

SWATCH PAGE

DOUBLE WEAVES WITH 4, 6 and 8 HARNESSSES

This will be the last article in this series on double weaves and will cover two topics. The first is block double weaves or, as I think of it, double-double weaves. The second outlines the technique that Karon Rucker wrote about in the spring 1978 issue of *Shuttle Spindle and Dyepot* (pp 19-21). Rucker uses the term "flying bridge" weft elements to describe what she has done to develop some fascinating dimensional weavings.

Eight harness block double weaves

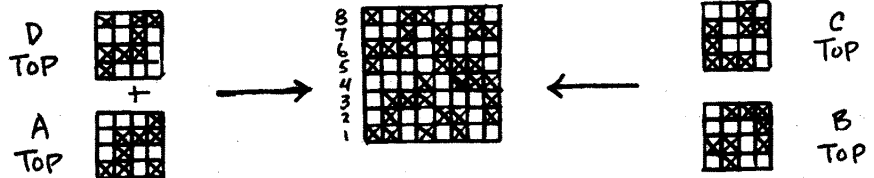
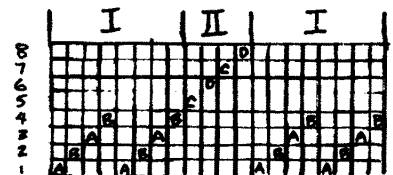
With eight harnesses there are a number of possibilities for block design. For example there can be two independent blocks each in four harness weaves or there can be four independent blocks each in tabby. But these are single layer weaves. A double weave in two block design would have each block with two layers of warp where either layer can be brought to the top as desired. If the first weft shot weaves the top layer of each block and the second weft shot weaves the lower layer of each block, we have a simple extension of 4-harness double weaves to 8-harnesses. However there is another possibility and this is what I think of as a double-double weave. The first weft shot weaves the **top** layer of block I and the **lower** layer of block II. Then the second weft shot weaves the **lower** layer of block I and the **top** layer of block II. The weave structure that results is similar to what happens when paper or leather strips are interwoven (except that there are no slits in the resulting fabric).

Tidball discusses this type of weaving in her monograph on *The Double Weave* under the heading two block double weave, and Regensteiner has a short section in *The Art of Weaving*. It all seems mysterious until you try it for yourself. We can start with the threading and then move on to the tieup which as usual is the secret to what happens. Block I will be threaded on harnesses 1-4 in two colors A and B and block II will be threaded on harnesses 5-8 in two other colors C and D. The threading is straight draw twill and there will be two threads per dent of the reed.

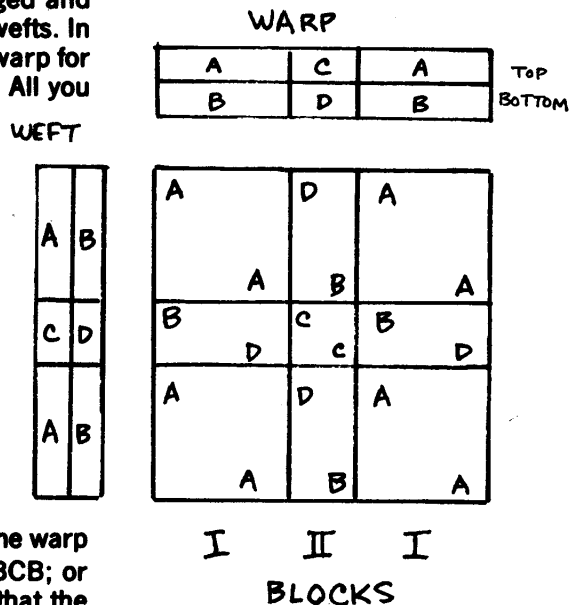
We are of course limited to two layers of tabby in each block. In trying to figure out the tieups, think of each block separately. You are back to 4-harness double weaves. There are three possible warp colors for block I (and a similar choice for block II).

Top layer	color A	color B	Blend A+B
Bottom layer	color B	color A	Blend A+B

I think the easiest way to determine the tieups is to plot them separately for harnesses 1-4 and harnesses 5-8 and then put them together to give the warp combinations you want for each layer. Here are two examples: the first tieup weaves warp colors A and D on the top of the fabric and B and C on the bottom. But notice the first weft shot weaves warp A on the top and warp C on the bottom and the second weft shot weaves warp B on the bottom and warp D on the top. (The second tieup shown interchanges the two layers in both blocks.) Let me

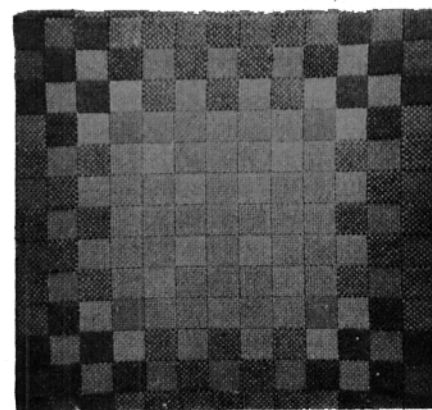
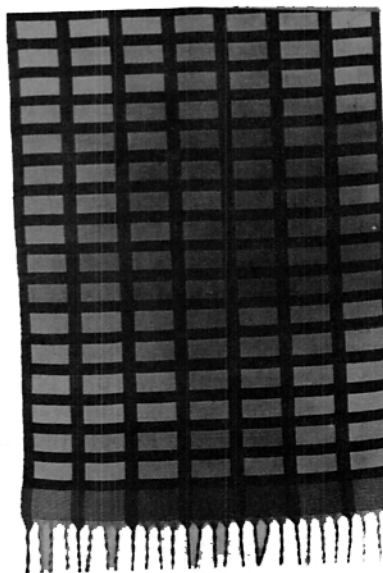
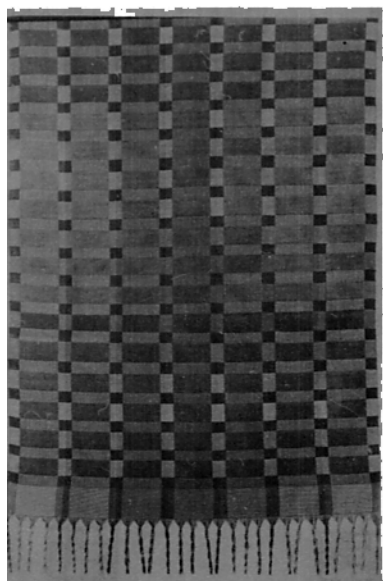


give you some idea of how I try to arrive at a design. With colored pens this isn't too difficult but in black and white it is almost impossible. So I will lay out the procedure and let those of you who are interested fill in the "blanks". We will use the design given below and limit ourselves to the same four colors in warp and weft. Above the design, draw boxes for each block with the two colors of the warp above each other. Then on the side draw a similar set of boxes, with the two colors of the weft next to each other. We are going to weave with two wefts until we have a square in the upper left, then the warp layers will be interchanged and woven with the next two wefts, change again and finish with the last two wefts. In the upper left of each space in the design I have indicated the color of the warp for that section and in the lower right I have indicated the color of the weft. All you have to do is use color pens to complete the picture!



A moment's reflection will show you that there are four possible choices for the warp colors in the top layer when you are starting this weaving (ACA; ADA; BCB; or BDB). Similarly there are four choices for the wefts. What this means is that the same warp can give you 16 different final color patterns. Four of these are individual in character while the other twelve consist of six pairs that differ only through rotation by 90°. Plenty of possibilities as long as you are willing to change the tieup as you need it for your weaving.

The first photograph shows one of my double-double weaves designed as I indicated above. The same colors are used in the warp and weft, from navy blue and red on the outside to cerise and gold in the center. The next two photographs show the two sides of another double-double weave I have done in sewing thread. The two sides are quite different in design, a happy result that I had not fully anticipated until the weaving came off the loom.



As usual there are plenty of variations that can be tried with this sort of double weave. Some sections might be left unwoven to give warp floats (although one has to be careful that tension problems don't arise). Or suppose that you are willing to change treadling within a single weft shot, something that really slows down the weaving. If you are set up to do this in a single weft shot:

Top I - bottom II - top I - **bottom II** - top I

You can throw the shuttle through the first three sections, change treadles, throw for the next section, change treadles again and throw for the last section. This will happen:

Top I - bottom II - Top I - **top II** - Top I

This gives the effect of changing the warp color quite mysteriously in the fourth section and can be used to bring the variety you may want for the design. But it is slow!

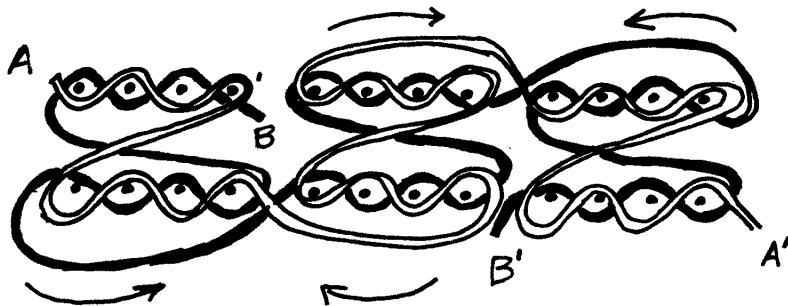
The works of Richard Landis in double weave let me into unravelling the technique for myself. Several of his pieces are shown in *Beyond Craft: The Art Fabric* on pages 204-207. He seems to use complementary warps and wefts, one in dark colors and the other in light colors to achieve an amazing range of color blends. He also seems to use ratios of 1,2,3,5, and 8 in planning his pieces. (These numbers are the beginning of an important mathematical series called the Fibonacci series which shows up in nature in a number of ways.)

Flying bridges

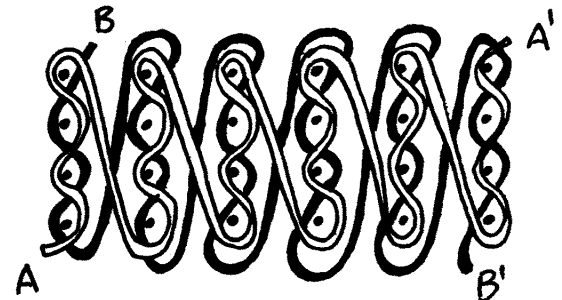
I must admit that I have not yet tried this approach to double weave but it is definitely on the agenda some day. The technique could be used for either single or multiple layer weaving but I will only outline the latter. Let me quote from Karon Rucker's article.

Any given weft thread need not progress from warp layer to warp layer in consecutive order, but can 'fly' between layers and bypass warp elements as a float.

After the weaving is taken from the loom, it can be folded like a fan to give a three dimensional result. The treadling pattern is complex but apparently fairly easy after the first few shots. The two diagrams below are taken from her article and show both the weave structure and what happens when the weaving is folded in the directions of the arrows. Has anyone tried this type of weaving? I'd certainly like to see an example.



DOUBLE WEAVE WITH FLYING BRIDGES
ARROWS SHOW DIRECTION FOR FOLDING



DOUBLE WEAVE - FOLDED OFF LOOM

Bibliography

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