arm by means of an eye-bolt, which is suspended from the tower arm by a galvanized U-bolt supplied by the tower contractor and placed in position by this assembling gang. The suspension insulators were hung by a gang of three men and a foreman, the insulator being raised to the arm by a line and pulley, the eye-bolt slipped into the socket in the cap of the top section and then keyed in place with a small cotter-pin. The greater portion of this work was performed in the winter and the rate of progress varied considerably, but under favorable working conditions, the gang could cover forty towers a day on single-circuit sections, three insulators to a tower. The strain insulators were not hung by this gang, but were delivered where required, and later erected by the cable gang.

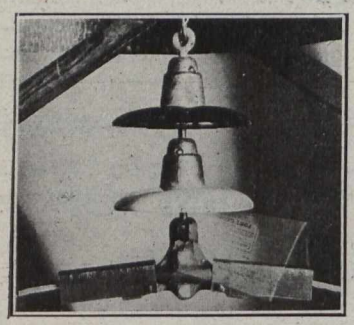

Fig. 14.—Standard High Tension Suspension Insulator Clamp.

The cable clamp employed with the standard suspension-type insulator is shown in Fig. 14. It was specially designed for this insulator and consists of a malleable-iron casting with supporting grooves and a bolted cast clip for clamping the cable. An aluminum sleeve of 1/16 inch plate surrounds the cable and serves to protect it from abrasion. The clamp for the suspension insulator is also provided with two galvanized sheet-iron shields, projecting over the cable at either end of the clamp and preventing burning of the cable by short-circuits occurring from the flash-over or failure of an insulator. All clamps and iron and steel parts are galvanized.

Fig. 15.—Standard High Tension Strain Insulator Clamp.

The strain insulator clamp, illustrated by Fig. 15, consists of two ¼ inch galvanized pressed-steel plates bolted together and provided with grooves to receive the cable. Aluminum sleeves and iron shields are also employed with these clamps to protect the cable from abrasion and burning. During the course of construction it was found advisable to place an order for a portion of the insulators with an European manufacturer, who furnished insulators of the same design and quality as those supplied by the American company. The total order for insulators was 11,000 of the suspension type and 3,000 of the complete strain type, together with the necessary clamps, sleeves and shields.

Cable.—With the exception of about three miles of copper circuit within the city limits of Toronto, aluminum cable was used throughout the system. Two sizes were employed, No. 4/0 B &S gauge being used on the double-circuit line from Niagara Falls to Dundas, and No. 3/0 throughout the rest of the system. The cable was delivered on the field in reel lengths of 4,000 feet, and has the dimensions and characteristics specified in Table IV.

The cable gang consisted of twenty-five men, one foreman, one sub-foreman and two teams. The reels were mounted on portable frames and the cables run out three at a time by a team. As each tower was reached the cable was raised to the cross-arms and placed on wooden pulleys, suspended at the same height and adjacent to the cable clamps. When the cable on the three reels had been run out one span on each line was adjusted for sag by the commission's inspector, the sags on the other spans were allowed to adjust themselves over the pulleys.

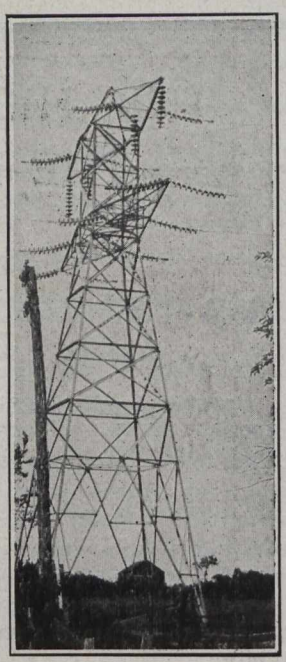

Fig. 16.—Standard Double-Circuit Anchor Tower.

The cables were then snubbed and men working on swings suspended from the arms removed them from the pulleys and clamped them to the insulators. While this was be ing done part of the gang with the sub-foreman and the other team worked in advance erecting ground cable. The ground cable is 5/16 inch, seven-strand galvanized steel, and was pulled up to the proper sag and clamped directly on the towers. On the double-circuit towers three ground cables are employed with two power circuits (Fig. 16) and two ground cables with one power circuit. The single-circuit towers are provided with a single ground cable.

Cable splicings (Fig. 17) were made by means of 18-inch and 22-inch aluminum McIntyre sleeves, the specifications called for sleeves providing for two and one-half com-

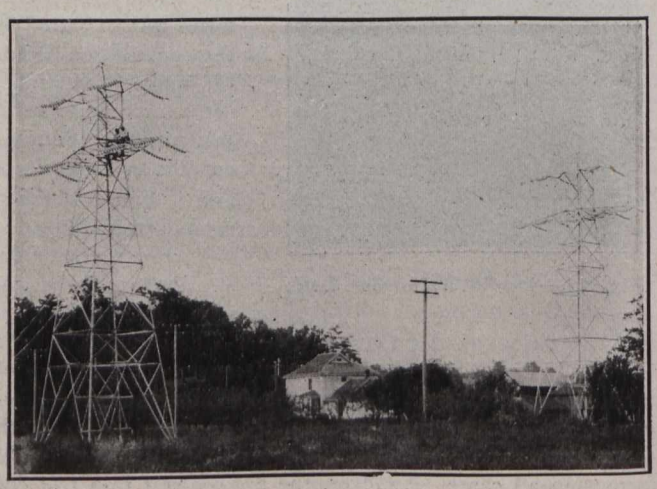

Fig. 17.—Cable Splicing on Heavy Anchor Tower.

plete turns. The ground cable splices were made by means of a specially designed connector. Cable sags were adjusted in the field according to sag tables which were compiled with reference to temperature and length of span. Calcula-