or joint; that is, a joint capable of a limited universal movement.

Bearing plates 13 are positioned on top of the bearing caps 9 of the pyramid portions C of the masts, and held in position by bolts or pintles 14.

A flexible truss E is supported by and extends between the masts A, and comprises a flexible top chord 15 and a flexible bottom chord 16. The chords 15 and 16 are preferably formed of lengths of stranded cable, and have their ends secured by any suitable connection, such as hooks 17, to the plates 13.

A pair of anchor or guy cables 18 are secured by one end to each of the plates 13, these cables extending downwardly and outwardly and their lower ends being secured to anchors Y. The cables 18 will be tightly stretched so as to at all times keep the top chord 15 of the flexible truss E in tension.

The top chord 15 of the truss serves to space and prevent the spreading of the masts, while the bottom chord 16 is looped below the top chord and forms a support for the cables, which may be connected thereto in any suitable manner, but are preferably carried by strings of insulators 19.

The top and bottom chords are preferably connected by vertical stiffening members 20 in the form of angles and tied by flexible lacing members 21.

The strings of insulators 19 are preferably secured to the bottom chord 16 at the junc-

tion points of the chord and stiffening members 20, so as to more evenly distribute the load.

The guy cables 18 are preferably tightened or stretched so as to put a greater amount of tension on the top chord 15 of the truss E, than will be overcome by the compression effected by the load of the cables supported on the lower truss 16, so that there will be relatively small vertical deflections at the points on the bottom chord to which the cables to be supported are attached.

The anchor members Y are each composed of a channel base member 24, and an attaching plate 25 connected by a plurality of straps 26.

From the above, it will be readily seen that I have provided a flexible form of support that may be readily assembled in the field, that is relatively light, and that is readily adjustable to provide for curves in the line and for unevenness of the ground.

In case the cables supported by this invention should break, the insulator strings 19 will swing toward the unbroken portion of the cable, and the flexible truss E will also swing out toward the unbroken portion of the cable, so as to reduce the stress of the unbroken portion of the cable and thus prevent further damage.

In Figure 9 I have shown a slightly modified form of support in which the flexible truss is composed of top and bottom chord members 15^a and 16^a, respectively, only connected at their ends to the plates 13. In this construction the bottom chord 16^a is looped free below the top chord 15^a and assumes a form determined by the weights of the insulator strings 19 and attached cables.

In Figure 10 I have shown a still further modified form of support in which the flexible truss is composed of a single top chord 15^b and a plurality of bottom chords 16^b, connected at their ends to the plates 13. In this construction a separate bottom chord is provided for supporting each of the cables, so that each bottom chord assumes a different form determined by the point of attachment of the insulator strings and cables.

In the practical embodiments of my invention many modifications may be made, as for instance, the masts A may be mounted on other forms of bases than the base B, any number of cables may be supported by the trusses by simply adding other insulator strings, and extensions may be added to the masts to carry other lines such as telephone and signal lines.

The above and many other changes and modifications may be made without departing from the scope of my invention as defined in the appended claims.

I claim:

1. A supporting structure for overhead cables, comprising a pair of spaced masts, plates having a limited flexible universally movable connection with the upper end of each of said masts, a flexible truss extending transversely between said masts and adapted to support said overhead cables, said truss comprising an upper flexible spacing member stretched taut between said plates, and at least one flexible supporting member extending transversely between said plates and looped below said flexible spacing member and adapted to support at least one overhead cable, and flexible guy members secured to said plates and to ground anchors and tensioned to support said masts, said tension also being communicated through said plates to said flexible spacing member.

2. A supporting structure for overhead cables, comprising a pair of spaced masts, plates having a flexible universally movable connection with the upper end of each of said masts, a flexible truss extending transversely between said masts and adapted to support said overhead cables, said truss comprising an upper flexible cable stretched taut between said plates, at least one other cable extending transversely between said plates and looped below said first mentioned cable, and a plurality of stiff upright spacing members secured to and extending between said cables, and flexible lacing members extending between said spacing members, and flexible guy members secured to said plates and to ground anchors and tensioned to support said masts, the tension of said guy members being also communicated through said plates to said cables.

3. In a supporting structure for overhead cables, a pair of mast bases, each of said bases comprising a pyramid anchor structure mounted in the ground, a bearing cap fitted over and secured to the top of said pyramid anchor, a pair of masts each having their lower end tapered inwardly to form an inverted pyramid portion, a bearing cap on the lower end of said pyramid portions of said masts, said masts being mounted on said bases so that the bearing caps of said bases and said masts are in endwise engagement with each other, means for forming a limited universally movable connection between said caps, a cable suspended between the upper ends of said masts, and at least one guy member connected to the upper end of each of said masts and to a ground anchor for supporting said masts in upright position.

4. A supporting structure for overhead cables comprising a pair of ground anchors, a mast flexibly connected to each of said ground anchors so as to permit a limited universal movement, a plate having a flexible connection with the top of each of said masts to permit a limited universal movement of said plates relative to said masts, a pair of guys connected to each of said plates

and stretched taut in opposite directions, and a flexible truss suspended between said plates.

5. In a supporting structure for overhead cables, a pair of mast bases, each of said bases comprising a pyramid anchor structure mounted in the ground, a bearing cap fitted over and secured to the top of said pyramid anchor, a pair of masts each having its lower end tapered inwardly to form an inverted pyramid portion, a bearing cap on the lower end of said pyramid portions of said masts, said masts being mounted on said bases so that the bearing caps of said bases and said masts are in endwise engagement with each other, means for forming a limited universally movable connection between said caps, a plate pivotally mounted for a limited universal movement on the upper end of each of said masts, a cable suspended between said masts and having its ends connected to said plates, and at least one guy member connected to each of said plates and to a ground anchor for supporting said masts in upright position and tensioning said cable.

In testimony whereof, I have hereunto signed my name.

CHAUNCEY M. GOODRICH.