

tricity in the home is like love and light and laughter, a thing which transcends all considerations of petty economy. A room without a power outlet is a room without a window, a dog without a tail. Electrical contractors who restrict the free admission of electricity to the home should be boiled in oil—oil with a nice high flash point.

The conclusion to which wisdom and experience lead us is that the home is not the place to practise economy unless we must. It is the place where we find the reward of our labors. It is what in government circles is known as a spending department. It is the place where we enjoy to the full many things we could very well do without. There's no place like Home.

Rail Grinding Machine for Melbourne Tramways

The Melbourne tramways board operates a large and increasing mileage of electric routes and, in common with many other tramway authorities, is much troubled by corrugation of the rails. No definite explanation has yet been

placed an order for apparatus for the sorbitic treatment of rails in situ, and has taken delivery of a rail grinding machine. The equipments will be used in conjunction, the grinding machine first removing the corrugations, and the sorbitic

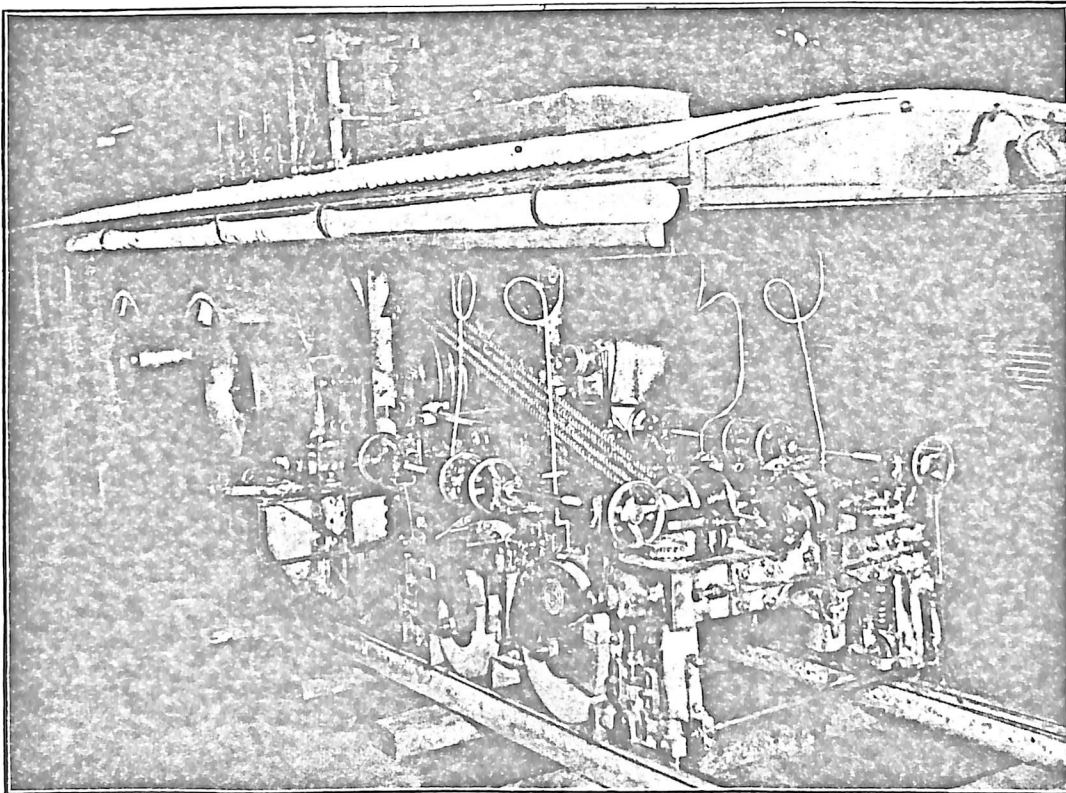


Fig. 1. Rail Grinding Machine for Melbourne tramways board
 The motor and belt drive are seen on the left, and the rope drive to the grinding wheels in the centre.
 Two grinding wheels and sliding shoes are seen at the bottom.

advanced regarding the cause of corrugations in tram rails, though it is evidently related in some way with the corrugation of certain types of road surface under the influence of traffic. For the present all that can be done is to adopt treatment that has been found to minimise the trouble, and to remove the corrugations, when they appear. The use of sorbitic rails, and the sorbitic treatment of existing rails checks the formation of corrugations, and the use of a rail grinding machine will remove them when formed. The Melbourne tramways board has recently

plant then treating the rails to check the formation of further corrugations.

Grinding machines of several designs have been evolved during the last few years, but the one that has just been taken over by the board shows a distinct advance over anything that has been used up to the present. It was designed by Mr. S. J. Little, of Melbourne, who has had a great deal of experience with rail grinders, in conjunction with engineers of the Austral Otis Engineering Co., and constructed by that company at a cost of £4,700. A second similar

machine is now under construction by the company.

The machine, which is illustrated in Fig. 1, consists essentially of two trucks, a power truck and a grinding truck, which run on the tram rails coupled together. The power truck carries a 75-h.p. motor, shafting, clutches and axle drives, as well as supporting a motorman's cabin and a roof that gives shelter to both trucks. In the cabin are a controller, two handwheels for brake operation and a small bench and vice. The truck is driven by the motor through a belt, countershaft, reversing friction clutch and silent chain drives, and can travel in either direction at either 15 m.p.h. or 18 ft. per min. The faster speed is used when proceeding from the car shed to the site at which grinding is to be done, and the slower speed is used while grinding. The clutches for fast and slow speed are interlocked so that both

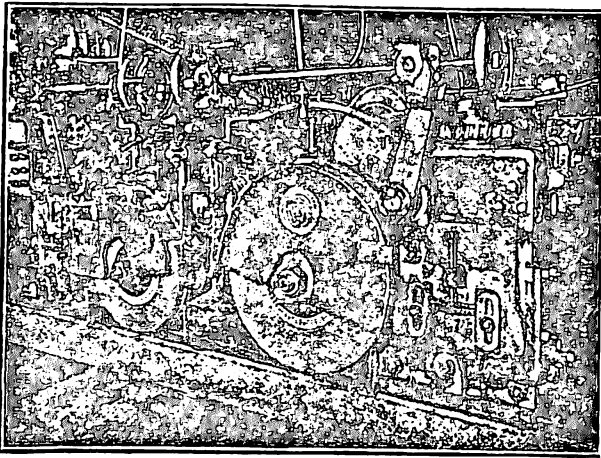


Fig. 2. Grinding Wheels and Sliding Shoes of grinding machine

cannot be in at the one time. This truck is fitted with two brakes, a service brake with shoes acting on the wheel tyres, and an emergency brake acting on the rails.

The grinding truck runs on four small wheels and carries four grinding wheels driven from the countershaft on the power truck through a jaw clutch, rope drive and silent chain drives. Thus the one 75-h.p. motor drives all parts of the machine. The grinding truck is divided longitudinally on the centre line into two parts, and is connected to the power truck by means of two adjustable links. By means of these links the tension of the ropes may be taken up when necessitated by wear, and the relative positions of the halves of the truck can be varied when grinding around curves. In addition the halves may be tilted transversely, so that rails can be ground at various angles. When in operation the weight of the truck is not supported entirely on the running wheels but is partly transferred to four sliding shoes 18 in. long, which bear on the

rails. These bridge over the rail corrugations and thus provide a mean gauging base for the grinding operation. Were the truck to rest entirely on the wheels it would rise and fall as they passed over the corrugations on the rails, and thus would not grind true. The operation of raising or lowering the truck on the shoes is done either by hand or by power through a friction drive from the main rope drive.

Two grinding wheels operate on each rail, and are controlled by one man through conveniently placed handwheels which raise or lower the grinding wheel spindles. One pair of wheels is shown in Fig. 2. No other rail grinding machine in the world, so far as can be ascertained, provides more than one grinding wheel on each rail. The wheels are of two sizes, 24 in. and 18 in. When the larger wheel wears down to 18 in. it is transferred to the other spindle, and when a wheel is worn down to 14 in. diameter it is discarded. Suitable gearing operates both grinding spindles so as to give a peripheral speed of 5,000 ft. per min. on the stones. Adjustment of speed to compensate for wear in the stones is obtained by varying the field of the motor. The stones are lubricated at the point of contact with the rails with water stored in a tank in the roof of the machine. An emery dressing attachment operated by means of a handwheel is provided for each grinding wheel.

It is expected that rail corrugations averaging 10/1,000 of an inch in depth will be removed by this machine at the rate of 800 to 1,000 ft. of rail per six-hour shift, when the operators become thoroughly conversant with their work.

INSPECTION OF WIRING

The Auckland power board has established a department for examining consumers' installations, in accordance with the new government regulations which state that all wiring installations must be tested every five years. Five inspectors have been appointed, and it is expected that they will take five years to complete their work. The inspections will be carried out in a thorough manner. Nothing will be overlooked, and every piece of wiring carrying power to every light, globe or machine in the board's area will be tested carefully.

In the case of a weakness being found in a house or business establishment the inspector will notify the consumer, who will then be able to arrange for repairs. In some houses installations which have done service for many years reveal weaknesses, which, in the ordinary course of events, would not be discovered. The danger of fire and serious breaks will be obviated by the notification of consumers that their wiring needs repairing.