LOCKED WEFTS IN SWIVEL

Locked wefts technique (see MW 4/7) cannot be recommended in traditional pattern weaving, although the possibilities are tempting. This is because the point of interlocking the two wefts would have to be very precisely adjusted to the pattern, and this would ruin its main advantages: the freedom of pattern and the speed of weaving. Swivel is probably the only exception. Since there is only one side of the fabric to be considered, and the long floats on the other side are either cut, or are invisible, it is very easy to interlock the two wefts anywhere between blocks of pattern. No precision is necessary, and the speed is not affected either.

Let us start with a classical example of swivel (fig.1):

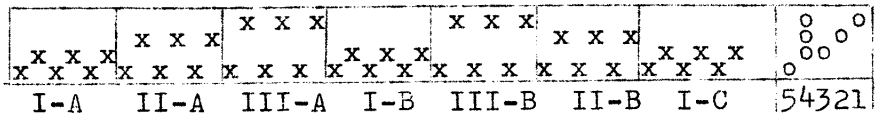


Fig.1

In normal weaving we have the three blocks of pattern marked on the threading draft: I, II, III. There is no difference between I-A, and I-B, II-A, and II-B etc. But with locked wefts we can have a different colour in block II-A than in II-B, or one colour in III-A and another in III-B. In case of block I which appears three times we can have either I-A and I-B together, or I-B and I-C of the same colour, but <u>not</u> three colours on the same block. Thus with the draft in fig.1 we can have up to 7 blocks of pattern.

The weaving goes as follows: one shot of ground on treadle 5, followed by locked wefts on 1,2,or 3. Treadle 4 is used only for plain weaving without pattern. To preserve the same texture however in the ground and in the pattern we must either use two shots of tabby after each shot of pattern: <u>3</u>,5,4, or the rest of the tabby shed which then must be doubled: <u>3</u>,2+1,5. In the latter case all shots on treadle 4 must have double weft, exactly as the 2+1 in the example above. Thus in all we must have quite a lot of shuttles. The reader would be advised at this stage to refer to MW.44/5. The locked wefts shots can be always considered as a heavier pattern weft.

The patterns which can be woven on this set-up are shown in Fig.2. All in short draw-down, or block-out:

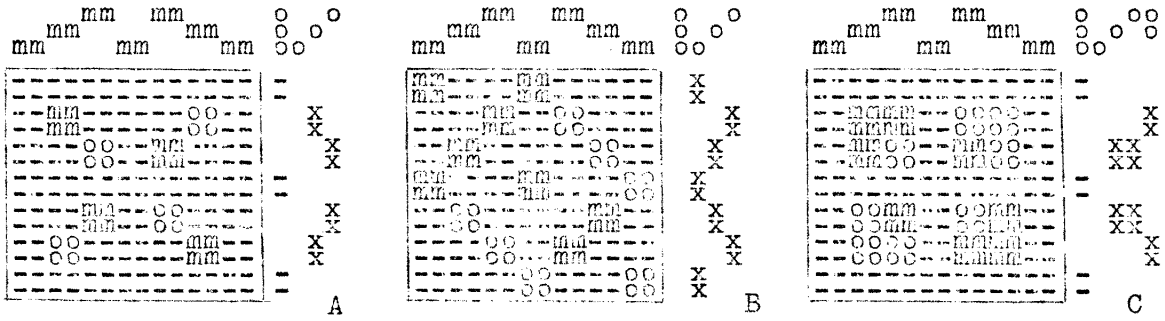


Fig.2

Incidentally once the floats at the back are cut, there is nothing to indicate that locked wefts were used, and a sample if analyzed would give completely wrong answers: fig.2A and 2C would then require 6 shafts, when 2B would ask for 8.

In treadling directions there is no way to mark the two colours, as long as we use standard drafts. A special draft could be devised as in fig.3, where each pattern treadle has two divisions: left, and right. In this new draft the treadling directions for fig.2A would be as follows: 6g, 5dW - X times (that is to square); 6g, 3Lm+3Ro, 5dW; 6g, 2Lo+2Rm, 5dW; 6g, 5dW; 6g, 2Lm+2Ro, 5dW; 6g, 3Lo+3Rm, 5dW; 6g, 5dW.

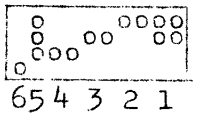


Fig.3

Here: g - is the fine ground; dW - double white; and "m" and "o" - two different colours, single. Thus for instance "3Lm+3Ro" means: on treadle 3 throw colour "o" from the right, and catch colour "m" from the left; pull to any place between II-A and II-B in fig.1.

Only practice will show how easy this method is.

On the other hand designing becomes more difficult just because of the increased number of blocks, and therefore of more freedom. Drafts in fig.2 are only showing the principle but are not meant to be actually woven. Real weaving drafts will be much more complicated or at least much longer.

The original idea of Swivel, called then Spot Weave, was to have a number of small patterns on plain background. Short of pick-up or of a high number of shafts these patterns had to be identical in colour.

In plain swivel we shall have a pattern as in fig.4A. In fig.4B we have the application of the new principle.

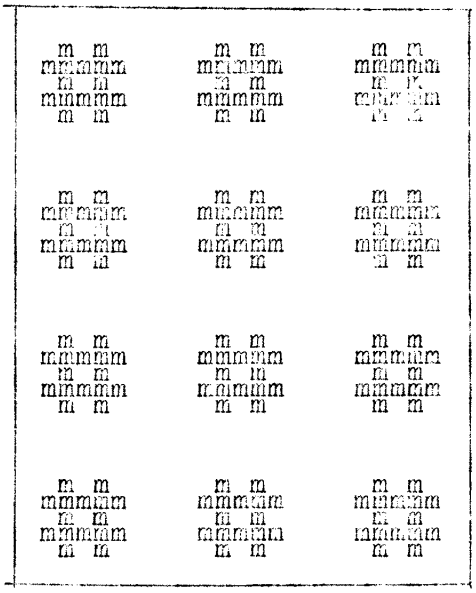


Fig.4A

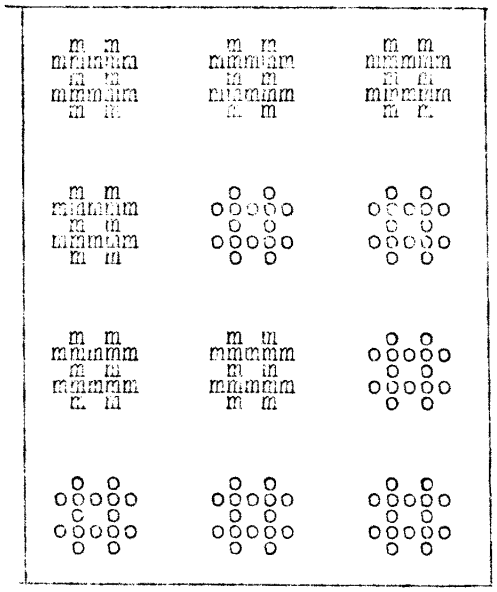


Fig.4B

Again in fig.5A we have the usual "double cross" in Swivel. To make it look as in fig.5B would normally require an extra shaft. Both 5B and 5C (four colours) can be woven on 4 shafts with locked wefts provided that we have a counterbalanced loom with a shed regulator (see MW 56) or a jack-type loom.

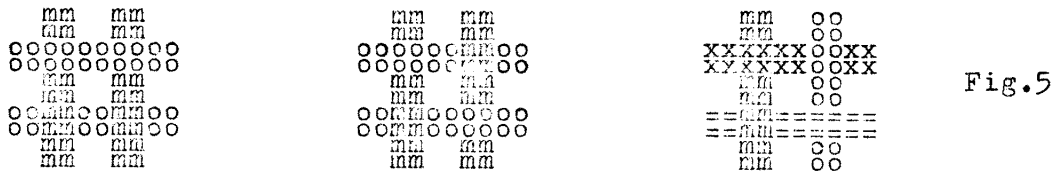
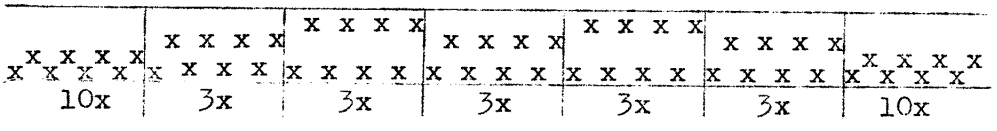


Fig.5

The tie-up must be as in fig.3, and the draft (for small samples) as in fig.6.



10x	3x	3x	3x	3x	3x	10x

Fig.6

With this set-up we shall have the following treadling for fig.5B: 6g, 2dm, 3+4dW; 6g, 2Lo+2Rm, 3do, 4dW; 6g, 2dm, 3+4dW; 6g, 2Lm+2Ro, 3do, 4dW; 6g, 2dm, 3+4dW.

Treadling for fig.5C: 6g, 2Lm+2Ro; 3+4dW; 6g, 2Lx+2Ro, 3dx, 4dW; 6g, 2Lm+2Ro; 3+4dW; 6g, 2Lm+2R=, 3d=, 4dW; 6g, 2Lm+2Ro, 3+4dW.

All the above exercises are only preliminary, but rather necessary to understand the technique. After one sample on the loom the rest can be done on paper. We can start with a pattern for plain swivel as we did in fig.4 and 5, and develop it into a pattern for locked wefts. An example of a more modern pattern is shown in fig.7.

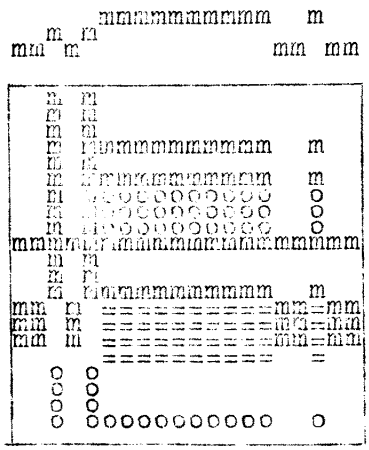


Fig.7A

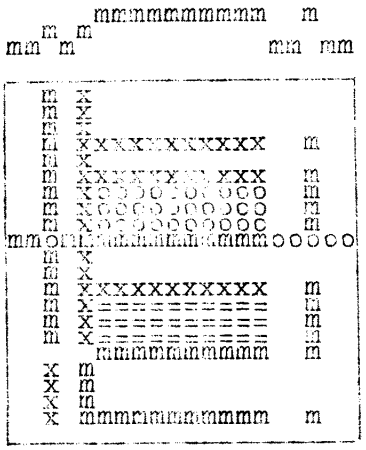


Fig.7B

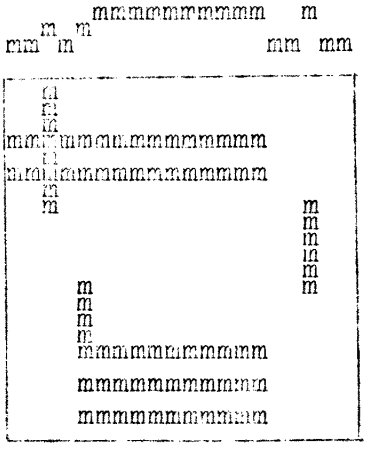


Fig.7C

Here A is the plain swivel; B is derived from it by introducing new colours. But C is all in one colour on plain ground, yet it looks as a 6-block pattern. This is done by obliterating sections of one block, i.e. weaving them in the same colour as the ground. Surely there will be a mark in the fabric where the ground and the pattern meet, but the general appearance will be as illustrated.

We do not give the treadlings for fig.7. They can be worked out in the same way as treadlings for fig.5. This can be done on paper first, or tried directly on the loom.

All these patterns could be woven on a higher number of shafts without locked wefts. Therefore Locked Wefts Swivel is essentially a four-shaft weave, although it can be used with any number of shafts to increase still further the number of blocks.

There are no particular technical problems in weaving, except that they are a combination of problems in weaving Swivel, and in weaving Locked wefts. Thus one must be very careful not to pull the pattern weft tight: better leave small loops at the edges of blocks. This is probably the most difficult operation because it presents a problem in both weaves.

****