Proportions for Concrete and Methods of Mixing.

Continued from page 15.

in one day. It is always best, however, to err on the safe side by having too large a machine than too small a one. Have one that is capable of mixing the day's work in three-quarters of a working day, allowing three minutes for mixing a batch and assuming a barrel of cement to contain 3.8 cubic feet, which equals 100 lbs. per cubic foot, and is now becoming quite general.

The greatest problem of operating a mixer is that of feeding and removing concrete. A mixer of the proper size will always mix faster than this can be accomplished. The simplest way of feeding, which is suitable for small jobs, is to build a wheelbarrow run to the feeding hopper and dump directly in. The hoppers which are attached to machines of some makes, which lie on the ground and are filled by wheelbarrows and then lifted by the power that drives the mixer and dump into the machine, are very convenient and economical ways for handling concrete on small jobs, and reduce the cost somewhat from the first method named. For large installations more economical methods should be obtained. Local conditions have such an influence upon the arrangement of plant that no general rule can be given.

On a job the writer had the past year where over 125 yards had to be handled every day and where there was no room for storage on the ground, local conditions determined the following method. The job was situated between two buildings. There was a canal between them in which the concrete was placed. On one side there was just room enough for a railroad track, on the other there was a width of 25 feet. To handle materials elevated bins holding about 50 tons of stone and 30 tons of sand were built high enough so that the aggregates were drawn through spouts into a measuring box, stone in front, sand behind, cement on top. This was pivoted to tilt and dump directly into mixer, which in turn was raised high enough for tram cars on rails to run underneath and receive the discharge, a four bag batch at a time. Two derricks were erected on the edge of the canal with booms long enough to reach across. Skips were set into the freight cars, filled by hand and swung by the derricks and dumped into the elevated bins. This method proved very satisfactory and economical. Fifteen freight cars were unloaded daily. After one was unloaded it was pulled ahead by block and tackle by the hoisting engine and replaced by another. The derricks commanded three cars at a time. By this means the cost of unloading cars and measuring and mixing was $.338 per cubic yard, and the cost of the installation, maintenance, dismantling and rental, which handled 3,140 yards, was $1,571.93, or $.461 per cubic yard.

In isolated places where crushers have to be erected we have erected elevated bins with bucket elevator and rotary screen high enough to draw materials into the measuring hopper and discharge directly into the mixer, and found the cost of mixing to be $.346 per cubic yard and the installation to vary from $1.98 per yard for a small volume of concrete to $.61 per yard for a large volume. Where conditions require cars to be unloaded on to the ground or where teams can dump close to the mixer a very convenient way is to set a measuring hopper flush with the surface of the ground, dig a hole into which the mixer is set so that the hopper dumps directly into it and set the elevator which handles the material into a building low enough to receive the discharge from the mixer. This set-up is inconvennent if the concrete is not to be lifted to a considerable height, as in building work. For feeding a mixer in this way the two wheelbarrows, holding 6 cubic feet, will be found very convenient and economical to use, because they handle a considerable volume at one time.

The above methods, though briefly described, may throw some light upon handling concrete, the economy of which depends upon handling it in large masses without the requirement of much labor. It is possible, however, as the writer has learned by experience, to spend so much in the installation of an economical mechanical plant that the incidental costs of installation offset the saving in cost of the mixing of a comparatively labor cost of operating. Therefore trained judgment is always the best of a very simple set-up, with higher small volume of concrete over the cost guide in the long run.

Rules for Measurements.

The "National Builder" gives the following as a basis for making measurements in certain cases:

A pint of water weighs nearly 1 pound, and is equal to about 27 cubic inches, or a square box 3 inches long, 3 inches wide, and 3 inches deep.

A quart of water weights nearly 2 pounds, and is equal to a square box of about 4 by 4 inches, and 3 1-2 inches deep.

A gallon of water weighs from 8 to 10 pounds, according to the size of the gallon, and is equal to a box 6 x 6 inches square, and 6, 7 or 7 1-2 inches deep.

A cubic foot of water weighs nearly 64 pounds (more correctly 62 1-2 pounds), and contains from 7 to 8 gallons, according to the kind of gallons used.

A peck is equal to a box 8 x 8 inches square and 8 inches deep.

A bushel almost fills a box 12 by 12 inches square and 24 inches deep, or 2 cubic feet.

A barrel of water almost fills a box 2 by 2 feet squre and 1 1-2 feet deep, or 6 cubic feet.

Petroleum barrels contain 40 gallons, or nearly 5 cubic feet.

Dominion Wire Rope Company Hold Annual Meeting.

The annual meeting of the shareholders of the Dominion Wire Rope Company, Limited, was held at the head office, Imperial Bank Chambers, Montreal, on Thursday last, when the following directors were re-elected for the ensuing year: F. W. Fairman, F. H. Hopkins, C. W. Colby, Geo. P. Butters, and E. E. Fairman.

At the meeting of the directors, the following officers were re-elected for the ensuing year: F. W. Fairman, president; F. H. Hopkins, vice-president and managing director, and J. J. Rosevear, secretary-treasurer