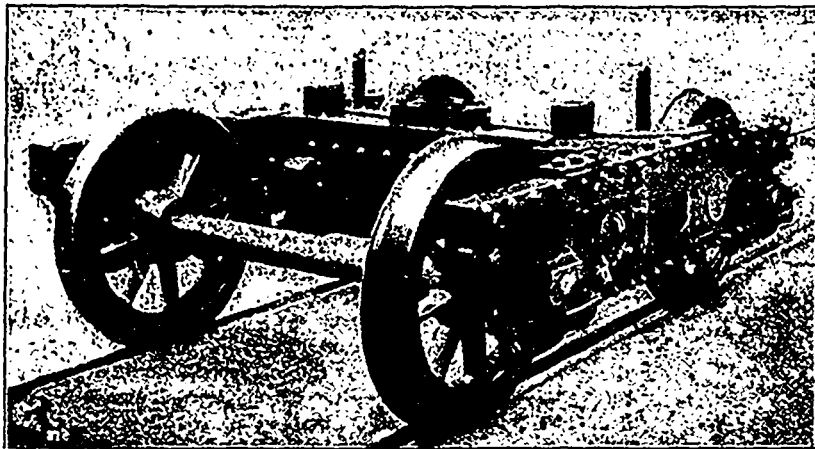


The whole series of these standards has been designed and will soon be shown in illustrated catalogues, which will give the hauling capacity and all the details of construction.

These locomotives may be run on any system, whether the Tesla, the electro-magnetic or button system, the overhead trolley or third rail. They can be used either with the plain direct current or the alternating current, or the multiphase. The best method for operating tunnels and yards, or in any case where there is a heavy current, is the electro-magnetic or button system, and all these standard locomotives will be fitted to run with that system. These 1,000 horse-power locomotives will have the apparatus provided also to run by an overhead trolley, and for this purpose a considerable section of the Turtle Creek railroad is now being fitted with overhead wires for the trolley system and with the buttons for the electro-magnetic traction system. The length of the equipped line will be about a mile and a half.

The Pennsylvania Railroad officers are much interested in these experiments and are assisting in every way possible to have them carried out to the best advantage. They hope to learn such facts as they cannot learn from the Mount Holly branch, which was equipped by the Baldwin-Westinghouse combination last year.

Within a short time a motor car suitable for elevated railroads and suburban lines will be received at East Pittsburg from the Baldwin Locomotive Works, and will be equipped to run both on the Tesla system and with the direct current. The trucks for this motor car are now at East Pittsburg and are receiving the motors.



This motor car will be beautifully finished in the interior, with seats for passengers similar to those used on the Manhattan Elevated Railroad, and will in every way be equipped for service on the Manhattan road.

Also in the course of construction is a special electric locomotive for use with the most improved multiphase or Tesla system. It will be used for exhibit and experiment at East Pittsburg. This equipment is simply the experimental equipment to be used at the Westinghouse Electric and Manufacturing Company's works at East Pittsburg, on the Turtle Creek branch of the Pennsylvania.

In addition to these locomotives, the Baldwin-Westinghouse combination are constructing electric locomotives for other purposes at Philadelphia. One of the most interesting is a heavy 200 horse power mine locomotive for West Virginia.

Since it has become generally known that the Baldwin Locomotive Works and the Westinghouse Company were combined to take up seriously this matter of electric railway equipment, the number of enquiries as to the cost and feasibility has greatly increased, and this has compelled the publication of a catalogue that will give the information directly.

The delay since the formation of the combination in getting the apparatus ready has been found necessary in order that the designs might be simple and practicable. It is one thing to arrange a locomotive to do work, and quite another thing to arrange a series of standards that will be so flexible as to be applicable to almost all conditions. This line of apparatus has been devised so that it can be readily understood and comprehended by any practical man. There are no hidden parts, but everything is exposed in such a way that after a little explanation any steam locomotive engineer can understand the uses of the different devices.

All of the rheostats, switches and wiring that were formerly placed under the car and out of sight on electric locomotives, are, in this class of apparatus, put above the floor, where they can be readily reached and examined. Instead of having about 100 wires going through the floor and fastened along the sills in exposed positions, there are in this locomotive only four cables, which are pro-

ected by a lead covering. All of the wires that ordinarily form a network under the floor are now placed above the floor in a case which holds not only the rheostats, but forms the controller itself.

On a steam locomotive an engineer has to operate about twenty handles, keep watch of the fireman, the height of the water in the boiler, the steam pressure, besides looking on ahead; while on this electric locomotive there are but three handles: the reversing switch, the controller, and the air-brake handle, so that the attention of the engineer can be confined to the track ahead.

The air brakes are operated in the usual way by a pump, which is driven by an electric motor. The machine is practically noiseless, and is placed under the floor of the locomotive. The headlights are illuminated either by electricity or oil.

LITERARY NOTICES.

The announcement of the Faculty of Applied Science of McGill University, Montreal, contains novel features, and calls attention to the new departures which the college is enabled to make through the munificence of W. C. McDonald. In another column an advertisement will be found, which shows that four new professors are to be added to the staff of that thoroughly progressive and popular institution.

The International Correspondence Schools, of Scranton, Pa., have established a very successful system of technical education carried on by correspondence in any part of this continent, and have obtained quite a number of students in Canada. This institution, the methods of which are explained by circular, has made steady progress, and is well worth the attention of those who wish a technical education at a moderate cost.

The Engineering Society of the School of Practical Science, Toronto, has issued in neat pamphlet form the papers read before the society in the past college year. Much credit is due the students' committee, which edited the publication, for the painstaking and business-like way in which it is turned out.

The Canadian Society of Civil Engineers has issued from its rooms, 112 Mansfield street, Montreal, the charter, by-laws and list of members of the society in an attractive pamphlet. A table is included, giving all the officers of the Society during the past ten years.

The Penberthy Injector Co., of Detroit, Mich., publish a little monthly of their own called the *Penberthy Bulletin*. The subscription is only sixteen cents a year, and a sample copy will be sent to any engineer giving his address and by whom employed.

The *Coiled Spring* is the name of an interesting little four-page monthly issued by the Page Wire Fence Co., Walkerville, Ont. It is sent free to any farmer or other fence user interested who will send his address to the company.

The Packard Electric Co., of St. Catharines, Ont., are sending out to their friends monthly a vest pocket memorandum book, "Daily Notes," which is exceedingly neat, and is free from advertising features, save for the mark Packard on the back cover. It is most convenient and pleasing.

Catalogues are not always models of the printer's art, but those of the B. F. Sturtevant Co., of Boston, Mass., leave nothing to be desired in this respect. "The Sturtevant Forges" is the title of a pamphlet which is all that the printer's art can make it, while "Ventilation and Heating" is a very handsome volume in brown cloth and gilt. The illustrations are numerous, and the principles of ventilation are exhaustively explained.

The Report of the Board of State Engineers for Louisiana, U.S., reaches us with the compliments of the board. The works constructed to retain the Mississippi River within its banks are enormous, and the numerous pages of statistics and diagrams in the report give a good idea of the importance of these works.

It would appear that the accident in Victoria on the 26th May, in which nearly seventy people lost their lives by a trolley car breaking through a bridge, was due to the negligence of the city authorities, as the bridge had been condemned. It will be remembered that a short time ago the Victoria city fathers dismissed the engineer because they thought they knew more about his work than he did. Damages of a million dollars would not be out of the way in this case, if hanging is out of the question.