

# MUNICIPAL DEPARTMENT

## AN ELECTRIC SELF-LOADING CAR.

Mr. A. Jackson Reynolds, of Montreal, has patented an electric self-loading car for street cleaning purposes which is claimed to possess great mechanical ingenuity, and which promises to result in a large saving in the cost of cleaning city streets. The first car manufactured under his patents was turned out of the Rathbun Company's works at Deseronto a fortnight ago, and is shewn in the accompanying illustration.

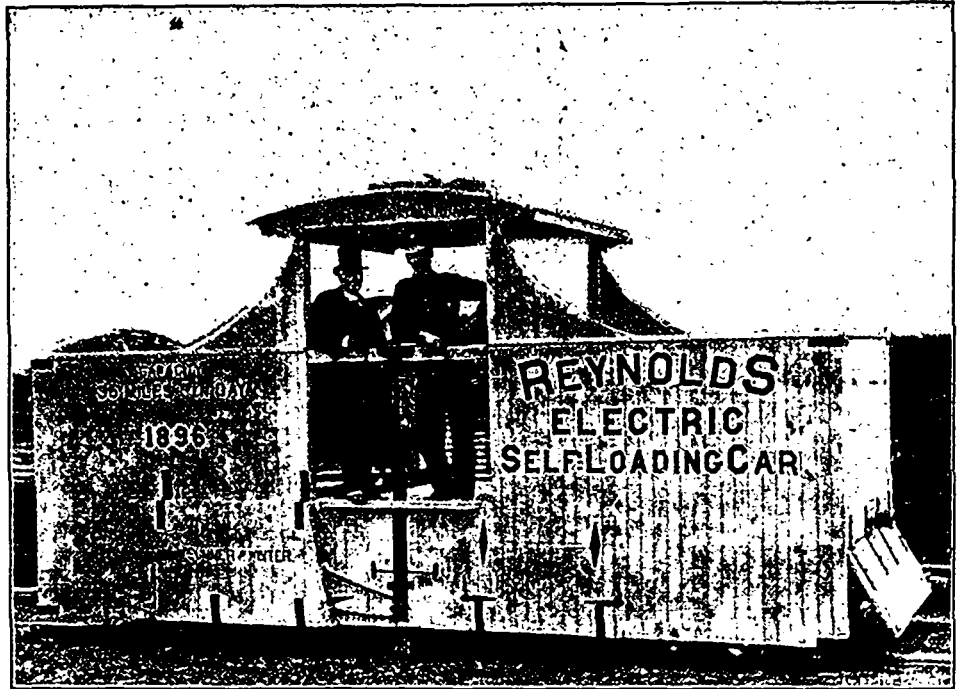
The system of cleaning is as follows. About one-third of the surface of the street is swept from the curb inwardly towards the railway tracks by the ordinary horse sweepers, driven in the opposite direction from the usual way of sweeping from the centre to the outside. The refuse is then taken up by the self-loading car at any desired speed and conveyed to the desired location.

The car shown herewith is 22 feet in length, 8 feet wide and 9½ feet high, very compactly and strongly built in every section. It is fitted with all the appliances for electricity common to a regular trolley car. Contrary to general use the brake-motors, etc., are all situated above the wheels and axles so as not to impede the full action of the brush. The operating platform on which the persons stand while directing the motion of the car and broom is 8x5 feet, and so placed as to protect them from being touched by the dust thrown from the revolving brush or broom.

The results are accomplished mainly by placing a large rotary brush across the centre of a moving car, said brushes being covered with steel casings, with proper outlets for discharging the sweepings into the body of the car, and covering the brushes with said steel plates, having rubber aprons fitting the pavements. The high speed of the brush forms a powerful suction, which takes up all the itemized matter and deposits it over the brush into the body of the car, which is provided with pivoted dump floors for dropping the load instantly at any point desired. The brushes, steel casings, and rubber aprons are so constructed as to work in either direction automatically. The cars are driven preferably by a stationary motor placed directly over the brushes on the operating platform of the car, the brush being operated from a counter-shaft by sprocket wheels and chain.

The brush, which has been specially manufactured for the purpose, makes five revolutions to each one of a car wheel. It works much on the same principle as a carpet sweeper, and will throw the dust a distance of twenty-five feet. Its capacity is about twenty-eight car loads. The broom, which is fastened to solid heavy axles, is so arranged that it always fills the case in which it is contained, a simple but ingenious device changing the size of the latter to suit the changes made by the wear of material. The broom acts as well one way as another, steel deflectors being so arranged that it can be run backward without any change of machinery or even without touching it. By a change of the trolley the action may be reversed instantly so as to throw the dust one way or the other as may be desired. The broom may be extended so as to cover the whole street outside the car-track if necessary. For removing snow in winter the car may be constructed

per cent. The curve plotted from the average daily per capita consumptions of the period stated is concave upward, showing that the consumption is increasing at an increasing rate, threatening to go much higher than the present figure of 160 gallons. In 1862 Philadelphia's rate was only about one half that of New York or Boston, but at present it exceeds the rates of those cities by about 60 per cent. Measurements made in 1892 showed that one of the districts in the center was consuming 252 gallons per capita daily. More recent tests in one of the residence districts showed a rate of 222 gallons. A house-to-house inspection of 142 houses in the district showed that out of the 782 appliances 32 were running continually and 22 leaking, and that all but 30 of these 222 gallons were being wasted. Meters have been objected to on the ground that large manufacturing interests promoting the general interests of the city would be unduly taxed and also for



as long or wide as may be required. The car may be unloaded in thirty seconds, one man doing the whole work by manipulating a lever.

The cost of operating this electric sweeper is claimed to be about \$3.00 per mile. The side sweeping by horse machines can be done for \$1.50 per mile, which makes the total cost \$4.50 per mile.

### WASTE OF WATER.

Some excellent arguments for the adoption of the meter system are presented in a report by John C. Trautwine, Jr., Chief of the Philadelphia, Pa., Bureau of Water, on the necessity of checking the waste of water in that city. In the past 22 years the number of buildings in Philadelphia has increased 83 per cent., the population 90 per cent., the number of appliances for using water 340 per cent., the pumping capacity 268 per cent., and the daily per capita consumption 158

fear that economy would drive small consumers to reduce their use of water below sanitary limits. There are also those who think water should be as free as air. Mr. Trautwine quotes the reports of his predecessors to show that rates can be reduced to large consumers and a minimum set for small consumers. The difference between free air and free water is that air does not have to be pumped and costs nothing to supply. The present law making meters voluntary is unjust to the city, as only those use them who expect to cut down their water tax, the wasteful consumers paying annual rates. To check computations of water used, derived from plunger displacement at the pumping engines, experiments have been made with a 6-inch Venturi meter. This having worked successfully, three more Venturi meters have been ordered for use on 12-inch, 20-inch and 48-inch mains respectively. Experiments are also being made with the Pilot tube.