



FIG. 1. TYPE OF TROUGH SUITABLE FOR WASHING SHINGLE.

paths permit the use of large shingle if their thickness is greater than about 2 in., but in general large material is not to be recommended. Where pit or river-bed shingle is used it will generally be necessary to screen the material. This may well be done at the pit or other place where the shingle is obtained, and the type of screen shown in Figs. 2 and 3 will be found very useful. It may be propped up on the tail-board of a dray so that the material passing through the meshes of the screen will fall into the dray and the coarse stones back to the ground. Carting of unneeded material is thereby avoided. The wire for such a screen is obtainable already prepared at wireworking establishments.

*Cement.*—This must be of good quality, and must not have suffered exposure to damp. Since it is often difficult to store any quantity under the driest of conditions, it is advisable to get only as much as may be used up in a few months.

*Water.*—It is necessary that water should be free from acid, alkali, clay, or vegetable matter.

#### PROPORTIONS OF MATERIALS.

A weaker mixture than 1-6—one part of cement to six of aggregate—should not be used, except where the work is not likely to be subjected to severe strain or wear, such as in the case of bulky walls, where 1-8 can be safely employed. When washed shingle or crushed stone is used, clean, *coarse* sand in the proportion of about one of sand to two of stone must be added. This will not increase the space occupied by the stone very much, as it must be borne in mind that the sand goes to fill up the spaces among the coarse material.

*Measuring of Quantities.*—On the farm, measurement of quantities is most conveniently done with a kerosene or petrol tin, which holds about two-thirds of 1 cubic foot of material. A bag of cement contains  $1\frac{1}{3}$  cub. ft., and therefore about two kerosene-tinfuls. The volume of the work should be measured; this will be the measure of the quantity of aggregate required (the addition of the cement to the shingle does not increase the total bulk, as the cement goes to fill up the finer spaces in the material). Suppose the volume of concrete required is 4 cub. ft.: since a kerosene-tin holds about two-thirds of 1 cub. ft., six tins of aggregate will be required. (In practice it is generally found