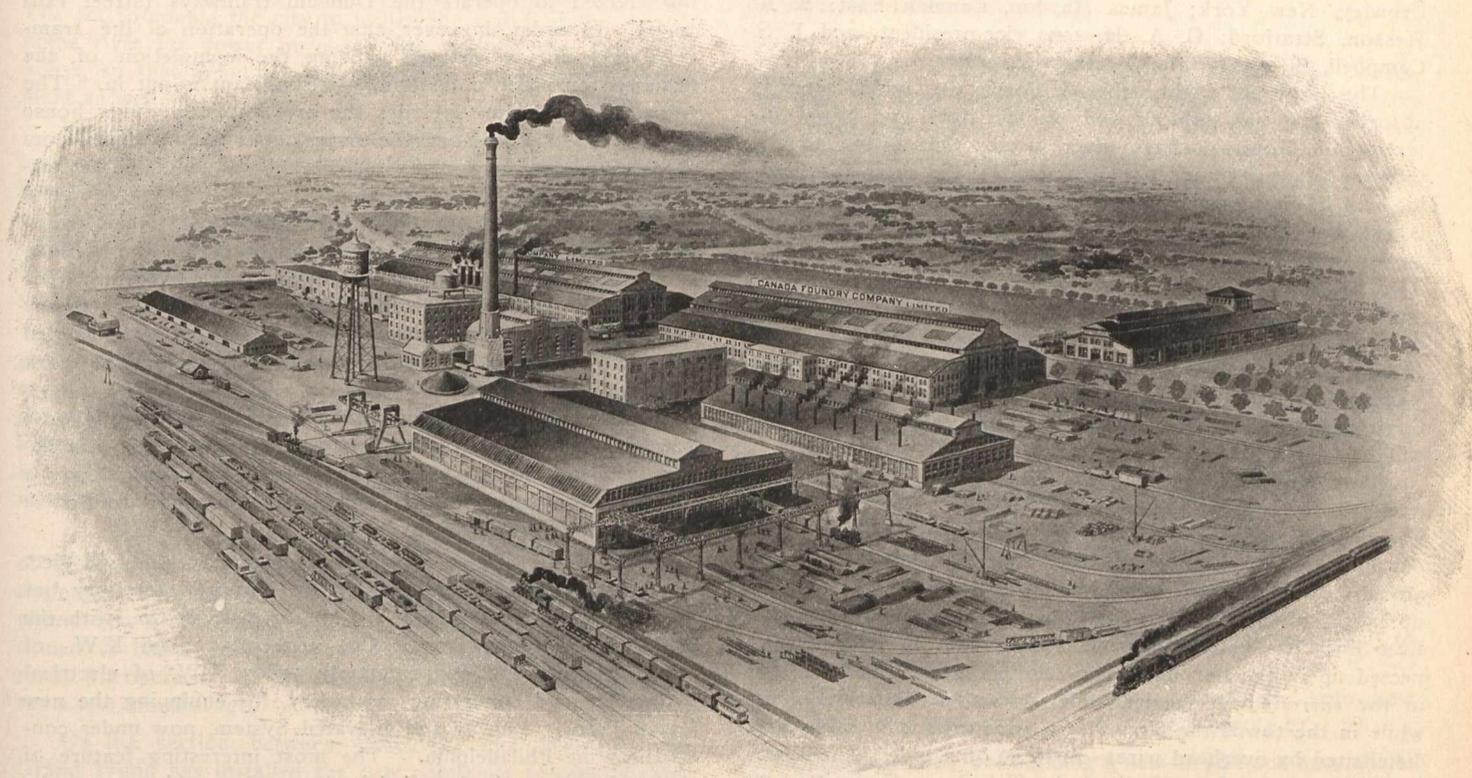


passenger carriage; is of the Stanhope type with artillery wheels, fitted with either Fisk or Diamond double tube tires, Victoria or buggy top and full equipment. A few of the special advantages of the car are these: that it starts from the seat; has an individual clutch system making it practically noiseless and free from the vibration that is so noticeable in all other gasoline cars; it is a powerful hill climber and, though not built for a racing car, will readily speed 30 miles an hour.

The regular stock cars of the Stevens make have won the following races: September 24, Providence, R.I., 5 miles in 7.42. Track record for 1 to 5 miles for Gasoline Machines under 1,300 lbs. Oct. 9-14, 500 miles, New York—Boston—New York, "Scarritt Cup." Two machines entered, both awarded first-class Certificates. November 27, Orange, New Jersey—Eagle Rock Hill. Time 3.45. Gasoline Car Record. April 25, Boston, Massachusetts—Commonwealth Avenue Hill. Time .43 1-5. Gasoline Car Record under 2,000 lbs. not only defeating cars in its own class but the time of every gasoline car entered.

moulds used; this heat, which is absolutely wasted by the present methods, being used for performing the roughing or "breaking-down" rolling operation direct, thereby effecting considerable economy by obviating reheating of the same, as is now compulsory, as well as deriving other advantages, the most important of which being the production of the valuable property of sounder and more compact metal, through rolling it whilst the internal metal of the cakes or bars is still in a soft or semi-plastic condition; it being well known that the raw cakes and bars as ladled by the present methods, are never absolutely free from blowholes, cold-sets, etc., notwithstanding the precautions taken in the refinery in the ladling or pouring of same, and it is obvious that the great pressure that the metal is subjected to by rolling, whilst in a soft and plastic state, must have the effect of eliminating these blowholes, etc., and of thoroughly welding up the walls of these cavities and consolidating the metal together; so that it will be seen that by the addition of a "breaking-down" mill, fixed close to the refinery and the adoption of this system and appliances, copper refineries may very fully carry out the preliminary "breaking-down" rolling



CANADA FOUNDRY CO.'S WORKS.

The above cut shows a bird's-eye view of the extensive works of the Canada Foundry Co., Davenport, Toronto, now in progress. At these works, water and gas pipes, valves, hydrants and other corporation supplies will be made; while special departments will be devoted to the building of locomotives, steam pumps, ornamental iron work, machine screws, etc. The floor area of the various departments will be as follows: Machine shop, 54,000 square feet; foundry, 45,000 square feet; structural shop, 49,460 square feet; smith shop, 9,680 square feet; boiler shop, 36,000 square feet; pattern shop, 8,400 square feet; pattern storage, 29,600 square feet; machine screw department, 20,000 square feet; power house, 6,000 square feet, or a total of 258,140 square feet, equal to about 6 acres. This does not include the ornamental iron department, which is carried on in the Northey Co.'s pump works, at the King St. Subway, recently acquired by the company.

MARTIN'S METHOD OF COPPER MANUFACTURING.

The salient feature of Martin's method of copper manufacturing by direct rolling from the initial refinery heat consists of using up the heat contained in the copper cakes and wire bars, immediately after they have been ladled in the refinery, and when set then stripped from the special tipping

operation by heat, which, so to speak, would cost nothing and at the same time the unfinished products or broken-down plates and bars would then be, through greater soundness, undoubtedly, infinitely superior to products which had been treated in the ordinary way, i.e., by starting with the cold cakes or bars (perhaps full of blowholes, etc.), and then with the usual reheating and rolling of same. Besides, the fact that a certain amount of work had been put into these products would have disclosed any serious defects, had they been present, and so would to an extent be a sort of guarantee as to quality for the finishing mills and would cause the risk and expense of rejection and return to be minimized, supposing customers' mills to be located elsewhere. This process was referred to in the May number, and in previous issues of the Canadian Engineer.

James Clark, of Sydney, C.B., who has lately purchased the Sydney Foundry and Machine Works, has been remodeling and enlarging the plant, putting in a crane and new machinery. Mr. Clarke will be remembered by many of our readers as the engineer and superintendent of the Canadian machinery hall at the Colonial and Indian exhibition in London, in 1886. He was for many years with the John Bertram & Son Co., of Dundas, Ont.