the use of a roller on country roads are:

(1) A good road is at once made for vehicles.

(2) A dirt track is not made near the ditch, to avoid a pile of loose stone or gravel, so that the side of the road is not cut up in such a way as to interfere with surface drainage.

(3) Traffic is not inconvenienced in the fall by being forced to drive through loose gravel or crushed stone.

(4) The gravel or stone is not forced down into the subsoil by the wheels and feet of the horses, is not churned and mixed with the earth, and there is in this way a grest saving in the amount of metal needed on the road.

(5) There is a great saving in manual labor, and repairs are more readily and effiectively made.

An impediment to the use of heavy rollers in a good many townships is the insufficient strength of bridges and culverts; and while valid in some instances, the objection is liable to exaggeration in others. Weak wooden bridges and culverts could in many cases be temporarily strengthened sufficiently; while in others, they could be entirely avoided by first completing the rolling on one side and then passing around a block or so to commence work on the other side.

There are different classes of rollers. The horse rollers weighing six or eight tons will do fairly well if a steam roller cannot be afforded, but the horse roller is not sufficiently heavy for the best results. It has to be used much longer than the steam roller. The feet of the horses, in exerting sufficient strength to move the roller, sink into and disturb the road metal, and injure the shape and quality of the roadway, while on hills it is at a disadvantage.

The steam rollers are of various weights, ranging from eight to twenty tons. Rollers of fifteen tons weight are those generally used by the towns and cities of Ontario. The cost of horse rollers is usually about $90 per ton, or from $400 to $600 each. Horse rollers are, however, generally so constructed that the weight may be increased by iron castings; so that a roller of five tons may be made to weigh about eight. Steam rollers cost about $3,000. For operation, a horse roller, with two teams, will cost $6 per day. A steam roller will cost $10 a day, including interest and depreciation, but will do several times the amount of work done by a horse roller, so that the saving in operation is considerable.

The amount of rolling which can be done in a day varies according to the quality of metal used, the kind and amount of binder, the thickness of the layer of stone rolled, and the weight and type of roller. With broken limestone, rolled by a twelve-ton steam roller, the amount of stone campacted will average between forty and fifty cubic yards in a day of ten hours.

The objection to the purchase of steam rollers by townships is their cost. It is, however, but a matter of time when this will be overcome. The price may or may not be reduced, but in the meantime an appreciation of good roads will grow, the value of good roads will be more realized, rural population, wealth, and traffic must increase, so that all influences will tend towards the gradual use of steam rollers by townships. Counties, towns and cities are finding that they must use them.

STEAM ROAD ROLLERS IN ONTARIO.

Municipality.	Year purchased.	Weight (tons.)	Cost.
Belleville	1898	15	$3,000
Berlin	1898	15	3,100
Brantford	1901	15	3,200
Brockville	1894	17	4,000
Carleton Place	1901	10	3,000
Chatham	1898	12	3,135
Cornwall	1898	16	3,000
Galt	1896	15	2,700
Guelph	1902	15	3,250
Hamilton	1898	15	3,300
	1900	16	3,250
Ingersoll	1898	12	2,900
Kingston	1884	18	
Lindsay	1903	15	3,250
London	1895	15	3,000
Niagara Falls	1897	12	3,650
Niagara Falls Park Com'sion	1903	7	2,300
Ottawa	1885	15	3,000
Owen Sound	1898	15	3,000
Pembroke	1902	15	3,250
Peterborough	1899	15	2,800
Renfrew	1899	15	875
St. Catharines	1897	12	3,600
St. Thomas	(1900?)	12	
Smith's Falls	1900	17	3,100
Stratford	1897	15	3,800
Toronto	1895	15	3,050
	1900	10	2,375
Welland	1903		3,000
Windsor	1898	12	2,000
Woodstock	1897	10	3,300

Thomas A. Walker, of Clinton, Ont., has invented a cement block making machine for well building. The blocks are made in such lengths that six complete a circle.