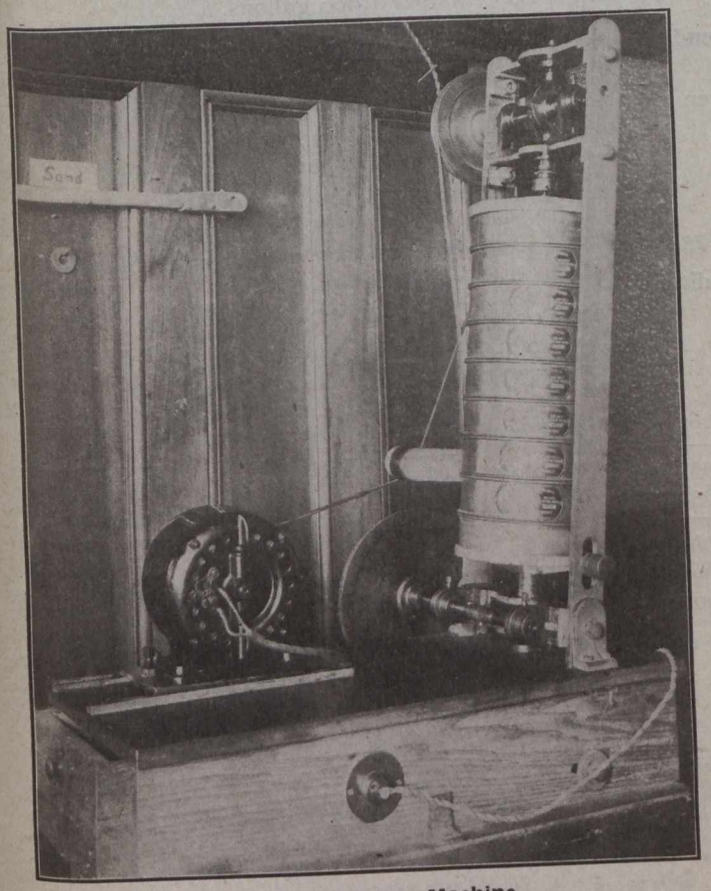
A NEW SAND SIEVING MACHINE.

THE accompanying illustration is of a recently developed sieving machine that is a part of the equipment in the Montreal paving laboratory of the Milton Hersey Company, where it is used for making the screen analyses of sands for asphalt pavement, concrete work and other similar tests. There are but two other machines like it, the original model at McGill University and one other that was specially built for a large mining and smelting company.

This machine is so constructed that it may be readily and accurately adjusted to the requirements of different classes of material. The inclination of the sieves may be set to suit the work in hand, the weight of the tap or blow may be governed, and the speed of the revolutions and number of blows may be changed by using different sized pulleys or a motor with different speed.



Bell Sand Sieving Machine.

The standard adjustment, however, is the result of much very careful experimenting on the part of Professor Bell, who sought and found the combination of movements that would with the least wear and tear and in the shortest period of time furnish results that would be sufficiently uniform for scientific purposes.

In operation the nest of sieves is forced down by a cam on the horizontal shaft above against a spring in the base of the machine. When the cam releases the sieves they are forced upward by the spring through a distance of about one-tenth of an inch, and in being brought to a sudden stop the grains of material on the sieve cloths are thrown upward in a manner tending to clear the apertures. The force of the spring-blow may be adjusted as desired, but an eighteen-pound pressure has been found to be satisfactory. The distance of the upward throw of the sieves can be also adjusted.

A satisfactory adjustment for general purposes was found to be four hundred taps per minute while the sieves were revolving at the rate of two and one-half full turns per minute. The rate of rotation of the sieves in conjunction with their inclination distributes the material over the screen cloths by causing the grains to reach the highest point and then slide down again. They journey in a more or less elliptical path. The best inclination for each class of material would slightly vary, as for coarse sand and hydraulic cement, for instance, but for practical purposes a satisfactory compromise is easily determined.

So far, no move has been made to manufacture this machine on a commercial basis. It was developed for use in connection with some very important investigations in which it was found that other machines did not give sufficiently accurate results. It is the invention of Mr. John W. Bell, M.Sc., assistant professor of mining engineering at McGill University, Montreal.

WATER SUPPLY OF MOOSE JAW, SASK.

Mr. Geo. D. Mackie, city commissioner of Moose Jaw, Sask., has recently issued a report dealing with the water supply of that city, from which the following abstract has been taken:—

In any waterworks, whether public or private, the yearly expenses which have to be provided for may be included under the following heads:

1. Interest on bonded debt.
2. Yearly payment into sinking fund.
3. Yearly payment into depreciation fund.
4. Yearly operating and maintenance expenses.

All of these payments, if the waterworks plant is to be run on a proper basis, must be met fully year by year out of the annual income.

The functions performed by a waterworks plant are:

1. To furnish water for private use.
2. To furnish water for public use, such as street sprinkling, sewer flushing, supply to public buildings, etc.
3. To furnish fire protection to property.

The sources of revenue of a waterworks department are derived from: 1st, the water rates, and 2nd, the funds received by general taxation. The former are paid by those who use the water, and the latter by assessment. The cost of furnishing water to private consumers should be paid by water rates on the basis of the quantity of water used. The cost of supplying water for public purposes should be paid by taxation according to the amount of water used, and the cost of fire protection should also be met by taxation, since the individual is benefited by reason of the protection afforded to property. As all water mains are generally laid of a size larger than is required for present purposes, the cost of providing for the future should also be met by taxation on the city as a whole.

From observations which have been made by waterworks engineers all over the continent, it has been found that from 30 to 50 per cent. of the total expense plus the cost of water used for public purposes, should be met by general taxation, and the remainder of the revenue obtained from the water sold.

In arriving at the rate which should be charged the property owner whose land abuts on a water main, the rate should be equitable in regard to the benefit which accrues to the property so situated. The city imposes a