MASTER WEAVER

BI-MONTHLY BULLETIN FOR HANDWEAVERS

JULY 1953

FULFORD · QUEBEC · CANADA

WE HAVE THE PLEASURE OF INTRODUCING ON THE MARKET OUR

SHED REGULATOR

to fit all our counterbalanced looms.

A shed regulator changes any counterbalanced loom into a double-tie-up jack-type. It means that it combines all the advantages of a counterbalanced harness, with all the advantages of a jack-type loom.

1. The shed opens in two directions, regardless of the tie-up, the yarn, or the sett of warp used. This is particularly important with such weaves, as warp-face rep, and double weaves.

2. The shed opens always at the same height, even with weaves which require an unbalanced tie-up, as in case of Spot (Bronson) weaves, waffle, double-face twills, etc.

3. The tie-up remains nearly as simple as for a plain jack-type loom. The shed regulator requires only from 1 to 6 additional ties, which can be adjusted from the front of the loom.

4. The lightness of operation and consequently the speed of weaving remains the same as for a counterbalanced loom.

The shed regulator is now made for 27", 36", 45" and 60" looms, folding or standard types.

Write for further particulars and prices to our agents or directly to us.

NILUS LECLERC INC.

L'ISLET STATION, QUE.
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MASTER WEAVER

Z - HANDICRAFTS · FULFORD · QUEBEC · CANADA

July, 1953 No.10

CRAFT OR BUSINESS.

One can make living from handweaving but one cannot make money, unless one turns the craft into business. So from the very outset we have the choice of either remaining craftsmen and be satisfied with moderate (very moderate) returns, or going into the business. We shall try to discuss these both possibilities.

First: how to be a craftsman and still make your living?

The difficulty is obvious. A craftsman loves his craft first and his income next. He has a certain dignity exactly as an artist. A painter (I mean artist-painter) won't paint floors even if it brings him $ 2 an hour, when his creative painting does not pay at all. A true craftsman feels alike. He will produce what he thinks is good, and he will sell it if he finds customers. But he won't base his production on the principle that anythings which sells is good.

A craftsman should consider himself superior to any customer. He is here to educate the latter, to show him what he needs, and not to take orders or suggestions.

But to act thus, one has to be a good craftsman first. One cannot convince the customer to buy a certain article, unless one is quite sure that he knows what he is talking about. It has nothing to do with the customer's psychology - this comes into the "business" approach to hand-weaving, but it has plenty to do with the weaver's psychology. In other words the weaver, when selling anything must be very sure of the value of the article for sale, which in the last analysis comes to the fact that he must be sure of himself. And the only way of being sure, is to learn the trade.

Learning the trade does not mean only mastering the technical side of weaving. Although it is absolutely necessary, it is not sufficient. Leonardo da Vinci tried to reduce painting to a set of formulas - which worked well enough with him, but not with his pupils. Besides the technical training, there must be an artistic background, whether inborn, or acquired. If one is lucky enough to get this background so to speak for nothing, all the better - if not one has to work hard to acquire it by studying form and colour in painting, primitive art, folklore, history of textiles, and many other related branches of science - even physics and mathematics. What one should look for is not a set of rules, but a wider intuitive approach which finally leads one to such convictions as: I know that this is good, even if I cannot explain why it is so.

Once we reach this stage, we should be able to infect any customer with our enthusiasm for good, honest craftsmanship. Or send him to a mail-order house. .

Still, even at the best we shall find out that there are not enough customers to keep us going. This is a rule, although there may be exceptions, such as getting a top position in the textile industry as an inspired designer, who is above all the limitations imposed upon him by his bosses. The chance of becoming one of those is about the same as winning the Irish sweapstake. So if there are holes left in the budget left by a too low demand, we have to turn in other directions. An obvious alternative is teaching. If after years of struggle we could finally learn so much about our trade, why not make the same struggle easier for others? Teaching can have several directions: teaching at our own studio in groups, or individually, in a school (provided that enough freedom is left to the teacher), or lecturing. Each of these branches of teaching presents new problems: talking, demonstrating, dealing with people, understanding their difficulties. And again we have to learn, this time more about psychology than about weaving. Finally there is such a thing as teaching by written word. Publishing, giving correspondence courses, writing books, and what not. Again new problems and need for learning.

A combination of all these activities may give us a decent living, no temptation of ever becoming wealthy, and an endless opportunity for learning. Can there be a better life for a craftsman?

But what about those who start with the intention of making money rather than finding satisfaction in artistic self-expression? They certainly should concentrate on learning the technical side of the craft and better learn it thoroughly. Then instead of acquiring artistic background, they must learn what kind of articles sells best and why. Then the art of selling, Then the science of handling other people, who will work for them. This by the way does not mean how to pay them low wages, or it would not be a science. But even then they will have to possess a difficult to define ability of "feeling the market", of guessing fashions to come, the future prices, the possible output of competitors, and other factors like these.

The actual weaving will be performed not by expert weavers, who would be too expensive, but by "shuttle pushers" i.e. weavers who do not know much about the theory of weaving, and often not even about setting up the loom, but who certainly push the shuttle twice as fast as an expert craftsman. Why do they do it? Some take pride in their skill, and they are the best; some just want to make some money in their spare time, and sincere as they are (and cheap too) they are often a headache.

So you have to base all your production on fabrics simple to weave, but difficult to design. You do the designing, you experiment on the loom (unless you can afford an expert weaver who will do it for you), until you have a fabric which will fulfill all the requirements, technical, and economical. Then if you labour is rather unskilled in anything except in throwing the shuttle, you better prepare the warps for your weavers. You can afford to have one good warping mill which will do the work in a fraction of the time required by a weaver who has only a reel or a warping frame.

Since the price of a finished product depends largely on the time necessary to weave it, you must try to design your fabrics so,

That the pattern and colours will be rather in the warp, and the weaving will be performed with one shuttle. It is immaterial whether your weavers use flying shuttles or not. The difference in speed between a flying shuttle and a hand one is not as great as it is usually advertised. But the difference between one and two shuttles used alternately is enormous.

It becomes clear at this stage that the two classes of weavers - these who try to make money, and these who want remain true to the craft - are not a competition to each other. They produce different goods at different prices.

The industrial handweaving should not be condemned indiscriminately. Occasionally it develops into valuable and creative movement, like Rodier's organisation in France, or weaving communities in the British Isles. Such groups can supply weavers with equipment which they could never afford working on their own, and thus produce textiles too expensive to make for both the power loom, and the individual craftsman.

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DROPPED WEAVES

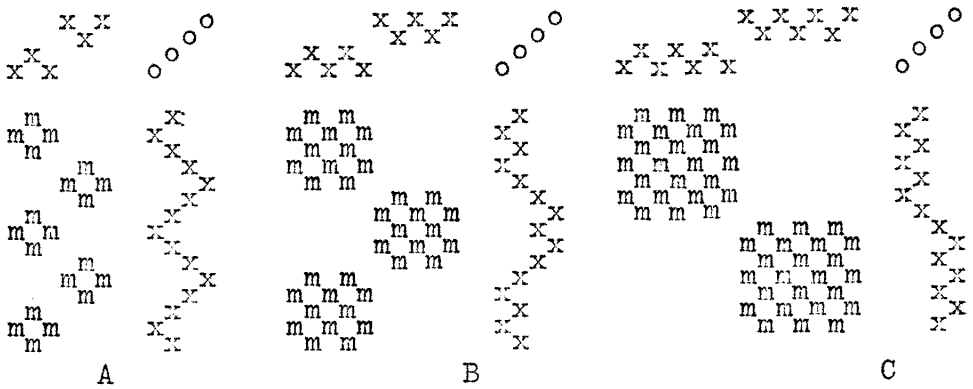
There is a whole group of weaves in which the pattern (usually of the spot type) is produced by small parts of the fabric not being woven. It means that in the blocks of pattern the warp and weft are not interwoven at all - they form floats: horizontal on one side of the fabric and vertical on the other. The difference between the plain Spot Weaves (Bronson, etc) and Dropped Weaves is that in the first case the floats are separated by tabby, and in the second they are not. The first impression is that such a fabric would be extremely flimsy, since a certain part of it is not woven, but in practice as much as 50% of the cloth may remain unwoven, and still the whole is quite firm, although rather soft. This principle of "dropping the stitches" as it were, to produce either pattern or a soft texture, may be applied to any basic weave, particularly to tabby and twill.

When weaving simple patterns or texture, an ordinary loom, preferably a jack-type, counterbalanced with shed regulator, or a double tie-up can be used. With more involved patterns too many frames are necessary and it is easier to use a pattern harness (see MW No.7). For plain tabby in the ground 2 frames are needed for each block of pattern plus two for the ground (i.e. 10 for 4-block pattern). For 3:1 twill we must have 4 frames for each block plus 4 for the ground which means 20 frames for 4 blocks. The 2:1 twill takes only 3 frames per block and ground, or 15 for 4 blocks.

To avoid very long floats the blocks of pattern should not be combined, i.e. two or more blocks should not be woven at the same time, unless they are very small or separated by the ground. We shall return to this problem later on.

The simplest possible case of dropped weaves is dropped tabby woven on 4 frames. It gives either: a 2-block texture, single block spot pattern, or a single block all-over pattern.

For a dropped tabby texture either of the drafts in Fig.1 can be used.



A is suitable for coarse yarn, B for a finer one, and C for the finest. In all three cases we shall have a rather soft but heavy fabric. It can be used for heavy curtains, bedspreads, blankets etc. In all cases a rather close sett of warp should be used.

Only single block patterns can be woven on 4 frames. They are made entirely of small square spots (fig.2). These can be of

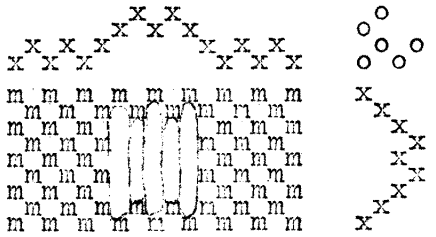


Fig.2

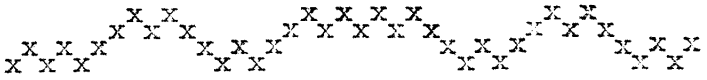


Fig.3

different size as long as the floats both in warp and in weft are not too long. Fig.3 shows an example of threading for a small pattern which can be used on corners of place mats etc. See fig.4. The same draft may be developped into an all-over pattern simply by repeating the pattern several times both in threading and treadling.

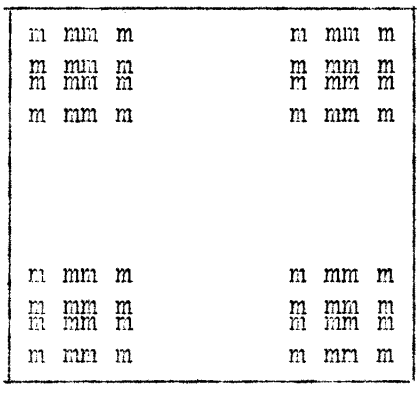


Fig.4

Six frames give us a two-block pattern. If the two blocks are woven simultaneously in any part of the pattern they should be separated in threading by two warp ends on the first and second frame - to avoid long floats. In treadling the blcoks must be separated in a similar way by two shots of tabby ground. An example of a two-block pattern is given in fig.5. Frames 1 and 2 (ground frames) carry most of the warp since they weave the ground, when other frames (2 for each block) produce the pattern. When we examin the tie-up, we may notice that the pattern appears whenever there is a tie "dropped" from the tabby tie-up. Thus treadles 5 and 6 have two ties missing when compared with treadles 7 and 8 (tabby treadles), and these missing ties correspond to

frames 3 and 4. Consequently the block threaded on 3 and 4 is not woven (is dropped) when these treadles are used.

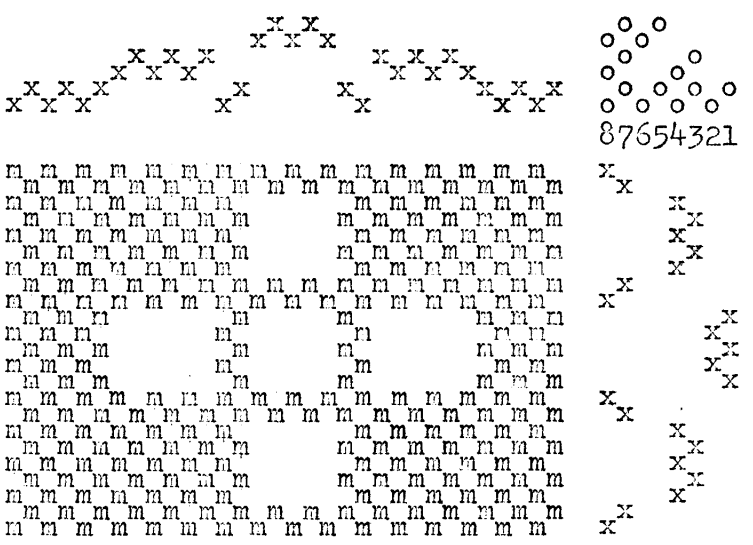


Fig.5

Treadles 1 and 2 weave the ground only, thus both blocks of pattern remain unwoven. It is evident now that if we did not place the two heddles on frames 1 and 2 between blocks of pattern we would have in the last case floats as long as the whole pattern.

When designing patterns in dropped weaves, it is advisable to keep the groups of spots rather well separated with tabby - otherwise the fabric will become rather weak in places. When larger patterns are attempted on a higher number of frames, it is better to use the blocks singly - then they do not need to be separated as in fig.5. Afour block diamond woven on 8 frames is shown in fig.6.

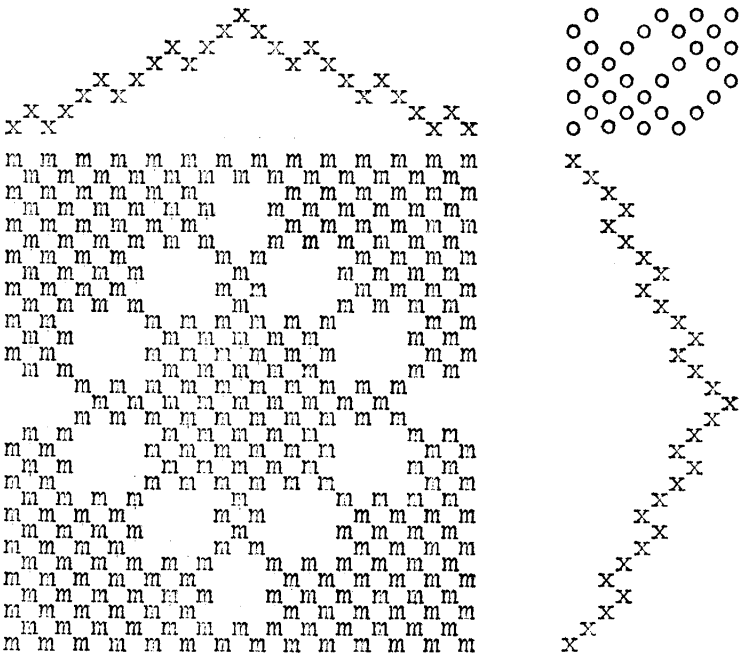


Fig.6

The dropped tabby weave described above has been known in the 18th and 19th century as "Paper Spots", and woven on a rather large number of frames. The spots were small, so that several blocks of pattern could be woven together without producing too long floats (fig.7). It is characteristic for this period of weaving, that to get a neat diamond of less than half an inch in diameter, as many as ten heddle-frames were used.

Dropped Twills.

In all previously described weaves, the ground was tabby. In a similar way we may have twills in the ground. The simplest will be of course 1:2 twill. Here 3 frames for the ground and 3 for each

block of pattern will be required. Thus the simplest one-block dropped twill can be woven on 6 frames (fig.8). If several spots are used in a row, they must be separated by one repeat (3 ends) of the twill on the ground frames (figs.9 and 11).

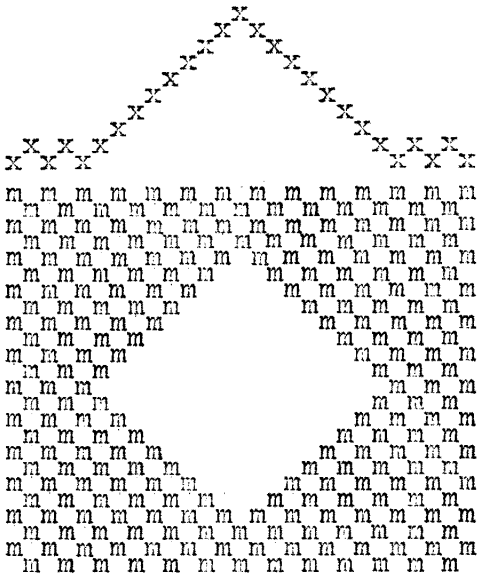


Fig. 7

Two block pattern can be woven on 9 frames, as in fig. 10 and 11. In fig 10 we have very small blocks and they can be combined withouth separating them with ground. If the pattern is larger it is necessary to insert the ground exactly as we did in dropped tabby (figs.5 and 11).

When 3:1 twill forms the ground, the number of frames is still higher (4 per

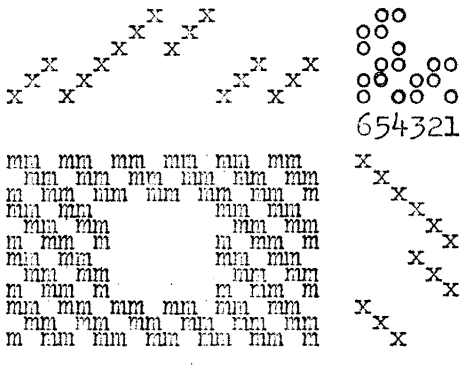


Fig.8

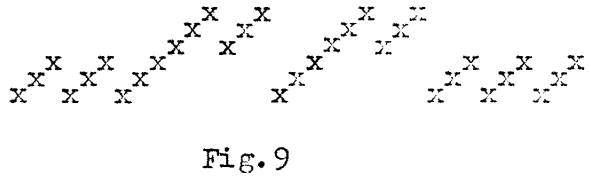


Fig.9

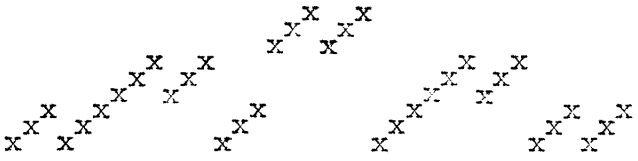


Fig.11

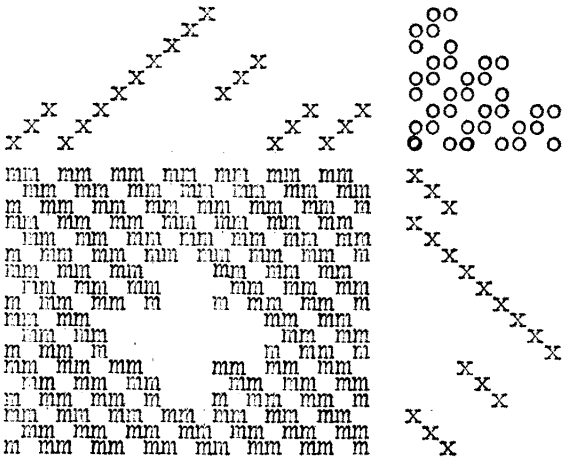


Fig.10

block). In fig.12 we have one-block pattern for this twill. The best effect is on 3:1, since then the floats in the ground go in the opposite direction to the floats in the pattern. 2:2 twill is used when we want to have the pattern visible on both sides of the fabric. Which twill will appear on the pattern side of the fabric depends only from the tie-up. In figs. 8, 10, and 12 the tie-up is for 2:1, and 3:1 twills. The wrong way

of making a tie-up is shown in fig.13. Here the floats in twill and the floats in the pattern go in the same direction.

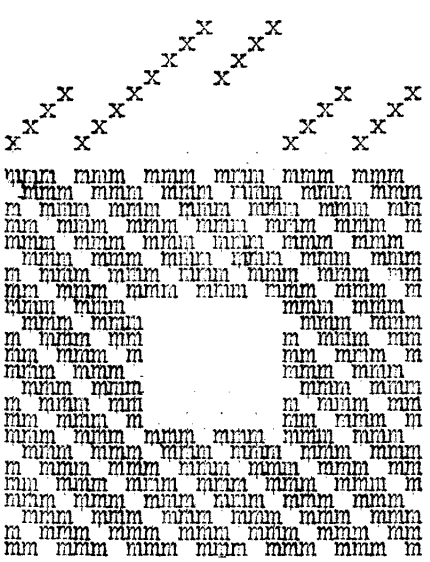
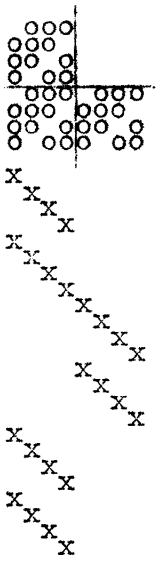


Fig.12



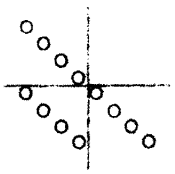


Fig.13

The tie-ups for dropped twills, although they look complicated, are really very simple. For instance in fig.12 the tie-up for plain 3:1 twill is repeated 3 times both in the vertical and in the horizontal direction. One or more of the tie-up sections has no ties at all, and these "dropped" ties correspond to the blocks of pattern.

Dropped twills can be combined with with pattern twills, so that for instance a diamond in pattern twill will contain a spot of dropped twill, also in the shape of a diamond. This however is not a dropped weave properly speaking, and belongs to the pattern twills class.

The main draw-back of the dropped weaves from the point of view of the modern handweaver is the large number of frames needed for any except the simplest patterns. However there is a simple way of weaving dropped patterns on any weave with the help of a pattern harness such as described in the 7-th issue of MW. The principle of the pattern harness is to keep groups of warp ends away from the shed, which prevents them from being interwoven with weft, and produces exactly the same result as multiharness threading drafts for dropped weaves. What is more - any pattern of a very large number of blocks can be woven without changing the threading or the tie-up. Several weaves can be made on the same threading with only small changes in the tie-up. For instance with plain threading (1234) we can have as ground: tabby, 2:2 basket, 2:2 twill, and 3:1 twill, and only in the last case the tie-up must be changed.

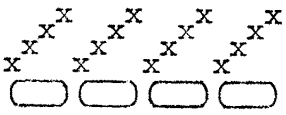


Fig.14

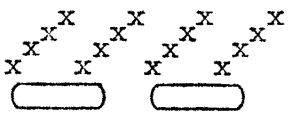


Fig.15

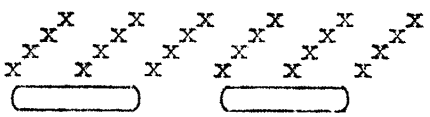


Fig.16

The threading through the long-eye heddles depends on one factor only: whether the blocks are going to be combined or not. In the first case (as in fig.5) a few ends must be skipped between two pattern heddles; in the second groups of warp ends are threaded without any spacing. Two ends are skipped for tabby, and 4 for twill.

Fig.14 shows more or less universal threading for tabby, basket, and twills with independent blocks of pattern. Fig.15 has two ends skipped between blocks and is suitable for dropped tabby- Fig.16 has four ends left between pattern heddles and can be used for 2:2 or 3:1 twill.

The technical requirements are few but important. If the whole fabric is woven in one colour, the yarn should be such that the floats are rather shiny compared with the ground. Linen, preferably single, is the best material, then mercerized cotton, or rayon. The sett should be as close as possible, i.e. the closest for the tabby or twill with the given yarn.

When one colour is used for warp and another for weft, the yarn is of less importance but the sett must be still close, so that the weft will not show through the floats in warp and vice versa.

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INFORMATION SERVICE

The curving-up of selvedges.

Properly speaking it is not the edge which curves up, but the weft which does not form a straight line across the fabric. This effect is very common, but the explanation rather involved. There are two factors which collaborate to produce the curved line.

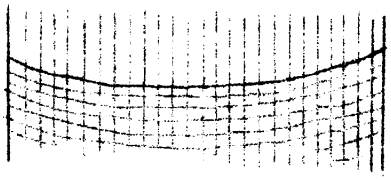

Fig.1

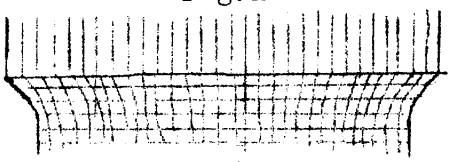

Fig.2

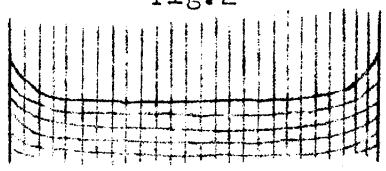

Fig.3

If the curve (fig.1) covers the whole width of the fabric, it means that there is a considerable take-up of the weft. When the warp is rather open, when the weft is elastic, and when the weaver does not leave enough weft in the shed, the take up (wrongly called "shrinkage") takes place everywhere in the fabric, not only at the edges. Then the fabric is much narrower than the warp in reed. During beating (fig.2) the weft is forced into a straight line but after the batten is released, it is the warp which straightens up, and pulls the weft away from the weaver. This pulling is greatest at the edges, and in result we have a regular curve all across the fabric.

When only the edges are curved, but elsewhere the weft lies completely straight, the weaver leaves enough weft in the shed, but he is doing it too late. If there is too much pull on the weft the warp-ends at the edge are pulled together in the former shed, and this cannot be corrected by leaving an extra length of weft in the next shed (fig.3). Thus the warp is sett much closer at the edges than in the body of the fabric. Since the take-up of the warp is more or less proportional to the sett, the warp at the edges grows "shorter" and pulls the edges up.

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SHED REGULATORS

In our first issue we have written a short article on this subject. Since then we had several requests to enlarge upon it.

Counterbalanced looms would have been the perfect solution for all technical problems in weaving if not for two drawbacks. One is that they do not work very well with a large number of heddle-frames, and there seems to be no remedy for this. With more than 4 frames the whole set-up is not really well balanced, and even if it is like in case of 8 or 16 frames, the friction makes due to the large number of rollers or pulleys makes the operation of the loom difficult.

The second drawback is, that the sheds open at the same level only when the tie-up is balanced i.e. when the same number of frames is tied to each treadle. Otherwise the sheds open at different heights, so that with each shot of weft one has to adjust the position of shuttle, and some sheds will bo too loose in the lower part to support the shuttle at all. Then the upper part of the shed may be so loose that there will be a number of warp ends hanging in the shed.

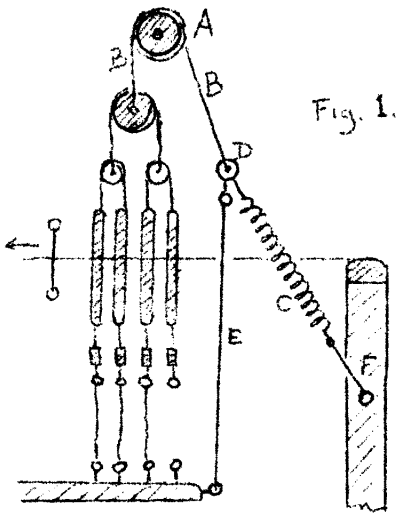

Fig. 1.

A shed regulator corrects completely this second deficiency of counter-balanced looms. It is easy and cheap to construct, and easy to operate. Once installed it can be used for both the unbalanced and the balanced tie-ups; in the second case it simply does not work and the loom behaves as if it had no shed regulator.

The principle is shown in fig.1. The whole harness (all heddle-frames, and rollers) is hung on an additional roller (A) with two cords (B). The weight of the harness is balanced with two springs (C), so that the frames remain in neutral position when the treadles are not depressed. But the cords B are tied at the same time to a crosspiece (D) running paralel to the harness and this piece is tied to the treadles with adjustable cords (E). Now, since the springs balance the weight of the harness, lamms, and treadles - the slightest pull on the cords B will result in the harness going up. At the same time the treadle will pull it down, and the final position of the harness and consequently of the shed will depend only on the length of cord E. Thus if a shed opens too high the cord is too short; if it opens too low, the cord is too long. By adjusting the length of cords E we can have each shed in the best position for weaving. When weaving fine yarns it may be adisable to use the shed regulator even with balanced tie-ups, so as to make sure that every shed will just touch the batten when fully opened, but that there will be no friction between the batten and the shed during beating.

To make the shed regulator, we have to secure the following materials: one large roller about 3 inches shorter than the top roller of our loom, 2 pieces of wood as in fig.2, 1 piece of wood (preferably hardwood) about 1" in cross-section, round or square and as long as the roller, 2 screen-door springs, 16 screw-eyes, 2 - $1\frac{1}{2}$" x $\frac{1}{4}$" stove bolts, 30 feet of tie-up cord, 4 feet of heavy (3/16") cord.

The large roller can be bought from the same factory which made the loom, together with the end-screws and hooks. It must be cut down to the proper size (i.e. 3" shorter) and the screw on the cut end replaced.

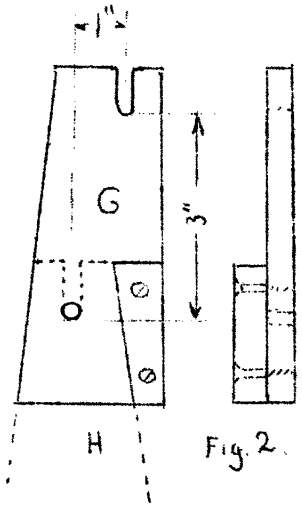

Fig. 2.

The two pieces of wood which are going to support the upper roller (previously the top roller of the loom) are a little tricky because they must fit the uproghts of the loom. Their purpose is to move the harness backwards by about 1 to $1\frac{1}{2}$", and to raise the roller by about 3". They should be made of hardwood. The smaller piece (A fig.2) must be fixed on the larger one with two screws. The bolt B is $\frac{1}{4}$" stove bolt.

Now we drive 6 screw-eyes in the ends of the treadles, and another 6 in the cross-piece D exactly at the same distance and directly above the screw-eyes in the treadles. One more screw-eye is driven in each end of the cross-piece, and two more in the lower beam of the loom frame (F, fig.1).

Now we can mount the whole attachement. First we fix the wooden extensions (G, Fig.2) to the uprights H) with the bolts. Then place the upper roller in the slots of the extensions, and attach the shorter roller I to the cross-piece with heavy cord wound twice around the upper roller. Now one end of each spring is fixed to the screw eye in the end of the crosspiece. The lower ends of the springs are not attached directly to the loom, but to two short pieces of cord passing through the screw-eyes is the frame. The length of these pieces is adjusted so that the springs balance the harness. This set-up is permament. If the shed regulator is not needed the springs are by-passed with pieces of cord of such length that the harness will hang in the neutral position. When the regulator is used these cords are removed and the treadles are tied to the cross-piece. All ties go vertically through the warp.

Not all ties between the treadles and the cross-piece are always necessary. For instance if all treadles but one are tied to two frames, and one treadle to one frame, then we can retain the by-passing cords, and tie only the last treadle to the cross-piece. The same rule applies to a case when several treadles are tied to 3 frames, and one or two to less than three. The by-passing cords are then adjusted for 3 frames (made longer), and additional ties made only on the treadles with 1 or 2 frames.

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PATTERNS IN DOUBLE WEAVES

This kind of weaving is often considered to the "real" double weave. We have here two layers of cloth penetrating each other, not on the whole width of the fabric, but in blocks of different length and height. These blocks form pockets closed on all sides.

The blocks may be of any size from a fraction of an inch to several inches across. When they are really large it may be advisable to stitch the two layers from time to time.

In the simplest case we have only two colours in warp and the same two colours in weft, or two pure colours in the finished fabric. In certain blocks of the pattern we can mix these two colours, getting a third shade. For instance pure blue and pure yellow can be mixed together to get green, which however will be slightly "spotty" - the finer the yarn, the more uniform the colour.

Then the warp may contain more than two colours - probably four, or six (always in pairs), and the weft will have the same set of colours as the warp. Here it will take quite a bit of planning to get the colours and the pattern in proper order.

Before we get into more involved drafts, let us consider the possibilities of the simplest case of two blocks of pattern in two pure colours woven in tabby. One block means two layers of fabric and it requires 4 frames (one pair for each layer). Thus two blocks can be woven on 8 frames, or more if they are stitched.

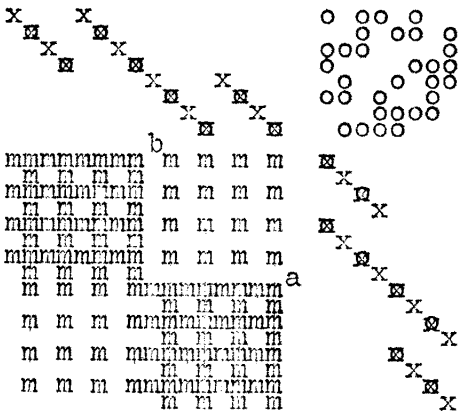

Fig.1

The draft in Fig.1 shows the draw-down for 8-frame double weave. The dark spots in white blocks and white spots in dark blocks belong to the other side of the fabric and are visible only between the threads of the upper layer. In practice they are not visible at all. Compare the article "Drafts for Double Weaves" in the 6-th issue of MW. Each of the blocks of pattern forms a pocket closed at the lines dividing the blocks ("a" and "b" in fig.1). These lines should not be confused with stitching (see MW 9). Here the layers really penetrate each other, which can be easily demonstrated by cutting the threads of one layer and pulling them out.

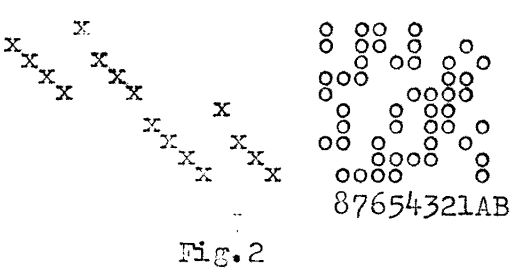

Fig.2

If additional stitching is desired to keep the "pockets" flat, at least two more frames will be necessary. We assume that the stitches will be far apart and only very few heddles will be used on these two frames (5 and 10 on fig.2). As long as we use treadles from 1 to 8, there will be no stitching. The latter will occur when we press treadle A instead of 8, and treadle B instead of 4. The distance between the stitches should be

about the same in both vertical and horizontal direction. For instance if the stitching heddles are placed one for 4 repeats of threading (fig.3), then the treadling should be:87658765 A7658765 for one block, and: 4321432lB3214321 for the other.

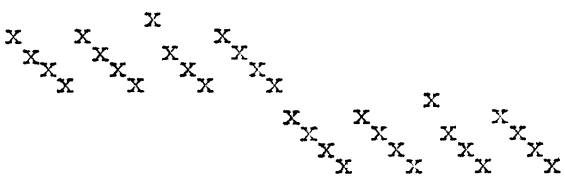

Fig.3

As far as additional colour combinations are concerned we have the following choice:

1) use weft colours as in Fig.1 then one block is of one colour, and the other of another colour.

2) reverse the order of colours but keep the same treadling - then both blocks will have a mixture (50:50) of both colours. If it was black and white they will be both gray. In other words we shall have a gray stripe running all across the fabric, but the "pockets" in the texture will remain as before. This in itself does not seem to be very interesting, but if combined with a similar exchange of colours in the warp (fig.4) it will give gray stripes going in both directions, with pure colours between stripes, and at the place where they cross each other.

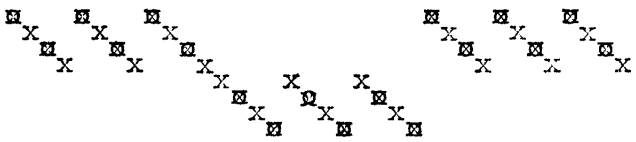

Fig.4

3) one colour in weft is used throughout one block of treadling. Then one block of pattern will have a pure colour (obviously the one used in weft) and the other block will be gray.

4) The same can be done in warp (fig.5).

2),3), and 4) can be combined in the same piece of weaving.

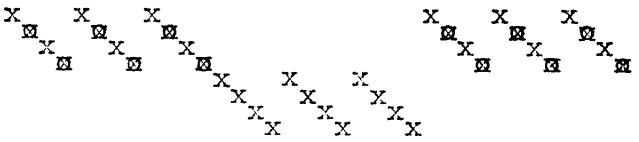

Fig.5

With a larger number of blocks, both the pattern variations and the colour combinations increase in number. With three blocks the pockets do not need to be rectangular any more, and three pure colours with all the intermediary shades may be woven in the same fabric.

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WEAVING TERMINOLOGY.

Clasped Wefts.

We were very glad to learn that there is after all a better expression than Clasped Wefts (see MW No.4) It is "Locked Weft". Not that it is much shorter but certainly easier to pronounce. We shall use this term from now on.

We owe this information to Mrs. Hariette D. Tidball.

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