

clay or clay loam auxiliary grillages were placed above and below the ordinary steel grillages to further distribute the bearing pressure and increase the upheaval resistance. This auxiliary grillage consisted of two cross-laid spiked layers of four-inch planks five feet in length placed below, and four

preciable injury, a horizontal stress of 20,000 pounds at the centre of the lower cross-arm, and finally failed at 20,950 pounds.

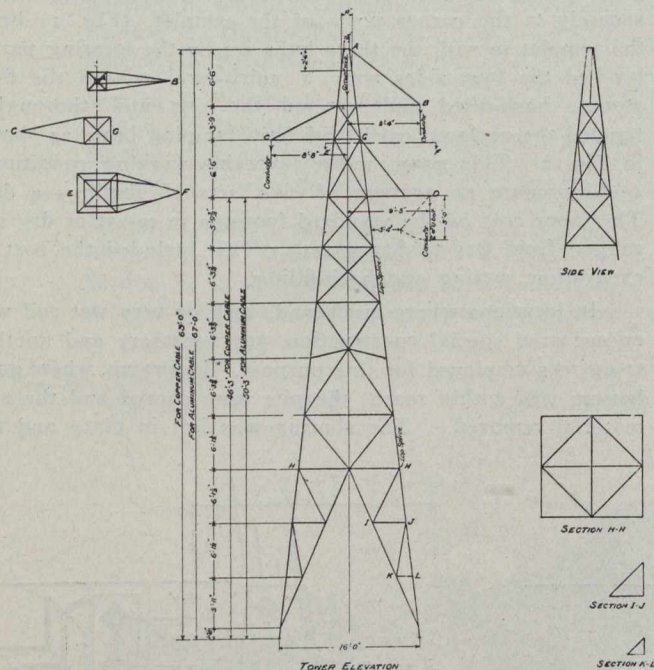


Fig. 5 A.—Standard Single-Circuit Towers.

cross-laid spiked layers of three-inch planks placed above the steel grillages. Where rock was encountered less than six feet from the surface a fox-tailed anchor bolt with pier construction was used (illustrated in Fig. 3). Connections between the lower legs and the anchor bolts were made by means of heavy steel shoes. Where corner towers were placed on long spans, large angles or in poor locations the concrete footings shown in Fig. 4 were used. The cost of this footing, including material and labor on excavation and forms was from \$50 to \$190, the higher cost occurring in

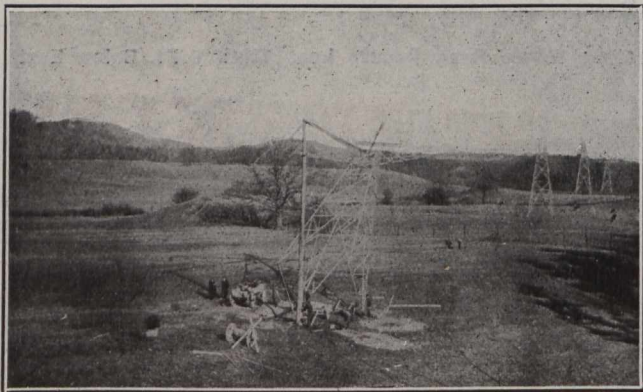


Fig. 6.—Erecting Tower With Gin Poles.

isolated locations not easily accessible. The standard steel grillage and leg angles weighed 690 pounds per tower, while the special heavy footings weighed 1,830 pounds.

**Towers.**—The towers are constructed of open-hearth medium steel and were built from designs prepared by the engineers of the Hydro-Electric Power Commission in competition with designs submitted by the contractor. Sample towers were built from both designs, and exhaustive tests at the shops of the tower manufacturers proved that the tower built from the commission's design was the stronger tower of the two, (Fig. 5). This tower withstood, without ap-

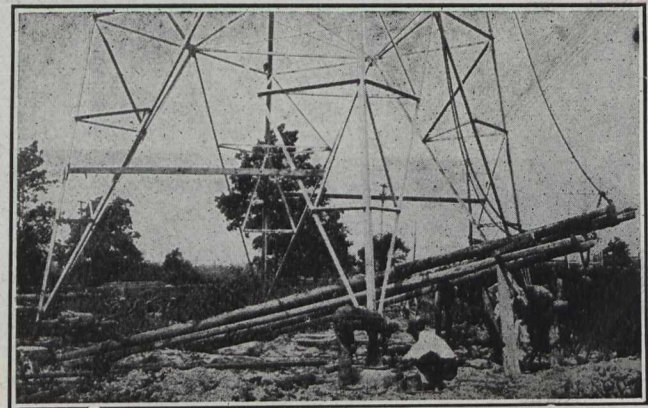


Fig. 7.—Erecting Tower With Shear Legs.

The average cable span length on tangents for level country is 550 feet. This is varied elsewhere to suit topographical conditions. Approach spans to angles in the

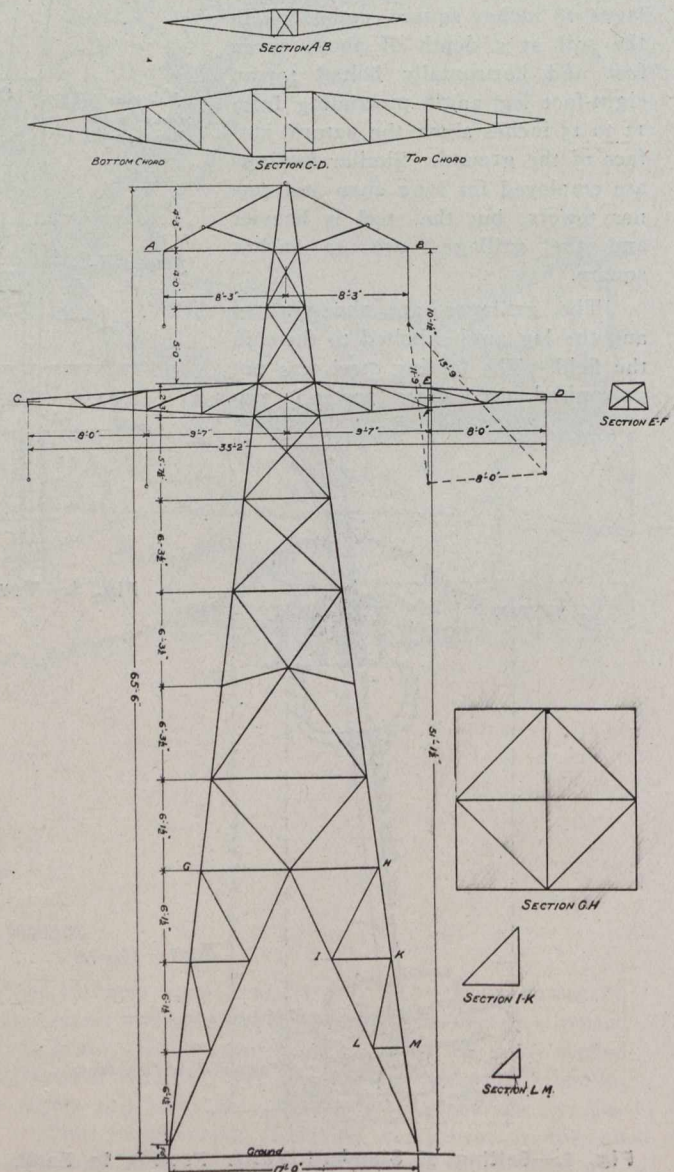


Fig. 5 B.—Standard Double-Circuit Towers.

centre line vary from 400 feet on angles up to 8 degrees, to 100 feet on angles of 45 degrees, the maximum angle turned on one tower. The towers were delivered "knocked down"