

## DOUBLE TIE-UP LOOM

### New ideas in loom construction.

To be quite frank, the ideas we are going to suggest are not new at all. Some of them are centuries old. But for some reason or other they have never been (as far as we know) all used in one loom.

The loom we are trying to design is not going to be a universal one, but as close to perfection as we can make it. Its purpose is to satisfy an advanced amateur weaver, who would like to experiment with a variety of weaves, but who occasionally will have to produce a larger quantity of a fabric. We want the loom to be comfortable, and light in operation, easy to set up and to work with.

To satisfy these requirements we decided on the following characteristics:

1. Double tie-up, so as to have good sheds with all possible tie-ups. But we do not want to have adjustable ties.
2. Floating lamms - so that the whole space under the loom can be taken by treadles, and that all treadles will require the same pressure to open a shed.
3. Friction brakes on both warp- and clothbeams.
4. The cloth beam moved to the back of the loom, so that there will be more room in the front, both for making the tie-up and for weaving.
5. The warp beam placed on top of the loom.
6. Built-in raddle.
7. Very light heddle-frames.

Each of these items presents a problem or problems and we shall take them up one after another.

1. Double tie-up means two sets of lamms. In ordinary looms they are made in two sizes: short for sinking shed, and long for rising shed, and they are placed in two rows one above another. Then the ties must be of different length too. We shall place all lamms side by side, so that all ties will be of the same length, and the only adjustment takes place when the loom is assembled. But when the lamms are side by side, they require more space in depth of the loom instead of height. This is why our loom cannot have too many frames. Ten or twelve will be about the limit. Otherwise the space taken by the lamms (which cannot be too thin) would be too large.

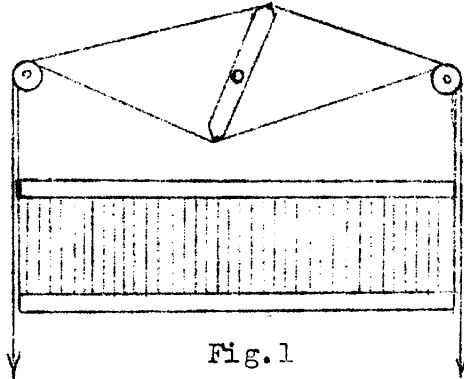
2. The loom we design is going to be built by an amateur, so it cannot contain complicated parts in cast iron. This is why we have chosen a rather involved method of moving the frames. This method does not require any special parts - everything can be bought in a hardware store or made at home.

The lamms "float" i.e. they are not hinged, but keep always a horizontal position, regardless of where they are attached to a treadle. The arrangement of levers and pulbys which make them do it is shown in fig.1. It keeps level not only the lamms but the heddle-frames as well.

3. One friction brake is quite enough to regulate the tension of the warp, but since a brake of this kind is cheaper than a ratchet wheel, we shall use this kind of brake on both beams.

4. The advantage of having the cloth beam at the back is three-fold. First the weaver can sit closer to the loom without hitting the cloth beam with his knees when working. Second, the tying-up is much easier. Third, even a very bulky fabric can be woven in large quantities, since there is plenty of room around the beam.

However moving the beam to the back is possible only when there is enough space between the frames and the lamms. The treadles could be tied directly to the frames (for the sinking shed) if not for this space needed by the cloth.

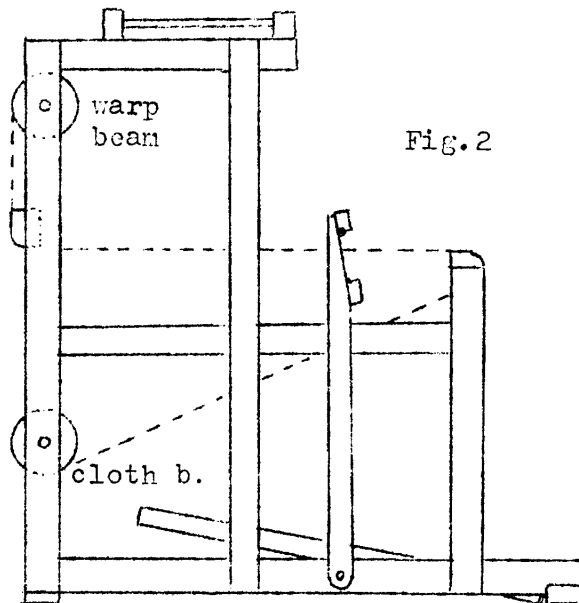


5. The warp beam then is in the back of the loom, but above the warp instead of being below it. This arrangement does not present any particular advantage except that it leaves room for the cloth beam.

6. The raddle is built into the slabstock, which by the way is mounted upside-down. There is no need to remove the raddle at the end of a warp, because the distance between the last frame and the back of the loom is much shorter than usual. The lease rods are removed after threading the loom.

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7. It is very important to have all the moving parts of the loom as light as possible. Consequently we decided upon cord heddles, and soft-wood frames with hardly any hardware in them.



For the same reason we make the treadles of very light wood (white cedar in our case).

Fig. 2 shows the side view of the loom frame, with the batten, treadles, and both beams in place but without heddle frames.

In the coming issue of Master Weaver we shall give more information about the making of parts and assembling them. However there will be enough left to the ingenuity of the constructor to make the work interesting.

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