INSPECTION ON THE MANHATTAN ELEVATED RAILWAY.

While the elevated railroad system had been started and operated for many years previously, it was not until 1878, when the Gilbert road was constructed on Sixth avenue, that an extensive use of this class of road came into being in New York. The success attendant upon the opening of the Sixth Avenue line was quickly followed by the construction of the lines on Third and Second avenues, and the extension of the already existing structure on Greenwich street, up through Ninth avenue.

Shortly after it was put in operation the Sixth Avenue line had a regular daily traffic of about 50,000 passengers, which jumped to 80,000 one day during the summer when there was a strike on the part of the drivers and conductors of the surface cars beneath. From that time on the traffic grew by leaps and bounds; always taxing the facilities to the utmost, and frequently so exceeding them as to render transportation even dangerous. At present the daily traffic, upon the four lines operated, is between 600,000 and 700,000 passengers.

In the 23 years during which the system has been in full swing not a passenger has been killed or injured on the cars. People have lost their lives by falling or jumping in front of an approaching locomotive, or by attempting to walk along the footpath at the side of the track and falling into the street. But perfect immunity has been the lot of those who have entered the cars and remained there until they have reached their destinations.

This is a fact that is invariably overlooked by the daily papers when discussing the management of the elevated railroads and its so-called disregard of the safety and convenience of the public. Such an immunity from accident cannot be due, however, to pure luck. Someone once congratulated the manager of Noble's nitroglycerine factory upon their remarkable luck in never having had an explosion. "We have not been lucky at all," replied the manager, "but we have been careful." So it is safe to say that the freedom from accidents on the elevated railroads has been due to the great care that has been exercised in the operation, and by no means the smallest element of this care is the vigilant inspection and supervision that is exercised at all times over every portion of the cars and locomotives.

It is a motto of the officers to take absolutely no risks. In some respects they can neglect matters that require constant attention on other roads; but, in the main, the amount of inspection is greatly in excess of what the ordinary railroad man is accustomed to consider necessary. The inspection of the locomotives is practically constant. The inspectors are divided into three classes, known as the terminal, yard and shop men. The terminal inspectors examine the engine at the end of each trip over the road, and if the slightest thing is found to be amiss it is not sent back with a train until the trouble has been corrected. Then, when the engine is laid up after the day's work, it is thoroughly inspected by the hostler and again by the yard inspector.

This external inspection does not tell the whole story of the care of the locomotives. The life of the axles is limited to 250,000 miles, after which they are removed regardless of their apparent condition. The same rule is applied to the crankpins, with the exception that their age is limited to 125,000 miles. In addition to this, the crankpins are subjected to a drastic inspection with a 12-pound sledgehammer once every 30 days. A sharp blow with a sledge of that weight, delivered on each quarter of the pin, serves to bring any incipient crack to view or even to break the pin. In either case the possibility of a breakage on the road is obviated.

When the present type of engine was first designed, considerable difficulty was experienced from the breakage of the pins forming the connections of the valve motion. These have been enlarged and are made of a high grade of iron, case hardened. Wrought-iron, case-hardened, is also used for the guides. The crosshead is of cast-steel of the Laird type, and the piston rod is held to it by a nut, no key being used.

The ashpan and the netting of every engine are inspected daily, and the dropping of ashes or the throwing of sparks is unknown. One may watch these engines for days and weeks and not see a spark thrown from the stack or a live coal fall upon the track or street.

The road is so fortunate in the water used that no trouble is experienced from the boilers. Here the work of inspection falls off, so that it is much less frequent than that employed on many surface lines. The tubes last almost indefinitely, and a broken staybolt is rarely heard of. The reason for the one is to be found in the purity of the water, and for the other in the small firebox. The boilers are, however, washed out every 14 days, but the staybolts are only inspected about once in 18 months. Even with this wide interval between inspections it is years since a broken staybolt has been found. When the staybolts are inspected the boiler is also carefully examined, and, if it shows so much as a suspicion of a loss of strength, the working pressure is at once lowered from the standard of 145 pounds to that which the boiler can safely carry.

The engines are worked to their utmost capacity, and on the express runs are driven at speeds above 45 miles an hour with five densely packed cars behind them. This, with driving wheels but 42 inches in diameter, means a very high piston speed. Yet, in spite of this, a breakdown upon the road is unknown, and men travel to and fro daily for years without experiencing the slightest delay due to any trouble with the locomotive.

In the matter of cars, the work is done in a manner that is equally thorough. In fact, owing to the presence of the public and its disregard of the amenities of life, far more attention is paid to the cars than to the engines.

In the first place, the cars are inspected at the end of each trip at each terminal. The inspector stands at the head of the platform as the train enters and catches what he can as it passes him. He then crosses the track and goes down the other side of the train, making such inspection as he may have time for. When the cars are laid off for cleaning, or when the train service is lessened, they are then thoroughly inspected by several sets of inspectors.

First come the truck inspectors, who look after all of the running gear, and do such light repairing as may be required. This includes the putting on of brakeshoes and the like. In order to sharpen the eyesight of these men and avoid that prelude to a disaster, a loose wheel, the inspector who finds one has a day's pay added to his wages. Not very many loose wheels are found, so that the cost to the company is slight, but it is safe to say that none ever leave a terminal for a trip over the road. In the matter of the inspection of car axles, no limit of age is placed upon them, but they are run until the wear of the journal is such that a new axle is called for.

The next inspector is the one who looks after the interiors. He examines the windows, seats, blinds, ventilators and the whole interior and orders repairs and cleaning done before the car is again put into service.

As the gates are an essential feature in the safe operation of the elevated railroads, special gate inspectors are employed. These men examine every gate on every car on the system every day. The result of this is that a defective gate upon a moving car is never seen.

Finally, we come to the cleanliness of the cars. At each terminal the inspectors and trainmen go through the cars and gather up the coarser refuse and debris left by the passengers. This means the gathering up of newspapers and the turning over of mats that have been excessively soiled by expectoration or otherwise. If matters are very bad the car is cut out at the end of the run, but ordinarily the turning of a mat and the sweeping up of some litter suffices until the car is laid off at the end of the day.

The floors are covered with cocoa matting, and some time ago there was a movement on the part of those with a pull to compel the road to discard these and adopt wood. Frequent and unexpected visits from the inspectors of the board of health failed to detect anything deleterious in the method of using the cocoa matting and the matter was dropped. The cars are cleaned every day. The matting is first removed to the platform and cleaned, the floors are swept out with a push broom, and after the dust has settled they are dusted. Then, when the mats have been replaced, the car is disinfected with thymol. This disinfecting is, moreover, done twice daily, so that the cars are always sweet and clean, with the exception of when they are overcrowded with passengers and all of the doors and windows are closed.

This brief review can, of course, give but a faint idea of the unceasing vigilance required in order to maintain so thorough an oversight of the rolling stock that accidents are practically unknown. One may travel for years over these lines and never experience the slightest delay save that due to the crowding of the cars and the consequent increase in the length of station stops. This, however, is another matter, and one which, besides being beyond the control of the company, is one for which it is not altogether responsible. But as far as the question of safety is concerned, this road stands unrivaled among the others of the world, and deserves an amount of credit that the daily papers do not always seem inclined to give.