

# MUNICIPAL DEPARTMENT

## TAR MACADAM.

The United States consul at Hamilton, Ont., has made the following report to his government on the use of tar macadam for pavements:

After years of experiment, this city is laying a pavement that for excellence, durability and cheapness is commended for examination to those in charge of similar work in the United States.

The possibility of making good roads at reasonable cost has been demonstrated, and tests extending over a number of years on business streets prove that tarred macadam makes not only a smooth and solid roadway, but one that can be kept in perfect repair at nominal expense.

The first cost in this city, where limestone is abundant and near at hand, is from 70 to 86 cents per square yard; and the engineer estimates the cost of repairing on heavy traffic streets at less than 1 cent per yard per year, while asphalt costs over 3 cents.

The addition of tar renders the roadway impervious to water, frost proof in winter, and prevents mud and dust in summer. It is easily repaired and does not require scraping, thus avoiding much wearing of the surface.

One block of tar macadam laid more than a year ago on a business street, where there is heavy teaming, shows no perceptible wear to-day. In residential streets, these pavements have been in use eight years without any repairs, and are still in good condition.

The success of this method of road making depends on care in its execution as in the case of all composite work of this character, and I submit for the information of those interested, the substance of an interview with the engineer of public works, Mr. E. G. Barrow, covering details of the process in use here.

Either stone or cement curbing should be placed before beginning the roadway. Cement costs here 50 cents per lineal foot, and is six inches thick, 20 inches in depth and laid on broken stone or gravel. Corners are rounded and an iron plate imbedded for protection. On business streets stone is preferable.

An essential in road-making is a hard and compact foundation, which can be secured only by the liberal use of heavy rollers (12 to 16 tons), while the base is being prepared.

The grade and camber should be so designed as to carry water off the surface quickly, and all earth above the sub-grade

should be removed so as to conform to its level—12 inches below the natural surface—which sub-grade should be thoroughly rolled and soft spots filled with stone.

The foundation must be compact, a solid bed of stones not less than six inches in thickness. If the soil is of a spongy nature, large flat stones are preferred. All interstices should be filled with small stone and gravel, well rolled in. Over this a coating of gravel should be rolled hard, and then a layer of tar-saturated stone, not exceeding 2 inches in diameter. These stones before being mixed with boiling tar (8 to 12 imperial gallons to the cubic yard), must be thoroughly dried, either in the summer sun, or by exposure on heated plates, until all moisture is expelled.

After thorough rolling another strata of tarred stone of the same dimensions and thickness is added, rolled, and covered with a layer of gravel and quarry chips, also mixed with tar, one inch in thickness, to be rolled down from three-fourths to one-half an inch. A top dressing of screenings is then added, and if a light color is desired, it may be obtained by adding cement.

Most of the stone used here is machine-crushed, but during the winter season is broken by hand labor and paid for per cord, to furnish employment in lieu of alms to the needy.

Limestone is used, because it is abundant, but granite or flint stone would absorb less tar and stand more pressure and wear.

## AN ASPHALT BREAKER.

A novel use for a pile-driver has been found in Brooklyn, where one of these appliances is being used for breaking up asphalt pavements. The pile-driver frame is about 15 feet high, and is mounted on a heavy cart, which also carries a little hoisting engine used to lift the ram. The latter weighs about 15 cwt., and has a chisel edge at the bottom about 14 inches long. At every few blows of the ram the cart is dragged along a foot or so, and after the cart has covered a sufficient length of pavement a gang is put on the work to complete by hand the breaking of the surface.

Architects and engineers will be interested in knowing that you are submitting a tender as the result of the advertisement for tenders placed in the CONTRACT RECORD. Mention the fact.

Water as a fuel is claimed as his invention by A. G. Ingalls, a graduate of McGill university, Montreal, Que. He discovered a process by which it may be used so as to effect an immense saving in the consumption of coal. In fact, it may be said that water practically is the fuel and coal is merely an auxiliary. The method is such that a thin spray of water is spread over a coal flame in such a way and with such auxiliaries that the heat of the flame is wonderfully augmented. The full details of the secret are not yet made public by the inventor. The discovery, it is alleged, can be applied to gas and other flames.

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