



FRONT, REAR AND SECTION OF BUS-BAR STRUCTURE AND SWITCHES.

cables before entering the tile ducts of the cable tunnel. Around the few bends at manholes each cable remains always within its compartment, between horizontal or vertical barriers as required. At each point where a circuit enters the distributing station, a manhole maintaining the same segregation and communicating with the bus-bar chamber is provided for the change from three-conductor to single-conductor cable. After entering the building the cables pass between vertical barriers as before beneath and through the floor to the switches above.

Bus-bar structures are composed entirely of concrete with mortised reinforced-concrete shelf-barriers between bus-bars. Connecting leads pass through the wall forming the center of the structure, and thence in compartments formed by vertical barriers of the same material, directly up to the switches above. Instrument transformers are also installed within similar individual compartments and these whole structures like those of the switches are closed by fireproof doors. Control cables are laid in metal conduit throughout their courses except in the wiring chamber beneath the track where they are arranged upon metal shelf-pans filled with dry sand into which connecting conduits dip.

Of the features here presented, it is believed that the type of intake, the symmetry of arrangement, centralization of control, and almost perfect isolation of apparatus represent, to some degree at least, distinct advances in power-plant design; and while few works of such dimensions may be built for many years, if ever, the purposes and methods thus briefly presented may, until superseded by the next advance, be of service as suggestions to other designing engineers of similar works. The unusual, even enormous volumes, both of water and of power, involved not only in the