

# SWATCH PAGE

## DOUBLE WEAVES WITH 4, 6, and 8 HARNESSSES

There are a number of ways to weave double cloth or backed cloth. This is a very large subject, probably of more interest to commercial weavers than to handweavers. Sometimes a backing is desired to improve the hand or the warmth of a fabric. Often less expensive yarns can be used for the backing although it may be necessary to use two warp beams to prevent tension problems from arising. Layers can be stitched together with either warp or weft threads. In this article only warp stitching will be discussed. This is probably better for the handweaver because the change in warp tension when the fabric is taken from the loom provides better coverage of the stitching points than with weft stitching.

In this article I will discuss two examples of how to stitch two layers together. The first is taken from Mary Ellen Laughlin's book 'More Than Four' where each side of the double cloth will be in four harness twill. The second is based on Elsa Regensteiner's discussion of patterns in double weave. pp. 111-113 in *The Art of Weaving*.

Eight harnesses are required to weave 4-harness twill pattern in the two layers of a double woven fabric. The threading will be a divided twill draft, with two threads per dent of the reed. The threading draft is given in figure 1, with X's representing warp threads in the top layer and O's the warp threads in the lower layer. Now follow these steps.

1. Draft each layer separately (warp draft).
2. Expand to an 8 x 8 array and draft the two layers at the same time.

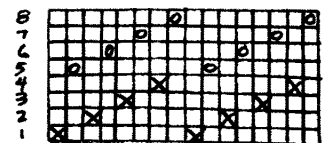
We still have two separate layers and our next step will tie them together. We want the tiepoints to be as unnoticeable as possible, particularly if the colors of the two layers are quite different. In this example, warp threads from the lower layer will be used to tie the layers together. The tiepoints should occur where the top layer warp threads are floating on the surface. Then when the fabric is taken from the loom, the top layer warp floats tend to spread together, hiding the tiepoints. Now go back to the 8 x 8 array.

3. Draft tiepoints between top layer warp floats. (Marked with black circles).

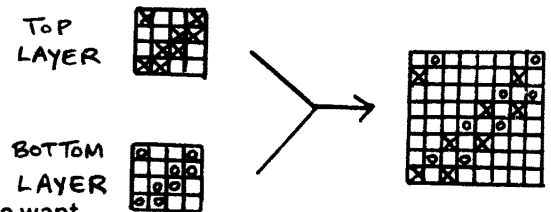
The tieup follows immediately from the final 8 x 8 array where the list of raised harnesses is given on the right.

South American ruanas are often woven this way, with a rather close warp sett to give a warp faced surface that is brushed. See page 115 in Regensteiner's book for a picture of such a ruana, along with the tieup.

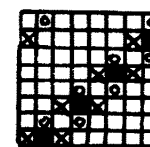
THREADING



WARP DRAWDOWN



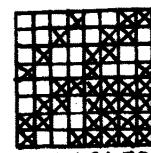
WARP DRAWDOWN WITH TIEPOINTS



HARNESSSES TO BE RAISED

- 58 + (1234)
- 184
- 78 + (1234)
- 374
- 67 + (1234)
- 263
- 56 + (1234)
- 152

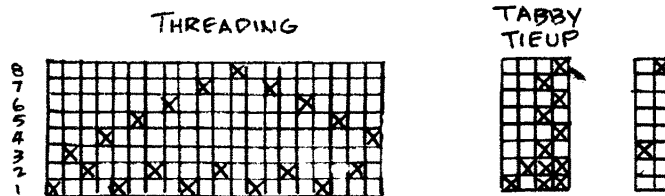
TIEUPS



1 2 3 4 5 6 7 8  
TREADLES

## B. Patterns in double weave

Another approach for tying two layers together is given on pages 111-113 in Regensteiner's book. Here the first two harnesses are used for one layer and all the other harnesses are used for the other layer (Regensteiner refers to these as the pattern harnesses). More than four harnesses are needed to develop any interesting patterns. The threading diagram is taken from her book. The warps on



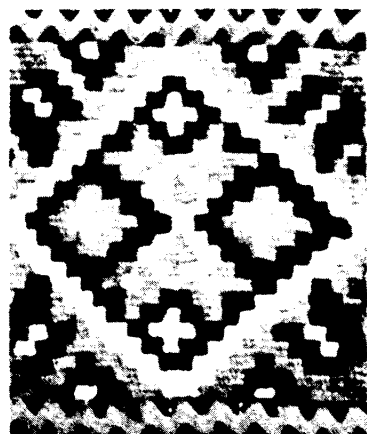
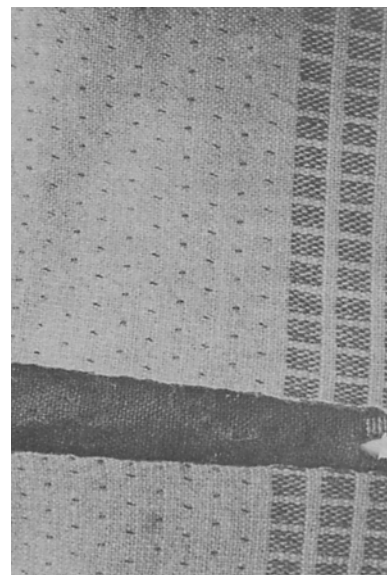
harnesses 3-8 develop the pattern as well as tying the two layers together. The tieup for weaving tabby in the two layers is given next to the threading diagram above (remember harnesses 1 and 2 must be raised to weave the lower layer).

Now suppose that you want to join the two layers together, with ties that will give an overall quilting effect. Harnesses 3 and 8 carry warp threads that are far apart and symmetrically placed. So let's use two more treadles, one tied only to harness 3 and another tied only to harness 8. The weaving follows tabby treadling until you want a tiepoint. Then the tying harness is raised whenever harnesses 1 or 2 are raised. Let's write this out in detail:

<b>Tabby</b>	Raise harness 1	<b>Tiepoints</b>	Raise harness 1 and harness 3
	Raise harnesses 12357		Raise harnesses 12357
	Raise harness 2		Raise harness 2 and harness 3
	Raise harnesses 12468		Raise harnesses 12468

The next time you want a tiepoint you may want to use harness 8 rather than 3 to scatter the tiepoints.

Patterns can be added in addition to the general quilting effect. Regensteiner drafts a number of possible patterns that can be used with the threading (although it took me a while to realize that she had omitted the direction to use tabby between pattern shots). The photograph shows a tunic that I wove using this threading diagram. The warps are purple for the lower layer and pink for the top layer. The wefts are also purple and pink but they are interchanged between the layers to develop the pattern block. Throughout the body of the tunic, the tiepoints were scattered by alternately using harness 3 and harness 8.



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