

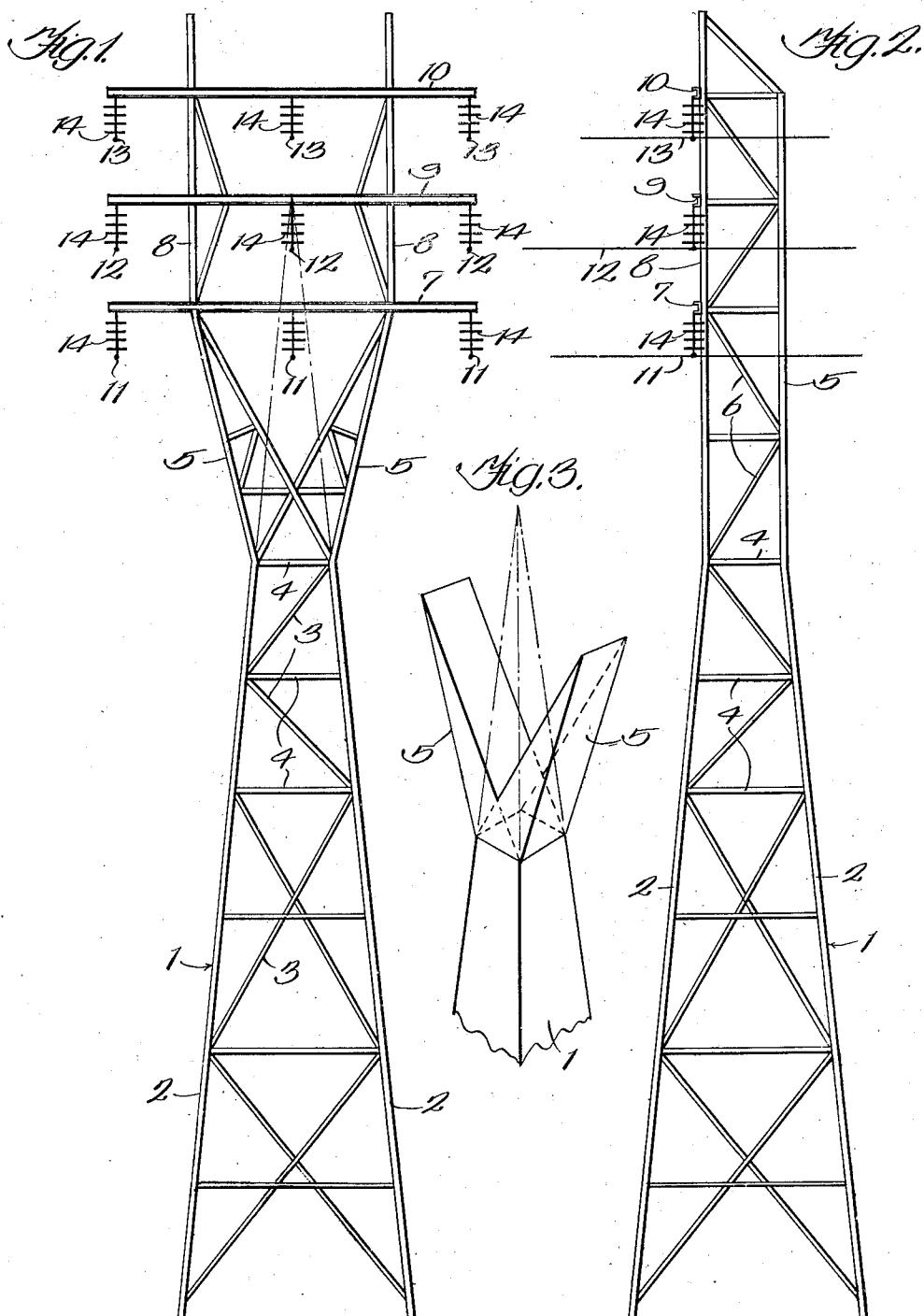
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D. R. SCHOLES

SUPPORTING TOWER

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UNITED STATES PATENT OFFICE.

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SUPPORTING TOWER.

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To all whom it may concern:

Be it known that I, DANIEL R. SCHOLES, a citizen of the United States, residing at Chicago, in the county of Cook and the 5 State of Illinois, have invented a certain new and useful Improvement in Supporting Towers, of which the following is a full, clear, concise, and exact description.

My invention relates to supporting towers 10 such as are employed for suspending high tension circuit wires or other loads which towers of former construction are not properly adapted to carry. The principal strains which such towers withstand may 15 be listed as being inclusive of those due: (a) to the wind pressure on the wires and to corners in the lines which throw strains upon the cross arms parallel thereto; (b) to the breakage of one or more transmission 20 wires on one side of the tower while remaining unbroken upon the other side, causing heavy strains to be applied at right angles to the cross arms in an approximately horizontal direction at either end of the 25 arm or at the middle thereof or at all three points along the arm; and (c) to the weight of the wires and of the ice coatings forming thereon in wintertime.

In accordance with one characteristic of 30 my invention the tower is made up of an upwardly tapering main member and two upwardly diverging supplemental members each also upwardly tapering, the main member being desirably in the form of a truncated pyramid the planes of whose faces intersect at 35 a point above the points of intersection of the converging faces of the supplemental members, and desirably at the center of the load that is to be carried by the tower.

In accordance with another characteristic 40 of the invention the supplemental members (or the supplemental member if there be but one), are of wedge formation. A tower embracing all characteristics of my invention 45 has the bases of its supplemental members coincident with the top of the main member if the main member is of truncated form, and the converging faces of the supplemental members are deflected 50 continuations of faces of the main member. Where the main member is of truncated form ample clearance is afforded between the supplemental members for the reception of a part of the load that is to

be borne. Where the tower is employed to 55 support the transmission mains of a three phase system of alternating current of distribution, the middle main is disposed between the supplemental members that are themselves interposed between the outer 60 mains.

The invention will be more fully explained in connection with the accompanying drawing in which Fig. 1 is a front face view of a tower as it is preferably 65 constructed; Fig. 2 is a side face view of the tower; and Fig. 3 is a diagrammatic view illustrating the intersections of the planes of the faces of the supplemental members 70 of the tower in a common horizontal line 70 that is perpendicular to the upright axis of the main member whose faces converge above the supplemental members.

The main upwardly tapering member 1 of the tower is in the form of a truncated pyramid constructed of angle iron, the angle iron corner posts or rails 2 thereof being suitably braced by angle iron members 3. The top of the truncated pyramid is inclusive of the four horizontal angle iron rails 4. These angle iron rails also constitute the bases of the supplemental members 5 that are of wedge form and whose bases are constituted of the rails 4 of the top of the main member 1, and which 85 are braced by the angle iron bracing members 6. The supplemental members 5 diverge upwardly with respect to each other and are symmetrically related, the vertical axis of the main truncated member passing 90 midway between the supplemental members. Inasmuch as the supplemental members upwardly diverge, their axes are oblique to 95 their common base, and to the axis of the main member 1. The converging faces of the supplemental members are deflected continuations of faces of the main member 1, as is made most clear by reference to Fig. 3. The planes of the faces of the main member intersect above the intersection of 100 the planes of the converging faces of the supplemental members.

There are shown parallel vertical up- 105 rights 8 joined with the tops of the supplemental members upon which the cross arm 7 is mounted. Other cross arms 9 and 10 are carried upon these uprights.

The transmission mains 11 of one three

phase transmission circuit are carried by the lowermost cross arm 7, the middle transmission main 11 being between the supplemental tower members which themselves are 5 between the outer mains 11. The cross arm 9 carries the mains 12 of another three phase transmission circuit while the cross arm 10 carries the mains 13 of still another three phase transmission circuit, two of the mains 10 being carried upon the outer ends of each arm and an intermediate main being carried by the middle of each arm between the uprights 8 that are disposed between the outer mains. The usual strings of insulators 14 are interposed between the cross arms and the transmission mains carried thereby. The planes of the faces of the main, pyramidal, member, that are deflected to constitute the converging faces of the supplemental 15 members intersect at the cross arm 9 which is at the load center and above the points of intersection of the converging faces of the supplemental members to enable the load to be properly carried by and 20 located upon the tower with minimum stress 25 upon the bracing angle irons 3 and 6.

With a tower structure as illustrated and described, certain of the stresses exerted upon the cross arms located as set forth are 30 withstood without developing any undue stresses in the bracing members 3 of the main member of the tower. As a consequence these bracing members may be very light.

35 The tower of my invention may be made of minimum weight consistent with the load

to be supported and with the factor of safety employed.

I claim:

1. A support including a main upright member of pyramidal formation; and upwardly diverging supplemental members of wedge formation whose converging sides are deflected continuations of sides of the main member. 40
2. A support including a main upright member of pyramidal formation; and upwardly diverging supplemental members of wedge formation whose converging sides are deflected continuations of sides of the main member, the planes of these sides of the main member intersecting above the points of intersection of the planes of the sides of the supplemental members. 45
3. A support including a main upright member of pyramidal formation; and upwardly diverging supplemental members of upwardly tapering formation whose converging sides are deflected continuations of sides of the main member, the planes of these sides of the main member intersecting above the points of intersection of the planes of the sides of the supplemental members. 50

4. A support including a main upright member of pyramidal formation; and upwardly diverging supplemental members of upwardly tapering formation whose converging sides are deflected continuations of sides of the main member, the planes of these sides of the main member intersecting above the points of intersection of the planes of the sides of the supplemental members. 55

60 In witness whereof, I hereunto subscribe my name.

DANIEL R. SCHOLES.