Edward Woods in 1853, as to the economy of the different classes of engines on that great railway, contain valuable information, and prove clearly that the heavy crank engines of the southern division cannot be made to work with the same economy as the light outside cylinder engines of the northern division.

RAILWAY CARS.

The passenger and freight cars in general use on American railways are in design admirably fitted for railway service. The cast-iron wheels used in American cars, when made by experienced founders from good American iron, are superior to the wheels used in any other country for endurance. It is, however, common for American companies to demand wheels at a low price. When this is the case, Scotch pig and poor qualities of American iron are used, and an inferior wheel delivered.

The great merits of the American wheel are becoming known in Europe. They are adopted in seven English railways in South America, and, I believe, on all the English railways in Canada.

The American journal-box was tried by Mr. McConnell on the London and Northwestern railway in 1852 on the tender of a locomotive, while a set of English boxes were tried on another tender. They were both run on express and gravel trains for a distance of six thousand miles, and the result, as reported to the Institute of Mechanical Engineers at Birmingham, in October, 1852, was as follows: American boxes, six in a set, cost one and one-half penny per day for oil, cotton-waste, and leather; English boxes, six in a set, cost nine pence per day for axle-grease—showing a saving of seven and one-half pence per day (equal to fifteen cents) on each set of six boxes. Besides this, there was a saving in the first cost of boxes, the American set of six weighing one hundred and seventy-six pounds less than the English. To show how difficult it is to introduce any improvement in railway matters, and particularly in England, I would state that the American box is not introduced on any railway I know of in England, although this experiment was made on the road of the largest moneyed railway corporation in the world by an eminent mechanical engineer, and given to the public through an institution composed of all the first mechanical and railway men of the kingdom.

It has been acknowledged in England by "The Engineer"—a leading authority in railway matters—that American engines running, as they say, "over what we know to be a notoriously inferior track to those in England," perform an average duty of twenty to twenty-five per cent. more than the English engines; but they have not in any way attempted to account for this difference. I have before said that the American engines in design are superior to the English, particularly on steep gradients, sharp curves, and inferior track; but this superiority would not be so prominent and glaringly evident were both engines on good, straight tracks, with light gradients. There must be another cause: it is in the different systems of cars used. The English use four-wheeled, the Americans eight-wheeled cars. The English cars, when loaded, have about half their loads overhanging the axles. When in a train, and it is started in motion, they feel quickly all the irregularities of the track, and begin to oscillate in the direction of their length, using up in this way a large portion of the power of the engine. The American car has but little of its load as overhanging weight. The trucks oscillate as they pass irregularities of the track, but the load does not, leaving the engine to utilize its whole power in traction. If any engineer can give a better reason for the American engines doing more duty on an inferior track than the English engine does on a superior track I would like to hear it.

The American cars are all they should be when built by first-class builders. When improvements are made they will be introduced by the car-builders, and