

The Stadig Rotary Snow Plough

(Extract from Report of Dominion Good Roads Association.)

The almost sudden popularity of the automobile and motor truck have as quickly render most of the methods of snow road making as antique as the modes of travel supplanted by the automobile.

This is particularly true on suburban streets and country roads, in localities of heavy snow fall. The road surface which would bear the cutter and sled often breaks beneath the automobile, and a road kept right for this new travel by the old methods is prohibited by the cost and often rendered impossible by labor scarcity. Conditions thus imposed led to the development of the Stadig Rotary Snow Plow. Besides making excellent roads this machine on sidewalks, and after particularly heavy snow falls, has shown a greater capacity than a thousand men with shovels.

The Stadig Rotary Snow Plow is a machine which while being drawn against a snow bank by a team of two or four horses, scoops up the snow and throws it aside without increasing the height of the bank. The horses only move the machine along, the power for scooping up and discharging the snow being furnished by an engine which is a part of the machine.

Tests made by the City of Outremont on a Stadig Machine which the city purchased yielded very valuable snow removal data. The three following paragraphs from the report of February 6, 1918, by City Engineer J. Duchastel to the Mayor and Aldermen of Outremont, give a very clear summary of results on Cote St. Catherine Road:

"Figuring the cost of gasoline, time of operator, Corporation teams and helpers, as well as time of grader and single snow plow used in connection with this work, we find that the cost per lineal yard of street cleared (one side only) is 7.2c. This work covers a period of 23 hours, and a bank of snow 6,775 feet long, 10 feet wide and 1 ft. 9 in. high was cleared in that time."

"As a parallel to this work, the cost of removing snow on the same date, on another section of Cote St. Catherine Road, under the same conditions, was kept, the snow being loaded by hand in sleighs, and removed to a dump less than one-quarter of a mile away. The cost per lineal yard was 23.7c.; this work covers a period of 10 hours, and a bank of snow 950 feet long, 10 feet wide, and 1 ft. 9 in. high was cleared in that time."

"As a check of these last figures, the cost of clearing Cote St. Catherine Road by this method was kept last year, and the figure per lineal yard of street (one side only) was, under practically the same circumstances, 27.4c."

In securing these costs 10% depreciation, 7% interest and a liberal amount for repairs were figured in addition to operating expenses. Therefore, these figures show that the road was cleared by the Stadig Rotary Snow Plow at less than one-third the cost of other means.

Relative to the clearing of sidewalks the above reports state:—

"This machine was also used in opening of sidewalks in sections of the City where drifts made them impassable. An accurate count was kept of this work, details of which I have on record in this office. From 11 to 12 miles of sidewalks per day have thus been cleared at the cost of \$30.45 per day. It is difficult to arrive at the actual cost of this work by other methods, but I believe that I am not too optimistic in saying that a saving of 50% was made."

Snow road and sidewalk clearing with this machine is successful and is without the disadvantage peculiar to other methods. Briefly, the common methods of snow road making which were successful before the automobile became common, are the hand operated shovel, the "V" plow, the road machine and the snow roller. To this might be added the very kind street railway company — when it happens to have a line along the road of immediate interest. Where the snow is considerable the first three methods require that the snow be taken away because the banks would become so high after a few storms as to make continued clearings almost impossible. The road roller is only satisfactory for sleigh roads and on works where the surface it leaves may be sprinkled, thus forming a heavy crust of ice, but the surface left by the roller, whether sprinkled or

not, though satisfactory for sleighing, has not been sufficient to carry automobiles and heavy trucks. The Stadig Rotary Snow Plow does not necessitate the removal of the snow by human agency because by it the snow is projected to a considerable distance thereby distributing it over a large area or into the wind which carries it away.

As the machine is drawn along by a four horse team a four bladed rotary cutter on either side, each revolving on a horizontal shaft and driven 500 revolutions per minute by an engine, scoops up the snow and discharges it from both sides of the machine. The mass of the snow may thus be projected forty feet, being thrown clear for a distance of ten feet, or, if surroundings limit the distance to which it should be thrown this may be controlled by moving the double dampers. The distance of projection may, in this way, be limited at will to any point from this extreme of forty feet to a discharge straight down.

As noted above, the work is not heavy on the horses. They have merely to move the machine along, the power used in actual cutting being furnished by the engine. The machine slides on runners and the front sled is high enough to clear a 24 inch bank of snow without dragging. In addition to this the machine may be set to an offset on the front and rear sleds so that in cutting the bank away in widening the road the horses travel on the part of the road already cleared.

In one traverse the machine clears a space 5½ feet wide. The depth of cut and the slope of its surface may be regulated by moving the rotary cutters as the machine passes along. Thus the surface of the road may be made everywhere the same height, even on several traverses a slowly, uneven, or tilted surface may be levelled, or a 22in. comb lin. to 4in. high may be left by centre plow adjustment. In two traverses (out and return) a road 11 feet wide may be cut and this width may be increased by additional traverses; the snow being thrown beyond the part already cleared.

Col. T. Hugh Boorman, N.Y.; I noticed in the hall a picture of a Rotary Snow Plough, and also noticed that it had been used in Outremont. I think the convention would be very glad if you could tell us one thing, the thing for which I came to Canada, to see if there is any possible way in these days of war of economizing. I understand there is great economy in labor and any man who is saving an hour's time is doing his bit. I am sure we should be glad to hear if you could tell us on that point whether there is any saving of labor by the use of the Stadig Machine.

The President: I will be very pleased to give you my experience with the machine as it is asked for by Col. Boorman. We have in the locality of which I am engineer, a machine built on the Stadig patent of the description you see on the plans. While I admit it is not a machine to be used in a city proper it has done wonderful work in our suburban area. We have building regulations that are rather severe, and our streets are rather wide. They vary between 65 and 80 feet, and we compel the citizens to build their houses anywhere from ten to thirty feet back from the street line. I bring this out simply to show you we have plenty of space to throw the snow on. We used this machine for one year. The machine picks up the snow with a rotary plough, and projects it to either side. Flanges direct the snow, and if the wind is high a great quantity of this snow is taken away or blown away with the wind. I have had figures very closely worked out on the work performed by this machine including the cost of operation; the cost of depreciation, and so forth. I have found that we have economized on our main thoroughfares; we have brought down the cost of removal of snow to less than one-third of what it had cost us in removing the same with sleighs and teams. And I may say our removal of snow with teams and sleighs is exceptionally low because in the first place we own our own horses, which are very strong, and powerful animals, and we pride ourselves on having only the best type of horses, weighing about 1700 pounds each, and our dumps are very close. Even then with the low cost of dumping we have cut down the cost to one-third. I believe Mr. Stadig, somewhere or other; has had some copies struck off my report to the Council on the matter, and that may supplement my remarks. I strongly recommend that type of machine for open districts. On the rural roads, possibly, you