

SWATCH PAGE

PETER COLLINGWOOD'S SHAFT SWITCHING TECHNIQUE, PART I

BY Paul O'Connor

In these two articles I would like to explain what Collingwood's shaft or harness switching technique is, to describe a fairly simple and inexpensive adaption of a jack loom to achieve shaft switching, and to analyze two of collingwood's rugs as examples of the technique.

A. What shaft switching is all about

This description is taken directly from Collingwood's book, *The Techniques of Rug Weaving*, pages 308-316, under the title of weft faced rugs with two-tie unit drafts and three-end draft. In this weave, harnesses 1 and 2 are used to tie the weaving down and harnesses 3 and 4 are the pattern harnesses. Two blocks of weaving, A and B, are possible with block A controlled by harness 3 and block B controlled by harness 4. The draft, tieup, and drawdown are given in figure 1 (the first drawdown is in expanded form and the second shows what happens when the weft is packed down). From a design point of view, the weaver is severely limited in that only blocks A and B are available.

BUT! Suppose that there were some way to "rethread" harnesses 3 and 4 in the middle of the weaving sequence. then the pattern blocks could be changed at will, greatly increasing the design possibilities. This is what Collingwood has accomplished with the shaft switching technique. The warp threads are threaded as usual through heddles on harnesses 1 and 2, but the warp thread for either harness 3 or 4 is carried as a floating warp between two empty heddles, one heddle on harness 3 and another on harness 4. Two doups (or loops) are threaded through the two empty heddles and circle the floating warp. Now if the doup on harness 3 is tightened and the doup on harness 4 is loosened, the warp thread weaves as part of block A. Loosen the doup on harness 3 and tighten the doup on harness 4: now the floating warp weaves as part of block B. simple? Look at figure 2 to see what is meant.

B. An inexpensive method to shift shafts with a jack loom

Collingwood describes a way to modify a loom with a sinking shed to achieve shaft switching. In the Winter '78 of *Shuttle Spindle and Dyepot*, Sadye Wilson presents a way to accomplish shaft switching with a jack or rising shed loom. In this article I want to show a less complicated (and less efficient) way to do the same thing. In a sense one is constructing a draw loom.

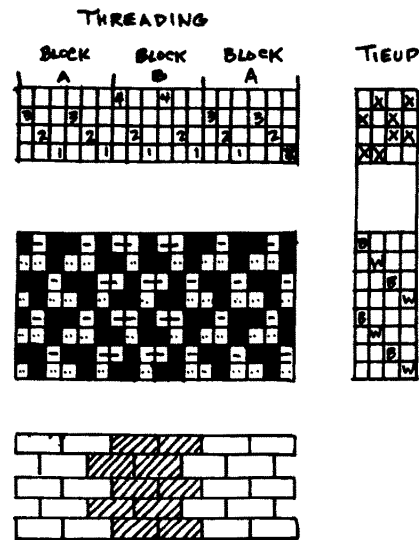


FIG. 1. THREADING, TIEUP AND DRAWDOWN. WEFT FACED

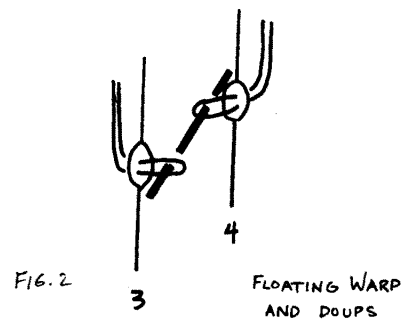
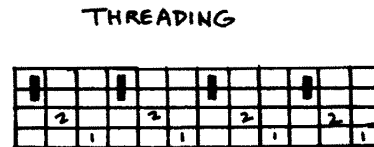


FIG. 2. FLOATING WARP AND DOUPS



WARP FLATS BETWEEN HEDDLES ON HARNESSES 3 AND 4

Figure 3 shows how I modified my loom for shaft switching. One needs a bridge that is high enough so that the harnesses can rise to their full height. Beyond that, all that is needed is lots of cuphooks and nylon seine twine for the doups. Cotton seine twine would probably wear away too quickly. The doups are made carefully of the same length, with two knots in each. The lower knot is hooked over the lower cuphook when you want the floating warp thread to weave with that harness; the upper knot is always hooked over the upper cuphook as a means of keeping all the doups in order. **Remember:** the doups on harnesses 3 and 4 always work in pairs. When one is tight, the other is loose.

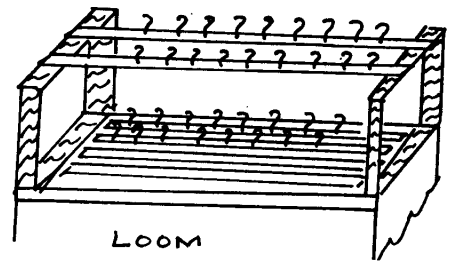


FIG. 3

BRIDGE WITH CUP HOOKS

I am sure that there are more elegant ways to accomplish shaft switching. But this method is inexpensive and works well. I number each cuphook so that it is easy to make the changes the design calls for. It takes only a minute or two to release or tighten the various doups because usually only a small number need to be changed for each design change.

Practical hints: Collingwood suggests a warp at 4 ends per inch, with two ply rug wool used triple for the weft. This means that each block unit is three quarters of an inch in width and also means that the cuphooks are spaced three quarters of an inch apart. It would be possible to weave a rug at 6 ends per inch with the cuphooks spaced a half an inch apart. Beyond that, the cuphooks would get too crowded. This warp setting and weft size give a weft faced rug. When block A weaves on the top of the rug, block B weaves on the bottom, so one obtains a rug with the positive of the design on one side and the negative of the design on the other side.

C. Some examples of the shaft switching technique

The photographs show rugs that I have woven recently making use of the shaft switching technique. In the first 39 blocks are used in the design and for the second rug 45 blocks are required.

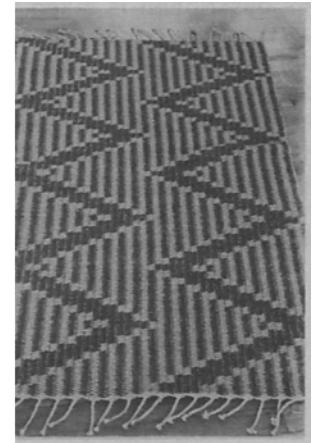
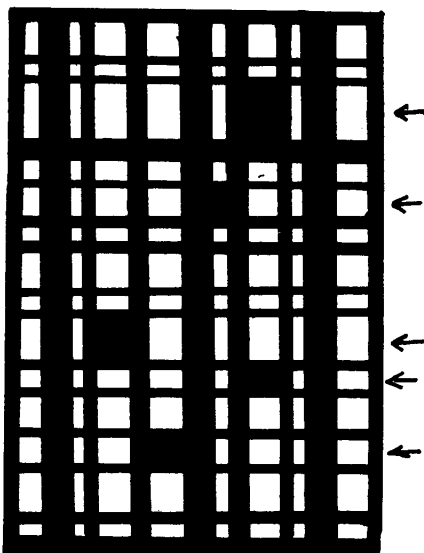


Plate 98 in Collingwood's book shows a rug where the technique was used. Figure 4 is a drawing that gives (approximately) the design of that rug. The arrows show the places where shaft switching has been used to change a light colored section to a dark color. Of course the opposite happens on the other side of the rug.



APPROXIMATE DIAGRAM OF COLLINGWOOD RUG (PLATE 98) SHOWING POINTS OF SHAFT SWITCHING

