

inspector, and corrected by milling off square and using a well-fitting filler plate.

Some exceptionally heavy-built girders were specified to have reamed holes; the shop punched them full size. They were required to be reamed for $\frac{1}{8}$ -inch rivets, and additional cover plates used to develop the full strength.

In a number of important roof trusses there were two sets of members of the same length and shape, but different cross-section; in the shop they were reversed in place with a reduction of strength of 25 per cent. The error was found and corrected by cutting the trusses apart and correctly placing the members.

Many connecting angles of beams are incorrectly placed, either not square or so as to give greater or less length than designed. They can be readily discovered and corrected at the shop, but give great annoyance at the building, and

generally are forced in place and materially reduce the strength and stiffness of the frame.

The lack of thorough painting or substitution of a cheaper paint for a specified brand is of constant recurrence in the shops. The life of steel work in a building is undetermined, yet architects agree it should be well protected, and if a good brand of paint is specified, it should be used.

The knowledge that material is loaded and shipped in good order is a matter of importance in fixing the responsibility for injury during transportation or subsequently.

Knowledge of the actual weights, certified to by an independent inspector, is of importance in adjusting "extras." Many errors or misstatements occur. Similarly, knowledge of delays and time of starting work or making shipment is important in adjusting penalties for delays, and the information secured by an inspector is of special value as tending to prevent improper claims and disputes.

ELECTRIC EQUIPMENT OF THE CANADA TIN PLATE COMPANY'S WORKS, MORRISBURG, ONT.

The works of the Canada Tin Plate and Sheet Steel Company, Limited, at Morrisburg, Ont., are the first of the kind erected in Canada for the production of black and galvanized sheet steel, tin, terne, black and Canada plate. Tin, being proof against ordinary rust, or corrosion by acids, is most useful for culinary purposes, but, as in its pure state it is both soft and expensive, it forms for commercial purposes merely a coating over copper or iron. At Morrisburg the metal plates are rolled to the requisite weight and then go through a process of immersion in baths of the pure tin.

rotor type, and of specially heavy construction in order to give satisfactory operation under working mill conditions.

Figure No. 1 shows a 350-horse-power, 3 phase, 60 cycle motor running at 200 revolutions per minute directly off the town mains at 2,000 volts, and operating the cold roll equipment. Starting torque is provided by switching grid-iron resistances in the rotor windings and gradually cutting out as the motor comes up to speed. The slip rings are shown on the motor shaft on the side opposite the pulley, the connecting cables beneath the floor to the grids which are not shown in the view. The motor is provided with a step cone pulley

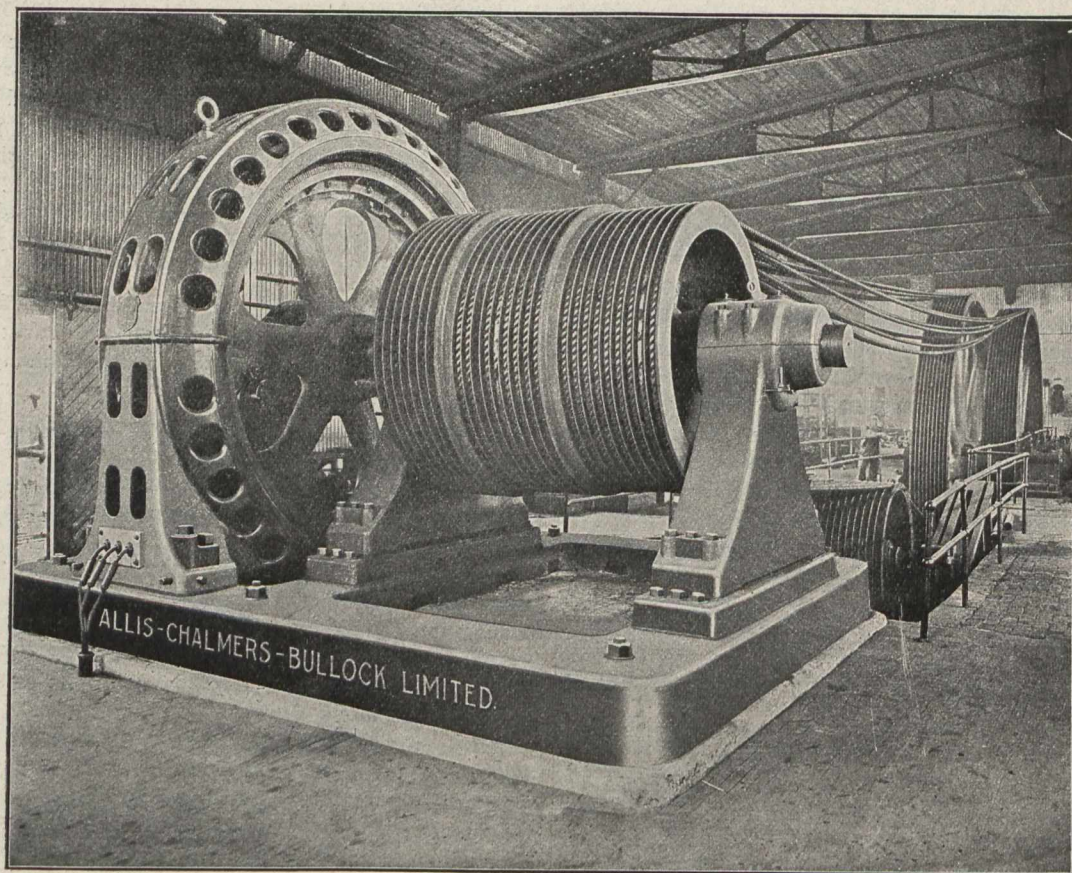


Fig. 1.—350-horse-power Induction Motor.

The equipment for hot and cold rolling, pickling, annealing, tinning and galvanizing are all arranged for continuous operation with a minimum of labor.

These tin plate works have the distinction of being the first in the world to be driven entirely by electric power. The current is supplied from the plant owned by the town of Morrisburg. The electrical equipment, induction motors, switchboards, transformers, etc., was built by Allis-Chalmers-Bullock, Limited, of Montreal. The motors are of the wound

grooved for nine $9 \times 7\frac{1}{4}$ ropes. The driven wheels are each 22 feet in diameter and the two at present in use weigh 20 tons each and revolve at 45 and $47\frac{1}{2}$ revolutions per minute. The third will be lighter in weight and revolve at 50 revolutions per minute. Each wheel is designed to run direct connected 3 stands of 22-inch cold rolls and the conveyors between them.

There are also two motors each 650-horse-power, three phase, 60 cycle running at 200 revolutions per minute directly