

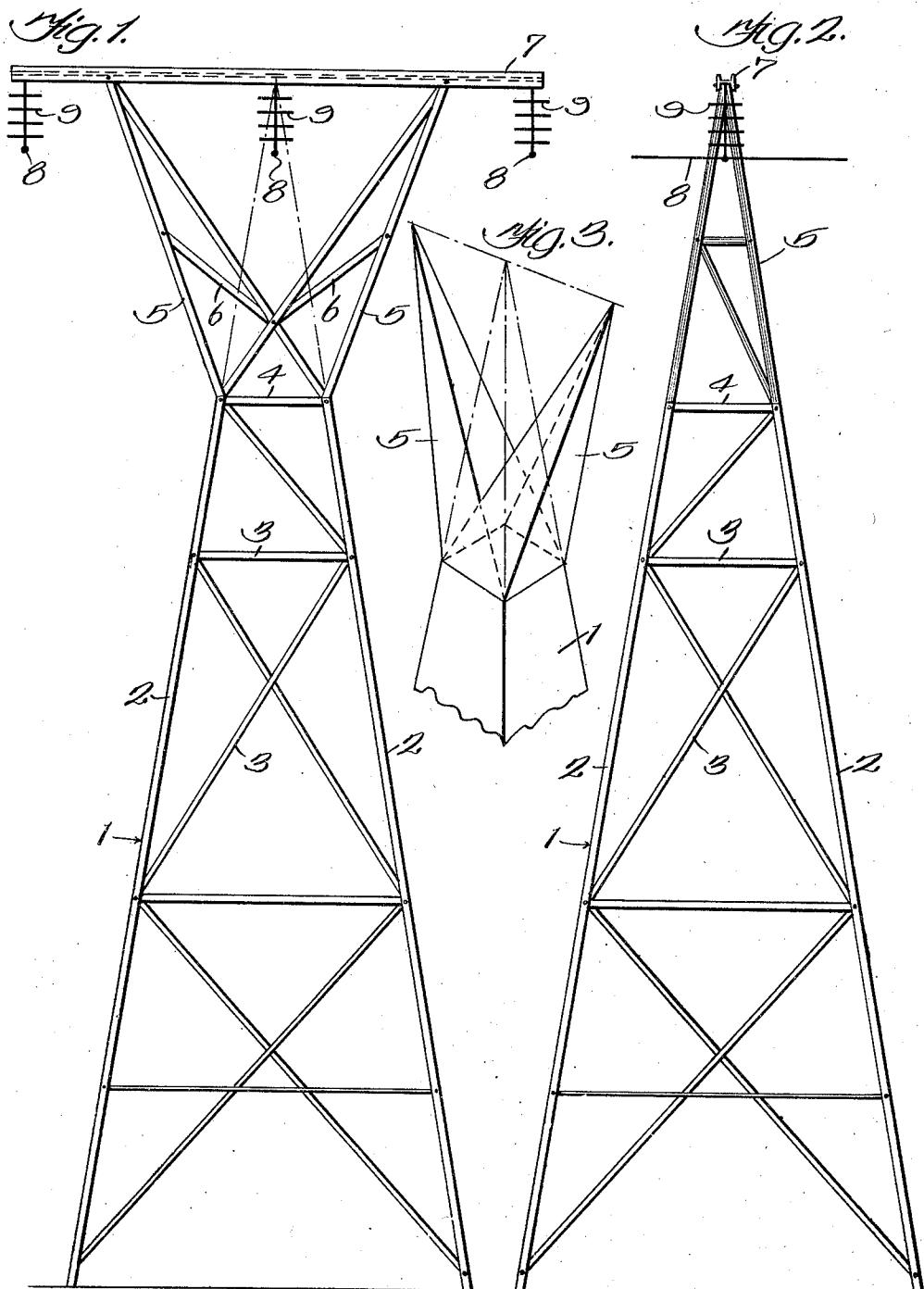
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SUPPORTING TOWER

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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 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 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 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 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 arm in an approximately horizontal direction at either end of the 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 winter time.

In carrying out my invention the tower is made up of an upwardly tapering main member and an upwardly tapering supplemental member having faces that are deflected continuations of faces of the main member, the planes of the faces of said members, respectively, intersecting in a common horizontal line at which the cross arm or a group of cross arms, if such be employed, is preferably supported.

In the preferred embodiment of my invention the main or supplemental members of the supporting tower are pyramidal in form and there are desirably two supplemental members which diverge upwardly and are symmetrically related upon opposite sides of the vertical axis of the main member. In the preferred embodiment of the invention the main member is truncated, the bases of the supplemental members being coincident with each other and with the top of the main member. The invention however, is not to be thus limited.

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 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 various members of the tower in a common horizontal line that is perpendicular to the upright axis of the main member.

The main upwardly tapering member 1 of the tower is in the form of a truncated pyramid constructed of an 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 desirably in the form of untruncated pyramids whose bases are constituted of the rails 4 of the top of the main pyramid, and whose faces are braced by the angle iron bracing members 6. The supplemental pyramids 5 diverge upwardly with respect to each other and are symmetrically related, the vertical axis of the main truncated pyramid passing midway between the supplemental pyramids. Inasmuch as the supplemental pyramids upwardly diverge, their axes are oblique to their common base and to the axis of the main pyramidal member 1. The faces of the supplemental pyramids are deflected continuations of the faces of the main pyramid, as is made most clear by reference to Fig. 3. The planes of the faces of the main and supplemental pyramids, respectively, intersect in the same horizontal line where I support a horizontal cross arm 7.

With a tower structure as illustrated and described, certain of the stresses exerted upon the cross arm located as set forth, are 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.

By causing the planes of the faces of the main and supplemental members of the tower to converge in a single horizontal line, the corner rails of these members slant along lines that also intersect in this horizontal line whereby, in the three-member tower illustrated, there is virtually a three point support for the cross arm or other load that is desirably located in said horizontal line,

the corner rails of the three members being directed along lines that intersect at the location of the load.

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. The tower is of particular service in supporting the transmission mains 8 of a three-phase system of alternating current distribution. When the tower is thus employed the main member thereof is truncated to afford ample clearance space for the middle main 8 above the main member and between the diverging supplemental members, the transmission mains being supported from the ends of the cross arm and the middle thereof through the intermediation of strings of insulators 9 in accordance with common practice.

20 I claim:

1. A support including a main upright member of pyramidal formation; and upwardly diverging supplemental members also of pyramidal formation having faces 25 that are deflected continuations of faces of the main member.

2. A support including an upwardly tapering main member; and upwardly tapering and upwardly diverging supplemental members having faces that are deflected continuations of faces of the main member.

3. A support including a main upright member of pyramidal form; and a supplemental member of pyramidal form having 35 faces that are deflected continuations of faces of the main member and whose axis is angular to the axis of the main member.

4. A support including a main upright member of pyramidal form; and a supplemental member of pyramidal form having 40 faces that are deflected continuations of faces of the main member, the planes of the

sides of said members intersecting in a common horizontal line, the axes of said members being angular.

5. A support including an upwardly tapering main member; and a supplemental member having faces that are deflected continuations of faces of the main member, the planes of the faces of said members intersecting in a common horizontal line, the axes of said members being angular.

6. A support including an upwardly tapering main member; and an upwardly tapering supplemental member having faces 55 that are deflected continuations of faces of the main member and whose axis is angular to the axis of the main member.

7. A support including an upwardly tapering main member; and an upwardly tapering supplemental member having faces that are deflected continuations of faces of the main member, the planes of the sides of said members intersecting in a common horizontal line, the axes of said members being 65 angular.

8. A support including a main upright member of truncated pyramidal formation; upwardly diverging supplemental members also of pyramidal formation having faces 70 that are deflected continuations of faces of the main member; and a horizontal cross arm carried by the supplemental members.

9. A support including an upwardly tapering truncated main member; upwardly 75 tapering and upwardly diverging supplemental members having faces that are deflected continuations of faces of the main member; and a horizontal cross arm carried by the supplemental members.

In witness whereof, I hereunto subscribe my name.

DANIEL R. SCHOLES.