

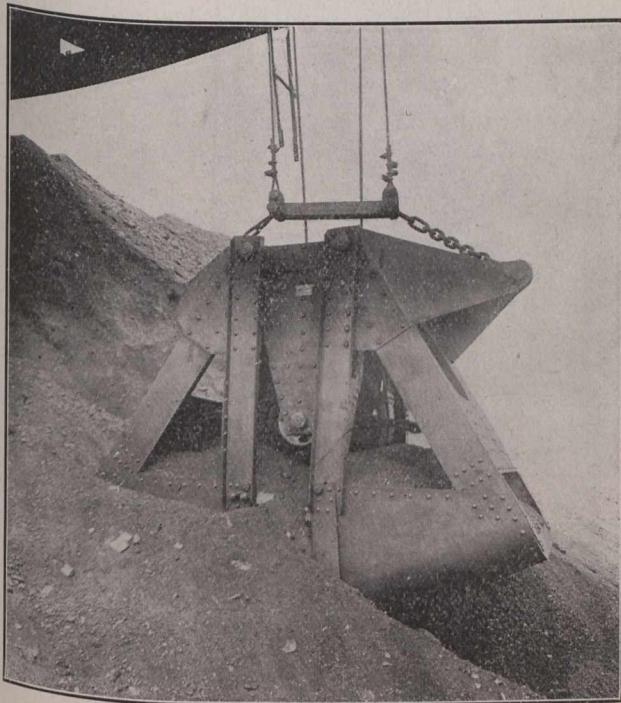
Mr. Wason calls attention to the wide variety in the unit costs, due in part to the different classes of buildings. He also points out the desirability of more careful and accurate methods of estimate, such as are being followed by experienced contractors.

AUDRESEN-EVANS GRAB BUCKETS.

Excavating.

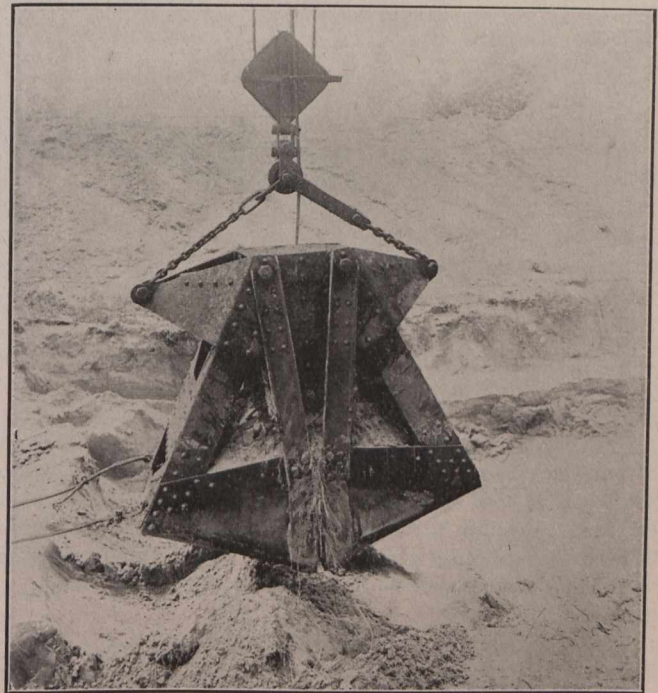
The accompanying illustrations give a quite clear idea of the general features of construction of a new type of patented excavating bucket that the Audresen-Evans Company, Chicago, Ill., have developed with special reference to contractors use.

Because of the large differential drum used for closing it might be confused by some with the ordinary clam-shells which have not sufficient digging power to dig many kinds of material from their original bed. This new grab differs radically from all others that have become familiar to every contractor who has had to do with the excavation or handling of bulk materials. Unlike the clam-shells the differ-



the scoops by means of the four two-part closing chains seen in the illustrations.

The opening of this grab is done in the same manner as with a clam-shell by simply releasing the brake on the closing line drum and holding the opening line, but unlike the clam-shell, all of the weight of the grab is suspended from the opening chains and therefore effective in securing



quick action and insuring its opening to the limit permitted by the length of the closing chains which serve also as limit stops.

The digging of fine compacted sand from under water has heretofore proven an especially difficult task in many

ential drum is not fastened to an extension of the scoops but is carried by a separate frame. This central frame carries at its upper corners bearings for the hinge shafts upon which the scoops swing, a shaft for each scoop and these separated by a considerable distance so that the already wide opening is greatly increased. In addition to securing an unusually wide opening, over 50 per cent. greater than clam-shells, this separation of the pivots gives a particularly favorable cutting motion, the securing of which designers of other types of excavating grabs have resorted to compound motions obtained by the use of separate linkages pivoted to both the front and rear corners of the scoops or other equivalent mechanism. In the grab shown this result is obtained by a simple swinging motion of a scoop rigidly fixed to one pivot located some distance from the center line of the grab. It is evident that this construction permits of unusually rigid bracing of the scoops and perfect and continued alignment.

A wide opening is desirable in practically all classes of work for the wider the area covered the more certain is the