

Fig. 1.

ment of this apparatus is such as to provide easy access from all sides for inspection, cleaning and repairs.

Control Equipment.—The Sprague-General Electric Type "M" multiple unit double-end control equipment is proposed for the locomotives, all the control points being proportioned and adjusted so as to secure a smooth and even acceleration, at all times, corresponding to a current consumption near the slipping point of the wheels. The transition between series and series-parallel is effected by a special electro-pneumatically operated change-over switch and the motor fields will always be on the ground side of the armature.

A motor generator set will supply 125-volt energy for the operation of the control and a 2,400-volt air compressor of 100 cubic feet free air piston displacement is provided as part of the air brake equipment. Two air-operated roller pantographs and a properly insulated bus line are located upon the roof. The bus line will supply power to two or more units from the pantographs of any of these units.

The motor equipment consists of four C.G.E. -229 commutating pole type motors wound for 1,200 volts and insulated for 2,400 volts, so that two may be connected permanently in series and operated on a 2,400-volt circuit. These motors are geared to the wheels through twin gears, there being one pinion on each end of the armature shafts. The C.G.E.-229 motor is especially designed for locomotive service and is provided with forced ventilation by a blower located in the apparatus compartment. The locomotives are geared for a free running speed on tangent, level track of approximately 45 miles per hour and will be operated as two-speed machines with ten points in series and nine points series-parallel.

The air brake equipment will be the straight air and automatic type so as to combine the desirable features for train operation through an equalizing reservoir and the independent operation of the brakes upon the locomotive. Provision is made for the multiple operation of the compressors upon all locomotives when operating in multiple

so as to distribute the duty upon all the compressors in the train.

Operation of Motors.—The motors will be operated by the Sprague-General Electric Type "M" two-speed control arranged to operate the motors in series and series-parallel. The external regulating resistance is divided into two parts, each part being directly connected to a pair of motors permanently connected in series. The two pairs of motors, with their resistances, are all connected in series on the first point of the control, the resistance being varied through the first nine points on the controller and finally short circuited on the tenth, or running point. The two pairs of motors are then similarly operated in series-parallel and all resistances cut out on the last or full speed running point.

A special electro-pneumatically operated change-over switch is used to make the transition between series and series-parallel so that there will be no appreciable

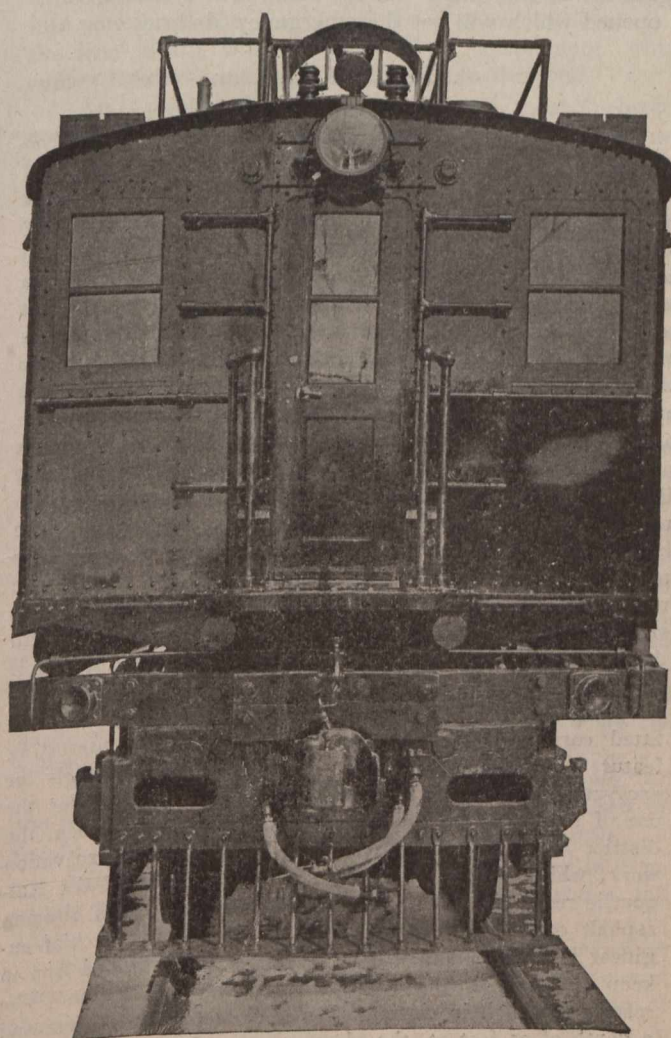


Fig. 2.