

## DOUBLE TIE-UP LOOM

Here is the list of parts and materials needed for the construction of the loom:

1. About 60 running feet of 2"x3" lumber dressed on all sides. What kind of wood to use, depends very much on local conditions. If you can get a really dry, seasoned (not kiln-dried), straight grained hardwood, it will be the best choice. If not kiln-dried soft pine will be better, than doubtful hardwood. Pine does not warp easily unless it is knotty.

2. About 50 feet of 1½"x2" in very light wood for treadles.

3. About 75 feet of ½"x1½" in light wood for heddle-frames.

4. About 15 feet of 2"x2" hardwood for the batten.

5. About 75' of 3/8"x1½" hardwood for the lamms.

The batten, lamms and levers must be made of hardwood. One should take particular care in selecting the best wood available for the lamms. They are rather thin and must remain straight.

6. 2 pieces of round wood about 4" in diameter and 45" long for the warp and cloth beams. There are weaving loom manufacturers who sell ready made beams at a reasonable price.

7. 3 dz of 5/16 carriage bolts, most of them 2½" long.

8. 42 pulley wheels, 2" outside diameter, ½" hole, 3/8" thick.

9. 10 feet of round steel rod, ½" diameter.

10. 30 feet of flat steel 3/8"x3/32" or thereabout.

11. 22 dz small screw-eyes.

12. 10 dz small snap locks.

13. Up to 300 feet tie-up cord.

14. Assorted wood screws etc.

These are of course approximate quantities. The exact amount, particularly of lumber can be figured out only when detailed plans of the loom are made.

To arrive at definite dimensions we start with enlarging the drawing in the last issue of M.W. (fig.2, page 12) about 3.4 times on a piece of graph paper with 10 or better 12 divisions per inch. In the first case 20 divisions will be equal to one foot, in the second - two divisions = one inch. Then we correct the dimensions according to our own requirements. For instance the height of the breast beam is of 30" but it may be too high for many weavers and should be changed accordingly. If we are not too sure we can compare the dimensions with other looms. Particularly important are: the distance from the breast beam to the first heddle-frame, the size and position of the batten, the length and distribution of the treadles, and finally the height of the bench. In our case the bench must be longer than the width of the loom.

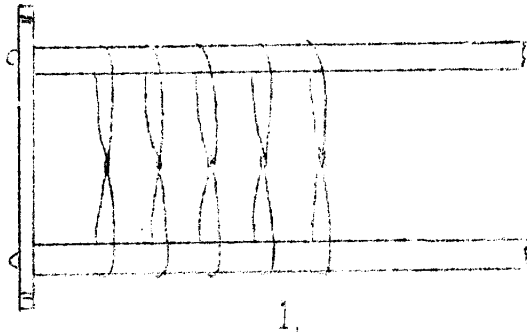
At this stage we must decide upon the number of heddle-frames (better not more than 10), and the width of the loom, or rather of the widest fabric woven. Unless we have very good wood for the lamms, it is better not to attempt a larger loom than 36 inches.

In a similar way we should make a drawing of the front of the loom, on the same scale. From both these drawings we get the exact size of any part of the loom.

We measure first all parts of the loom frame, i.e. all the parts which do not move. Cut the lumber accordingly, drill holes for bolts, etc. Then sandpaper the lumber on all sides, and rub it with linseed oil. This is because other-wise the wood gets dirty during

the assembling, and cannot be cleaned easily unless it is protected by oil. The loom frame should be assembled before other parts of the loom are ready, first to check that there are no mistakes in the frame parts and second to be able to fit into it all moving parts. Of course for the final assembling the frame must be at least partly dismantled.

Now we can proceed with other parts. We start with frames. The total height of the heddle-frames should be not less than 14", and the heddles (string heddles of course) are strung directly on the frame, to avoid any loss of space inside of the frame. The two wooden shafts are connected with flat steel sides (fig.1). One of these sides



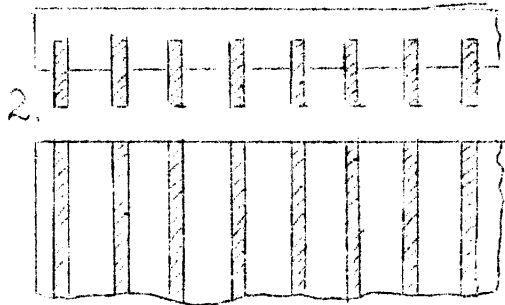
must be attached to the shafts on small bolts so as to be easily removed. The frames are hung on these steel sides, and the sinking lamms are attached to the lower ends of the sides also.

The levers oscillating on the central shaft (fig.1, page 12, M.W.11) are about 14" long. They have a 1/2" hole in the center through which passes a 1/2" steel shaft resting on two trans-

versal beams. The same beams support at each end similar shafts for pulley wheels. Both pulleys and levers are spaced on the shaft with 1/2" washers.

The lamms are slightly longer than the heddle-frames. There are 2 of them for each frame. One hangs directly under the frame, the other right beside it from the cords going around the pulleys to the levers. They may hang quite freely, but it may be better, to prevent their tangling, or striking the loom frame to provide some sort of guiding device (fig.2) fixed to the sides of the loom. The thin hardwood guides

can be easily cut on a power saw.



The treadles have a 1/2" hole on one end, and they are all attached to the loom frame by a 1/2" steel shaft passing through these holes, and fixed to the loom at both ends and in the center. The ties for the lower tie-up pass through small vertical holes in the treadles. They have snap locks at the upper end, and an adjustable knot at the lower - below the treadle.

The lamms have rows of screw-eyes directly above the treadles. The tie-up is made by attaching the snap locks on the ties either to the rising lamm or to the sinking one.

The cloth and warp beams have both friction brakes. We shall describe those in the coming issue of M.W. To release the warp beam we use a hand lever on the left hand side of the loom, and to turn the cloth beam - a similar lever on the right hand side.

The final assembling starts with both beams. Then the frames are hung, the lamms attached to the frames and levers. The longest part of it is the adjustment of some 60 cords in the upper tie-up and 120 in the lower. However this adjustment is made only once, and does not need to be repeated unless the cords stretch.