

near it as possible, consistent with danger of premature launching. When the crib was built to the required height, the rear ends of the ways were raised by using planks as levers, and the crib slid easily into the water. As soon as the crib was afloat the ways dropped back into approximate position. All that was necessary was to get the "butter-boards" from beneath the crib launched and place them. The writer saw a number of cribs launched from these ways, and the operation of launching and getting ready for the next crib took but a few minutes in each case, and no mishap occurred at any time.

Fig. 2 shows the general plans and enlarged section of important details of a type of ways for heavier cribs than the one just described. This type would do equally well for small cribs, but would cost more to build, and this first cost might not be warranted.

The longitudinal in this case would be, say, 12 in. by 12., or, in some cases, 15 in. by 15 in. would be better. This longitudinal would, of course, be made solid and level throughout. At the required intervals along this longitudinal, where the ways would be placed, the longitudinal was gained down to 12 in. or 15 in. round, depending on the original size of the timber. Each way was made of two 12 in. by 12 in. timbers, each with a semicircular notch about the centre. These two timbers were bolted together, one above and one below the longitudinal as shown, allowing the gain in the longitudinal to work freely in the notches in the ways.

The crib was then built directly on the ways and the ways greased at the time of launching, or "butter-boards" could have been used similar to the ones previously described. The author prefers the use of the "butter-boards." After the launching the ways would drop back into correct position for the next crib.

Occasionally, when cribs are to be built of square timber, the timber is carried to the site by boat and unloaded into the water and boomed until used. In such cases the timbers are taken from the water as wanted by a derrick or by skids and ropes, this last method being somewhat expensive. The derrick must either be of the floating type or fixed, with the usual guys. The latter type has

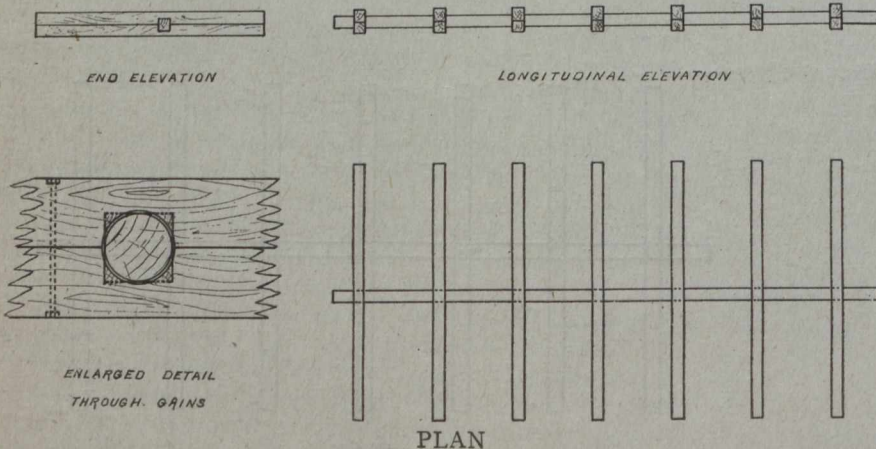


Fig. 2.—Ways for larger cribs.

the disadvantage of being fixed, and materials, etc., must be brought to it. The work sometimes will not warrant a large steam-operated floating derrick.

Fig 3 shows the plan and elevation of a small hand-operated floating derrick, easily built, cheap in construction and operation, costing nothing when not in use, and easily moved about the work as required.

A stout raft, of size according to the sticks to be lifted, is built of 12 in. by 12 in., or any suitable sized material, and decked where necessary. Merely spiking the decking to the timbers would construct the raft.

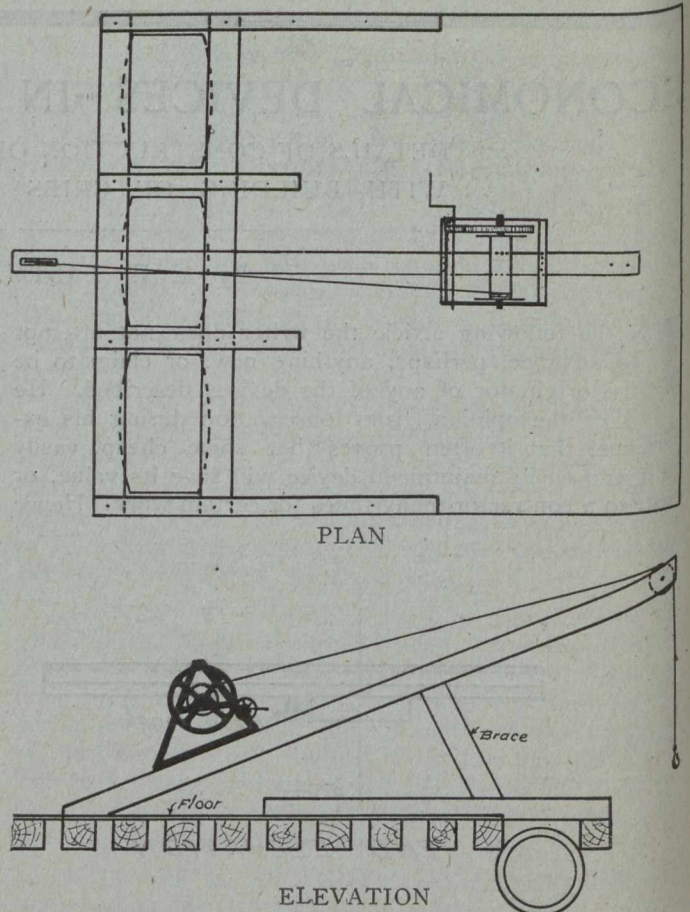


Fig. 3.—Convenient Hand Derrick.

Near one end a space of about a foot and a half is left between the timbers undecked, and in this space are placed a number of wooden oil or other barrels, held wholly or partially under water by the timbers to give additional buoyancy to the raft at that end. Care must be taken that these barrels are kept water-tight or the whole advantage is lost.

A sloping beam or boom is then fastened to the raft, the outer end extending over and beyond the barrels, and sufficiently high to lift a stick to the crib being built. The other end is securely bolted to the raft. Supports are placed under where necessary, also guys to the raft corners if required.

An ordinary hand winch is mounted near the inner end of the boom, and a wire cable run from it through a sheave in the outer end of the boom and terminating in a hook, to which may be attached the timber hooks.

This derrick would prove useful either where cribs are started on ways and launched, or where cribs are built entirely afloat.

Quite frequently tie rods or bolts of up to three inches in diameter are required to be driven in cribwork or docks at about water line. Holes for these are bored, but the contractor is not allowed to make these holes much larger