Pension Department, Montreal. Copies of the annual calendar containing the conditions of admission and announcement of courses may be obtained upon application to the Registrar, McGill University, Montreal.

Electrically Heated Solder Pan in C.P.R. Shops.

The pan shown in the accompanying illustration is used at the C.P.R. shops at Fort William, Ont., and Vancouver, B.C., for soldering end rings and bars on rotors for induction motors when they are being rewound. The heating plate is made of ⅛ in. iron, 27 in. in diameter, covered with a sheet of ¼ in. asbestos of the same diameter. The asbestos is fastened to the iron plate by porcelain cleats, which are bolted to the plate with flat head stove bolts. The heating element is a coil containing 110 ft. of no. 18 nicrome wire, connected on a 250 volt circuit using 12 amperes. The coil is formed on ¼ in. pipe.

Fig. 1 shows the method of placing the cleats and laying the coil to make the heating element. Fig. 2 shows an iron pipe stand, on which the heater and pan rest. It is made of ¾ in. iron pipe and measurements are arranged so that the centre cross is placed about 4 in. off the centre, allowing plenty of room for movement of the rotor shaft while being soldered.

The solder pan, fig. 3, is 28 in. in diameter, made of ⅛ in. iron plate, flanged at the outside to a height of 1½ in. The centre is cut out, flanged up to a suitable height, and threaded for a piece of 8 in. iron pipe, which forms an inside flange 1½ in. high. The pan is nearly filled with solder, and can be heated to the required temperature in about 15 or 20 minutes. The rotor to be soldered is suspended with a chain block, and lowered end down into the molten metal. When well heated, and the loose solder brushed off, it is reversed, and the opposite end treated in the same manner. By this method rotors can be soldered in 30 minutes, including the heating of metal, whereas from 18 to 24 hours were required to accomplish the same purpose with gasoline torch and soldering iron. We are indebted for this information to J. McLaughlin, formerly Resident Electrician, C.P.R., Fort William, now Electrician, C.P.R., Vancouver.

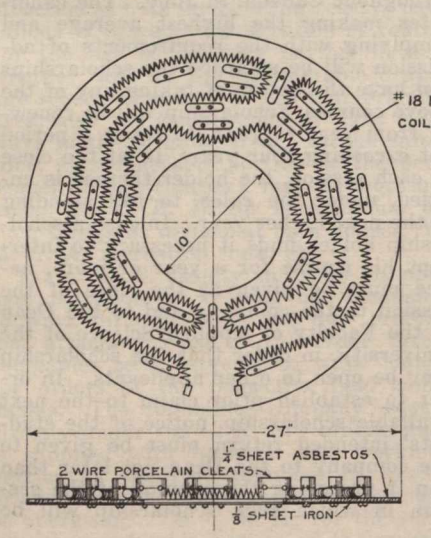

FIGURE 1.

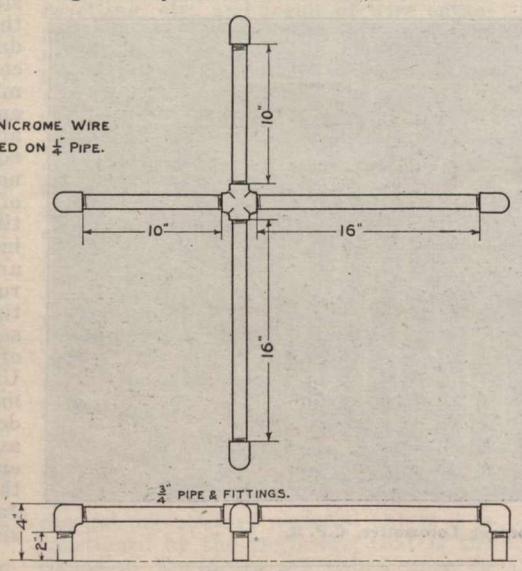

FIGURE 2.

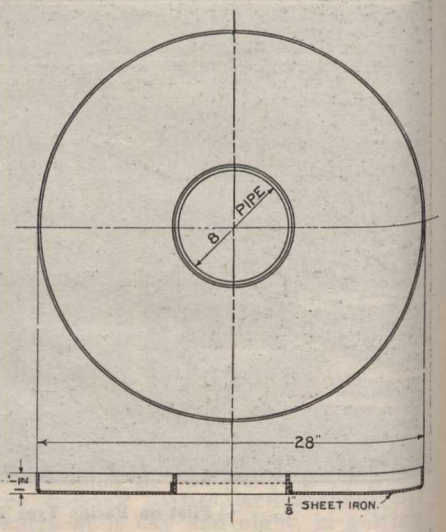

FIGURE 3.

Electrically Heated Solder Pan in Canadian Pacific Railway Shops.

The Proposed Toronto Water Front Viaduct.

W. H. Breithaupt, M.Inst.C.E., M.Can. Soc.C.E., wrote the Toronto Globe recently, as follows: You revert to the main harbor front railway and street grades separation question, now a question of venerable age. Incidentally you again, indirectly, imply doubt of the honesty of motive of the railways, a distrust if one may suggest, that has all along been a deterrent to arriving at a mutually advantageous solution.

Many reasons can be advanced why the adopted solution of this question of foremost importance may not be the best one. The railways occupy a comparatively narrow strip of ground along or near the water front. Directly back of it is the higher ground of the city, with Front St. the paralleling street, all along higher than the railways, and from Yonge St. westward very materially higher. This natural advantage in difference of elevation, which could be enhanced by sinking railway tracks somewhat, is such that with rational clearance, bridges could cross the railways to the water front at all important, if not at practically all, streets. The adopted plan ignores this advantage. Relief, together with immediate use of the new station, which by the track elevation plan is not in sight for the next four years at least, could be had at once.

I hesitate to criticize the adopted plan, but it is gravely to be doubted whether the proposed new 230 ft. right of way for railway embankment, across the present harbor front from Yonge St. east, will be required, what with development of railway facilities, Yonge St. passenger station, etc., north, and with certain future use, though barred for the present by construction cost, of electric traction with its enlarged facility of work on given trackage. Other lake cities, such as Cleveland and Chicago, sink their lake front tracks as much as practicable; here we propose to make them unduly conspicuous, on earth embankments. It may be argued that the cases of these cities are different. They are, somewhat. No two cases are wholly alike.

The right solution of any problem, engineering or other, is arrived at only by giving due weight to all conditions that have bearing on it. For one thing, the enormous cost of railway properties in Canada, a cost very much greater than necessary, even for the existing mileage, is becoming more and more evident. For this cost the people must pay, whether indirectly in taxes or directly in charges for use. Why should useless cost be forced in any detail? Is not a submission of this vital grade separation problem to absolute engineering solution, on the best authority available, without hamper of possible preconceived notion of Board of Trade, Harbor Board, city, railways or any other body, of what the solution should be, still in order?

New Zealand Government Railways Unsatisfactory.

Sydney Smith has written from Rotorno, N.Z., to the Financial Post, as follows: "If you want a convincing argument against state ownership of railways investigate the Australian and New Zealand railways. I have travelled in the five continents and have never experienced a worse rail service than in New Zealand or a more costly service to travel or freight on; freights and passages are of the highest, the service is of the worst, and the employes the most casual. The express between the capital city, Wellington, and the largest city, Auckland, averages just over 20 miles an hour, the trains are filthy, and porters are practically unobtainable. When one thinks of your magnificent C.P.R. and all that it has done for Canada's service, one is impelled to write and call "cave" before you change. You will never improve it under state ownership and are fairly certain to destroy its efficiency.

The Institution of Civil Engineers' Council has invited any of the Canadian Society of Civil Engineers' members, who may be visiting England, to use the Institution's library and reading rooms in London, as well as attend its meetings. A letter of introduction from the Canadian Society of Civil Engineers will be necessary.

In France all express trains, with the exception of postal and long-distance trains, are ordered discontinued, as one of the steps taken to facilitate transport connected with national defence and commercial traffic.