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# SHORTCUTS.

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## WARPING & WARPING EQUIPMENT

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For the time being we have finished with looms. Put not for good. We simply had to stop somewhere. Later on we shall return to this subject as the opportunity and the need arises. We shall describe in detail the construction and operation of Shed-Regulators, Pattern Harnesses, additional Warp Beams, and other optional parts of a loom.

Now we shall turn to the warping equipment. We must simply disregard many interesting methods of warping of historical value, even those which are time-honoured and "universal" as long as they are not practical. In one way or another they do not fulfil the conditions: either they are too bulky, or too slow, or good only for extremely long warps, or only for bed-ridden patients. If we had time and space we should like very much to write a satire about the vertical warping reel, which combines all possible drawbacks of all warping methods, yet until quite recently has been used extensively by weavers who should know better. But we shall refrain.

There are five methods of warping which are justifiable in our modern conditions:

1. Warping in a straight line, or Hindu method.
2. Warping frame.
3. Horizontal warping reel.
4. Horizontal warping mill.
5. Sectional warping.

The first does not require any equipment to speak of. The second is so cheap and easy to make, that every weaver should have one. Warping reel is only for those who cannot afford a warping mill; it is in all respects inferior to the latter. Sectional warping is used for very long warps. Every weaver should have the equipment for two or three of them, but never for more than that. For instance: a frame, and a warping reel; a frame, and a warping mill; a frame, and a sectional beam; or finally: a frame, a warping mill, and a sectional beam.

### 1. Hindu warping.

This method is used only when the warp is made of such a heavy yarn, that normal equipment could not handle it. For instance: hemp, sisal, and jute No.1, i.e. 300 yds/lb, or rug filler used as warp. Place mats, door mats, rugs, runners.

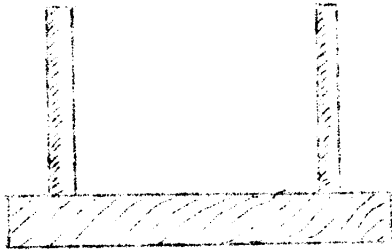


Fig.1

The only piece of equipment is a block of wood about 2 by 2 by 12 inches, with two pegs 1" in diameter and 10" long inserted in this block 8 or 9 inches apart (fig.1). This is clamped to a heavy table, bench, door step or bannisters - anything at all. The whole operation is best performed outdoors. At a distance equal to the length of the warp from the block a stick is driven in the ground.

We make the warp by crossing it between the pegs in the block and then walking to the stick in the ground, around it, and back to the block. It takes a bit of walking particularly with long warps.

When the warp is finished it is left lying on the ground, and beamed through a door or a window. It could be done inside but only in a very spacious house or apartment.

### 2. Warping frame.

A warping frame properly constructed and properly used gives a comparatively short but nearly perfect warp, because all warp ends are of the same length and tension, and parallel to each other, that is neither crossed or piled one on top of another.

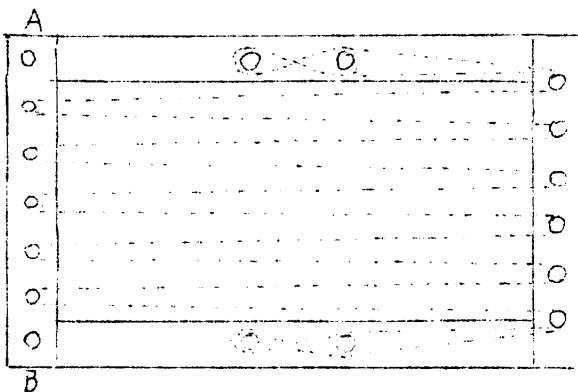


Fig.2

A good frame should be as large as possible, yet not so large that the weaver has to walk when warping, and to bend down or to stretch up to reach the upper or the lower pegs. Fig.2 shows a perfect warping frame. It is 48" long (between pegs) and 36" high with 13 pegs on the uprights, and 4 more for the two crosses. The longest

warp is about 17 yards. The pegs are 8 inches long just in case, but their whole length will be used only exceptionally. The frame is made of hardwood 2" x 3", and the pegs also of hardwood are 1 inch in diameter. The distance between the pegs is 6" - enough for the hand to pass between the pegs without touching them, which is important. The frame and the pegs should be very smooth, finished in linseed oil, shellac, or varnish, but only rubbed with the finishing solution, not painted.

Such a warping frame is an invaluable piece of our equipment. Warps of any length up to 17 yds can be made in a reasonable time. A short, sample warp can be made in no time at all. The quality of the warp will be much higher than of one made on a warping reel, mill, or on a sectional beam. The frame should be fixed to the wall (not just hung) with long screws, and the best place is in front of the loom; the exact position is not important.

Warping frame can be used for very heavy warps as well as for very fine ones, provided that the finish is very smooth.

In warping one must remember that no tension should be used. The yarn coming from one or two tubes, cones, or bobbins (or more if a paddle is used) should run without any friction between the thumb, and the index. Leather glove can be used to protect both the skin and the yarn, particularly for fast warping with fine yarns. A new "portee" of the yarn must go directly on the pegs, and not on top of the already made warp. The warp should be pushed very hard towards the frame from time to time. It looks as if the latter operation would disarrange the warp by "piling it up", but this is not so. It would be a mistake to spread the warp evenly along the pegs.

We have just mentioned the "paddle". It can be used with any warp and it speeds up the warping considerably. But to warp from 8 or more tubes we must have the yarn bought in rather large quantities. Winding the yarn first on smaller bobbins, and then warping with a paddle is pointless, because what we gain in time during warping is lost during winding. Thus this method is suitable for large projects or for commercial weaving only. The operation of a paddle is tricky (pegs A and B in the warping frame help then) and difficult to describe. We shall therefore come back to this subject later on.

When the warp is finished it should not be chained, unless

it is not going to be used right away, but then it is better to leave it on the frame. Chaining tangles the warp, and is not necessary.

Spreading and beaming will be described separately.

### 3. Horizontal Warping Reel.

This is in principle exactly the same as the common vertical reel, with the only difference that it turns around a horizontal axis instead of a vertical one. For that matter many types of vertical reels can be converted to horizontal by simply tipping them over. Others require an additional support for what was the top of the reel.

The advantages of a horizontal reel compared with a vertical one are few but they are extremely important:

1. No tension is required during warping (in vertical type there must be quite a bit of tension to keep the warp from sliding down). This means that we can safely use such yarns as fine linen, very fine silk etc.

2. There is no danger of the reel getting twisted by the tension of warp, and thus spoiling its uniformity.

3. After the warping is finished there is no need to chain the warp because it has no tendency to slide off the reel when one end is released. The warp can be beamed directly from the reel.

4. Any horizontal warping reel can be supplied with a brake, which makes it possible to beam without a helper, directly from the reel, and at a much higher speed.

Warping on a horizontal reel is much faster than on a frame, and the warps may be much longer - up to 30 yds. Theoretically they could be of any length, but the longer the warp, the larger the reel, and there must be a limit somewhere.

It is advisable but not absolutely necessary to have a row of pegs or nails in each side of the reel. Four-inch nails with cut off heads can be used, First we must drill holes about the same diameter as the nail and about  $\frac{1}{2}$ " apart. This means at least 200 holes or more. The nails must fit the holes tight, but not too tight. When we start a new warp all nails are pulled out. Then we take a single yarn and wind it around the reel in the same manner as the warp to follow. This yarn is called a Guide. Then we fit the nails: one in each hole immediately to the right of the Guide all along the warp. Depending on the type of reel we shall need about 1 nail per two or three feet

of the length of warp.

When warping, we follow the Guide; the warp comes to the left of each nail. The next "portee" comes to the left of the first one, and so on until all space between nails is used up. Then we push the warp done so far to the right against the nails. We push very hard, exactly as in case of a warping frame. Then we start again in the same way. A new portee should be always wound directly on the reel, and not on top of already made warp.

If the warp is short, we can make only one cross at one end of the warp. If it is a long one, two crosses will be better. We shall come back to this point when speaking about beaming.

Here as in the case of warping frame we can use a paddle.

Unless the ends of nails were rounded up and polished with emery cloth, it is safer to remove all nails before beaming.

This method gives a better warp because all warp ends are of the same length. It cannot be used with a vertical reel.

In the next instalment we shall describe the warping mill, and the sectional warping.

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S M A L L

P A T T E R N S

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Large and complicated patterns are not fashionable any more. And even if they were, there is quite an extensive literature on this subject with Atwater's "Shuttlecraft" always at the head of the list.

But what happens when we want small and simple patterns widely spaced on some sort of a background (not necessarily tabby)? We have Bronson and Swivel, and that is about all. And yet several traditional weaves can be easily adapted to our purpose.

We shall start with Overshot. It has four blocks of pattern, and we can easily sacrifice one or two of them for the ground. In the following draft the ground is threaded as plain twill, and the pattern on blocks: 23, and 14. These blocks should have long floats: as long as possible to get better contrast between the ground