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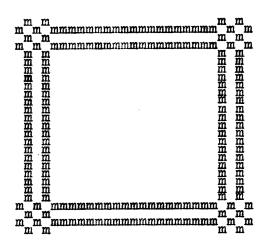
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BORDERS ON ALL SIDES

Every weaver is confronted from time to time with a problem: how to make in a simple way and without going into too many frames, four identical borders on a square piece of weaving. The problem in theory is not difficult, and it can be worked out in any weave and pattern, provided than one is not limited by his weaving equipment. But what if one is? If one has only 4 frames, and only one warp beam?



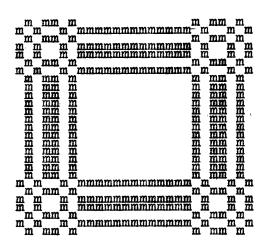


Fig. 1

Then of course not every weave and pattern can be used, but even so we have quite a few possibilities. We shall describe here three of them: lace, swivel, and overshot - or rather a very simplified version of overshot.

Both lace and swivel will have the same kind of two-block patterns suitable for borders on all sides. For instance: Fig. 1.

These patterns have profiles (Fig. 2) which can be developed into full drafts by replacing each "m" with a unit of corresponding weave.

In case of <u>Lace Weave</u>, block 3 should be turned, i.e. have the floats in opposite direction than block 2. This will make the borders identical on all sides. Thus the units will be:

1-st (ground)
$$x^{x}x^{x}x^{x}$$
 2-nd $x^{x}x^{x}$ 3-rd x^{x} tie up: 000 000 4321

and the treadling: 1-st bl.(ground) - 434343, 2-nd: 232343, 3-rd: 414143.

The same profiles developped into Swivel Weave will have units:

and the treadling: 1-st bl. - 43434343, 2-nd - 243243243243, and 3-rd - 143143143. Pattern weft: 1, 2. Binder or ground: 3, 4.

When replacing "m"s of the profile with units of weave, at leat two units of lace should be taken for one "m", to get the proper lace effect.

The case of overshot used for all around borders is not so simple. As an example we can take the following draft (Fig. 3):

Fig. 3

Let us make the warp grey, except for "o" which is blue, and "w" which is navy. When sleying one should not consider the ends in the frame 4 as belonging to the warp at all. I. e. if the sleying calls for two ends per dent, then sley all grey (x) 2 per dent, and the other colours wherever convenient, except that two ends threaded through frame 4 should not go into the same dent.

The treadling should start with 4, 1, 4, 3 - 5 times, then 4, 1, 4, 1, $\frac{4}{3}$, $\frac{1}{3}$ - twice, then comes the crossing of the two borders which is always tricky. The crossing cannot be completely symmetrical since we have to have one set of colours or the other on top. One of many ways of crossing is as follows:

242341414342124212434141432423

where"-" is blue, "=" navy, and all other treadles - grey. Then we continue with 414143 up to the next border.

It would seem that for a good job we need two warp beams: one for the grey ground, and the other for the blue and navy floats, because there is much less take-up in weaving on the vertical floats than on the tabby ground. In practice however we do not want the floats to be stretched as tightly as the tabby ends. The difference in the take-up just compensates for the desired effect of the pattern standing cut on a flat ground. For that matter it is advisable to start a new warp of this kind by weaving for a while on treadles 1 and 4 which leave the pattern warp alone and produce the desired slack.

The frame 4 in counterbalanced looms has a tendency to rise too high because there are so few ends which it operates. It is a good idea then to tie it with two cords to the loom frame so that it could not rise any higher than the other frames. Thus an unnecessary strain on the pattern warp will be avoided.

EFFICIENCY

IIN HANDWEAVING

(continued)

actually leaning on them with the left arm over and selecting the ends from the cross, when the right hand pulls the hook.

Before the threading we prepare a paper tape about 12" wide, and place it on the batten so that it touches the reed with its upper edge. It can be glued or pinned to the batten. On this tape we mark with a pencil all the repeats of the draft, making the marks right opposite the blades of the reed. For instance if we thread a 10 x 10 huckaback, and the sleying is 2 per dent, the distance between two marks is 5 dents. If the repeats are very long it is better to subdivide them, marking the subdivisions both on the tape, and on the threading draft. When during threading we come to the end of a repeat, the threading should coincide with the mark on the tape. If it does, there is no need to check - the probability of making two mistakes in the same repeat: one in threading and the other in sleying so that they would cancel each other is negligible, and even then the rethreading would not be necessary. When however the mark does not correspond to the end of the draft, we have to check - but only the last repeat. Thus we have eliminated two operations (one of separate sleying, and one of checking), and we can be quite sure that no matter what other mistakes we made, we won't have to re-thread the loom.

Tying-in. Many weavers waste time by tying-in first, and then correcting the tension of the warp, which means re-tying the strands of warp. This may go on for quite a long time. There are two methods which give an even tension without re-tying. One consists on lacing the warp to the apren with a continuous cord which slides through the strands of warp, and it is rather well known. The other has two stages: first the warp is tied to the rod in the apron with only half of a knot (half-hitch), then the tension increased by turning the cloth beam until all knots will start slipping. In the second stage the tension is released and the second half of the knot made.

Weaving Equipment. The first condition of acquiring higher skill in weaving is to find a loom which would work. One of the reasons why there are so many poorly designed looms on the market is that too many weavers have completely false ideas about the possibilities of a loom. They would like to have a good loom, but since they have a small apartment they would like it to become invisible when not in use, and at the same time it should be light and small enough to be taken in a car. Why, there was a constructor in Montreal, who produced a loom to be used in a crowded street—car.

What would we think about a driver who would agree to pay for a car on the condition that he could keep it under his bed, but otherwise would expect it to perform like all other cars? We take it for granted that a car requires a storage space, even heated space at that. Why not a loom then?

A good loom cannot be eitheir light or small. It could be light if made of metal but then it would have to be bolted to the floor. We must decide that if we like weaving, we have to find space for it. And if we want to take a loom in the car, it must be a special one good only for making samples and experimenting.

Too many looms on the market are an unhappy compromise between the different requirements. Thus they are too heavy to be taken with you on vacations, but too light for any serious weaving, too small for comfort, but too large for the size of the apartment anyhow.

Now, if we are ready to get a real loom, what to look for? First of all it must be strong, then not folding or collapsible type. Not a table loom good only for samples, or occupational therapy. It must be heavy not only because of the strength, but because its weight must resist the shock of beating - otherwise it will travel all over the apartment. It must be large, so that we can sit comfortably with enough space for the legs. The knees should not touch the cloth beam, but at the same time we should be able to reach the batten without bending the whole body. The treadles should be wide enough to press only one at a time without touching the other ones. Then there should be a sufficient number of them, at least two more than the number of the frames. So called direct tie-up (number of frames equal to the number of treadles) can be tolerated only in looms used for demonstration and experiments. The shedding motion (movement of the frames) should be easy and light. but still all sheds should be completely smooth, otherwise there is not much hope for fast weaving.

The frames go with the loom, so we can only hope for the best. They should be easily lowered down for beaming, or entirely removable without untying any cords. If there is any upper tie-up (jacks, rollers, pulleys, horses) it must be adjustable, and so of course must be the lower tie-up (between the lamms and the treadles).

The heddles are largely a matter of taste. Probably the best are good quality wire heddles, the flat-steel ones sometimes cut the yarn, particularly with close setts of the warp. Cord heddles are very good, and if one works with yarns of extreme count (one way or the other) they are the only ones.

The batten should be adjustable in all directions, and what is more - its weight should be adjustable, or we should have two or three battens for each loom. This revolutionary idea was a common knowledge in the 18th century. The weight of the batten should be directly proportional to the width of the warp, otherwise we cannot produce the same fabric in different widths.

There are very few shuttles on the market which are any good. Incidentally shuttle-races should be of the same length as the width of the warp. Otherwise the shuttle cannot be properly thrown, or caught. This implies a set of shuttle-races easily exchanged. Otherwise the shuttle race may be used only in connection with flying shuttle.

We spoke about bobins and quills when discussing selvedges. There is little to be said about other accessories such as bobin winders, templets, doubling stands, and special attachments.

Weaving. By weaving we understand the action of throwing and catching the shuttle, beating, and changing the shed. This is in other words the "rhythm" of weaving. These operations are the most difficult to discribe since they happen in a fraction of a second, and still the order in which they happen is of the utmost importance.

We shall first describe these operations, and discuss their coordination later on.

Throwing the shuttle. The shuttle is held between the thumb from above and the middle finger from below, the index slightly touching the point. The ring finger may help the middle one, particularly with heavy shuttles. The little finger holds the weft when a new bobbin is started, or when making fringe. In the moment of throwing, which is done with the whole hand, the index is the last to leave the shuttle and gives it the proper direction. The shuttle should not be sent into the shed by a short, jerky motion, but by a swing of the hand starting about 12 inches from the shed.

Catching the shuttle. When catching, only the thumb and the middle finger are working. The index must find its proper position before the next shot. The shuttle should not be stopped when it emerges from the shed but is carried away from it with a decreasing speed. One should not exagerate and pull the shuttle too far away; just enough to keep out of the way of the coming batten, so that at the end of its travel the shuttle is in the right position for the way back.

Beating. Try to beat fast, but not hard. There is a difference. Grasp the center (!) of the batten lightly and pull it forward as fast as possible. Let the weight of the batten do the work. Do not press it to the cloth — it is a completely useless effort. One stroke of the batten at the proper time is quite sufficient. If more than one are necessary it means that the batten is too light, and that it should be changed or weighted.

The batten returns to its original position immediately after touching the cloth. It has then the natural tendency to return on the

rebound, and hardly any effort is necessary to push it away.

Changing the shed. The movement of the frames up and down should be fluid and not jerky. The tie-up should be made so that the treadles touch the floor, when the shed is fully open. This protects the warp against unnecessary strain and friction. Incidentally it protects the weaver too from overexertion. If the construction of the loom prevents the treadles to go down all the way to the floor, a piece of wood should be placed under the treadles. The best way of changing the shed is to slide the feet on the treadles - it requires the least effort. Thus when the right foot moves forward, the left slides backwards at the same time. The shed must be fully opened only in the moment of throwing the shuttle, so there is plenty of time to change it gently.

Coordination. The normal order of weaving is as follows: the shed is fully opened, the shuttle thrown e.g. from the right and caught by the left hand. Right after this the right hand is on the batten and start pulling it forwards, when one foot slides backwards and the other forwards on the next treadle to be used, thus closing the shed. The shed is closed in the moment when the batten touches the cloth. The batten returns and the feet continue to move until the shed is opened again. Now the left hand throws the shuttle and the right one catches it. The left hand after throwing goes on the batten and starts moving it forwards. The shed is changed again in the moment of beating and the cycle starts all over again.

This order may be slightly changed in special circumstances (compare Selvedges) i.e. that the beating may come a fraction of a second before or after the shed is changed. It is completely different only in such weaves as basket, some variations of swivel, and certain bound weaves (shed changed much before beating).

The weaving should not go on for more than about two inches. Then the warp is moved forward, and the weaving resumed. It may seen that moving the warp so often is a waste of time, but it is essential for the quality of weaving to work more or less at the same distance from the harness. Besides this, it is difficult to maintain good rhythm when the length of strokes of the batten changes by several inches.

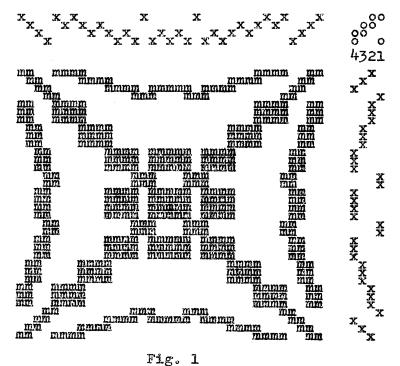
From the point of view of efficiency as well as of quality of weaving, it is advisable to weave without stopping for a few hours. It takes about one half of an hour to reach the top speed, and to fall into rhythm. Then it can be maintained easily for quite a long time. Interruptions slown down the work.

Long as this article is, we realise that we did not go into all the details connected with the problem of efficient weaving, but at least we have discussed the most important points.

水水水水水水水水水

DRAFTING - 4.

As we mentioned in the last lesson, there are several ways of treadling which give several symmetrical patterns from the same threading draft. We have described only one of them - corresponding to the term "woven-as-drawn-in" (or "tromp as writ"). This first method of treadling is based on a diagonal (or diagonals) crossing the woven piece. We shall call a treadling draft which produces such a diagonal: Basic Treadling Draft. It is basic because all other treadling drafts will be derived from it. Even if we do not intend to weave the pattern corresponding to the Basic draft, we must figure out the treadling, to be able to find other variations of symmetrical patterns.



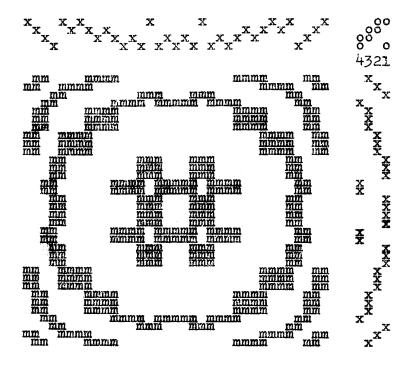
We found the treadling in the usual way on Fig.1. The draw-down shows the corresponding pattern. We omitted here both the binder and the tabby ties in the pattern weft (single squares on the drawn-down). Thus the draft shows the floats only. This is done so, because the pattern is much clearer when drawn in this way (compare with the last draft in lesson 3).

The treadling draft can be expressed in a numerical form: 2-lx, 3-lx, 4-lx, 1-lx, 2-3x, 3-3x, 4-3x, 1-2x, 4-4x, 1-2x, 4-3x, 3-3x, 2-3x, 1-lx, 4-lx, 3-lx, 2-lx. The first number means the treadle, the second - the number of picks.

Thus the draft reads: treadle No. 2 - once, treadle No. 3 - once and so on.

In all variations of pattern the <u>number of picks remains unchanged</u>. We change only the treadles.

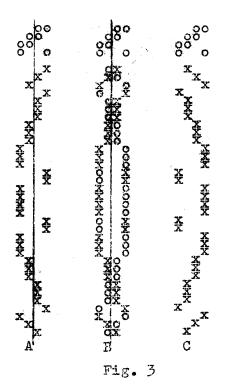
For instance in the second variation (the first is the Basic) called Rose-fashion weaving in colonial times, we replace treadle 1 by treadle 4, tr. 2 by tr. 3, tr. 3 by tr. 2, and tr. 4 by tr. 1. WE DO NOT CHANGE THE TIE-UP, neither on the draft or on the loom, but instead of using for the first pick of the weft treadle No. 2, we shall use No. 3, for the second: instead of No. 3 - No. 2 and so on. Our whole treadling draft will be as follows: 3-lx, 2-lx, 1-lx, 4-lx, 3-3x, 2-3x, 1-3x, 4-2x, 1-3x, 2-3x, 3-3x, 4-lx, 1-lx, 2-lx, 3-lx. Fig. 2 shows the draw-down of the second variation of the pattern.



Fig, 2

The pattern here although symmetrical is completely different, and what is more — it has no diagonal. Because of this lack of a diagonal we cannot find the second variation of the treadling right away, but we have to start with the basic treadling.

When comparing both treadling drafts: the basic, and the "rose", we shall notice that the second looks very much like the first only so to speak "turned over", or as its reflection in a mirror. On this ressemblance between the two drafts is based another method of finding the second variation of the treadling.



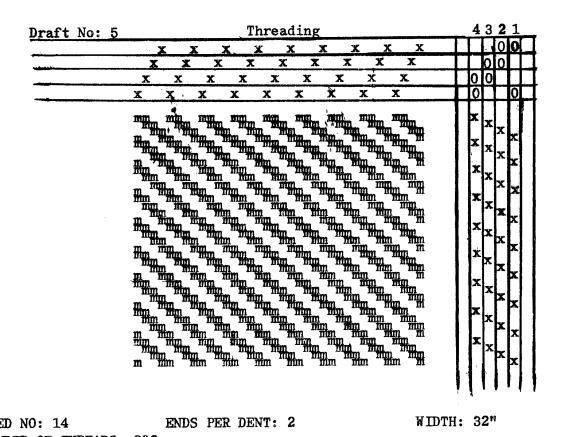
First we draw a vertical line through the center of the basic draft (Fig. 3A). Then we transfer the treadling marks from one side of the line to the other (Fig. 3B). We use either different colour or different symbols for this second set of marks. Finally we erase the first treadling, or copy the new treadling marks on a new draft (Fig. 3C).

Exactly the same result would give a reversed tie-up (12, 23, 34, 41 instead of 41, 34, 23, 12) with the first treadling. But it would not be a very pratical solution, when actual weaving is in question.

Many students confuse the changing of treadling marks with changing of the numbers of treadles. They try to count the treadles from left to right instead of from right to left, and are rather puzzled that they still get the same basic pattern. Or they change both the treadling draft and the tie-up, which again gives the original basic pattern. Or they try to find the diagonal in the second variation.

We must remind such students over and over, that the only thing which is changed - is the order in which the treadles are used.

WEAVE 2:2 TWILL



REED NO: 14

ENDS PER DENT: 2

WIDTH: 32"

NUMBER OF THREADS: 896

WARP: wool

COUNT: 16/2

COLOR: grey

WEFT: wool

COUNT: 16/2

COLOR: blue heather

PICKS PER INCH: 31

FABRIC: clothing.

Note:

If the first and the last warp end remain unwoven, change the direction from which you throw the shuttle.

Leave plenty of weft in the shed to overcome the drawing-in of the edges.

The warp should have an opposite twist to the weft. Otherwise the fabric will have a slight crape effect, which will not disappear in ironing. The best finishing can be done only in a fulling mill, give directions for a very slight shrinkage. At home, use "Igepon" or similar scouring agent and follow the directions.

QUESTIONS AND ANSWERS

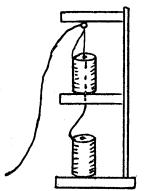
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Write to: "Modern Weaver", c/o Nilus Leclerc Inc., L'Isletville, Québec.

Question No 10.

How to wind a bobbin with two different yarns so that both are of about the same length?

Ans: Use a doubling stand as in the drawing. The yarn from the lower tube passes through the hole in the middle shalf of the stand and through the upper tube. Then both yarns pass through a screw-eye at the top of the stand. The yarn from the upper tube is wound around the lower one. The smaller the tubes the tighter the twist.



Question No. 11

Is there on the market a yarn which could be used to weave a waterproof fabric? Could such a fabric be woven with mercerized or pearl cotton sett every closely?

Ans: There is no yarn which could give in weaving a water proof fabric, although any wool "spun in grease" will give when tightly woven a shower-proof cloth. For waterproofing one has to use absorbent yarns tightly spun and weave them closely. Then the fabric must be impregnated with paraffin wax, aluminum or lead acetate, rubber, oil etc. The process of impregnation depends very much on the degree of waterproofing required, and cannot be performed satisfactorily at home. The easiest way is to dip the fabric in boiled linseed oil and let it dry for several days. However it practically changes the fabric into oil-cloth, and makes it unsuitable for ordinary use.

Question No. 12

Could one cut a 20" reed into two (lengthwise) for spreading the warp? This system is used in France, and it works faster than with an ordinary reed.

Ans: Yes, it is possible. But the reed opened on one side will be not very strong, and it takes time to count the skipped dents in spreading It is much better to use an open raddle, which can be placed in the same position as the reed, and which has only two dents per inch, so that a full number of crosses can be placed in every dent.

WEAVING LOOMS DURING SUMMER HOLIDAYS

If the loom is left during summer months in a closed room or basement the metal parts may get rusted. If possible, the studio should be aired from time to time, during dry weather. Take off the harness-frames, and reeds and store them in a dry place.

BUTTERNUT - Colonial pattern (v) of the Cross-and-Table group; short draft: 5 3 3 3 3 3 3

44³3³3³3³3³3³4</sup>44

AAM - (prob. fr. AS camb) 1. The same as reed (R). 2. The same as Back - or Pattern-Harness in Two-Harness method (v).

CAAMING - The same as Sleying (R).

CALENDERING - (fr. Low Lat. calendera = cylinder) Pressing a fabric with hot cylinders, instead of flat irons.

CALICO - (fr. Calicut in India) 1. Any plain cotton fabric. 2. (Am.) Printed cotton fabric woven in tabby.

CALICO WEAVE - The same as Tabby weave (R).

CAMBLET, or CAMLET - (fr. Arabic khaml = pile) Any fabric ressembling one made of camel's hair.

CAMBRIC - (fr. Fr. cambrai) Fine linen fabric well bleached, or its imitation made of cotton.

CANDLEWICK - 1. Thick cotton yarn used for weft. 2. Rough design one fine, unbleached, cotton tabby ground.

CANE - Warp prepared for beaming. The name comes from a warping process in which the warp is wound around a stick (cane) before beaming (R).

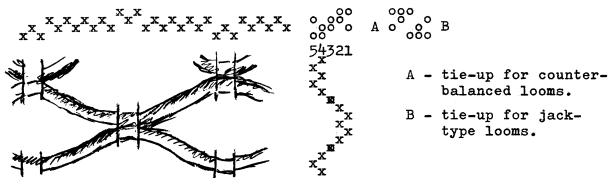
CANE ROLLER - The same as Warp Beam (R).

CANE STICK - Some old looms have a groove made in the warp beam. To attach the warp to the beam a stick is passed through the first loop in the portee cross, and then after the warp is spread, the stick and the warp on it are pressed into the groove. This method is satisfactory on long warps



only, since about a yard is wasted at the end of every warp. On the other hand it is the simplest and fastest way of attaching the warp to the warp beam.

CANNELE - In handweaving, a method of distorting the weft which follows a wavy line on the surface of the tabby ground. For instance:



The weft used on treadle 3 is much heavier than the ground.

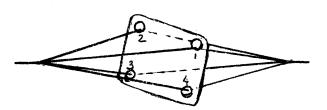
CANVAS - (fr. Lat. cannabis = hemp) Heavy linen or cotton fabric woven in tabby.

CAPE - (fr. Lat. capa) l. Part of a loom frame, one of the two horizontal beams, which support the Top-Castle, and the hanging batten. 2. The upper part of a raddle (v). It is removed before spreading the warp.

CARBONIZING - Cleaning of wool with strong acids. Wool is acid-resistant, but all other organic matter clinging to the fibers is dissolved (carbonized) by the acid.

CARD - 1. A perforated plate which opens one shed in a Dobby, or in a Jacquard Machine (v). 2. An implement used in Carding (v). 3. A thin square plate with holes in the corners used in Card Weaving.

CARD WEAVING - A special weaving technique used for making very narrow fabrics (up to 2 inches wide). The warp may be stretched between any two supports several feet apart. The shed is opened by turning a set of Cards - thin square plates made of cardboard, plastic or metal. Each card has four holes: one in each corner. Every warp end passes through one of these holes. By turning the set of cards different



sheds are opened (4 sheds in all), and at the same time the warp ends threaded through the same card are twisted around each other. The resulting weave is consequently a Cross-Weave (v) in which the warp covers completely the weft. Card wea-

ving is a slow process, but it presents very interesting possibilities. Syn.: Tablet weaving.

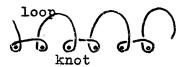
CARDED WOOL - Wool with comparatively short fibers (less than 5 inches) which underwent the process of carding.

CARDING - (fr. Lat. carere) A process in which the wool is prepared for spinning. In principle carding is executed with two cards, or flat pieces of wood with a great number of short wires set in (similar to wire-brushes). The wool is rolled between them and forms shorter or longer slivers (rolag). In machine carding the wool passes through several sets of cards which have cylindrical form, and the sliver is produced in a continuous way.

CARDINGS - Wool after carding, but before spinning. Cardings are used exceptionally as weft for making very heavy blankets. Syn.: Rolag.

CARPET WEAVING - (fr. Lat. carpere = to pluck) Carpets or pile-rugs, when handwoven belong to the weft-pile fabrics. Rows of thick weft are separated with several shots of thin,

strong binder, usually woven in tabby. The pile weft makes a knot around one or two warp ends, then a loop, then a knot again, and so on. There are several knots used in carpet wea-



ving (compare Ghiordes, Sehna, Single Warp knot). The length of loops left between knots is regulated with a gauge (flat stick or rod) around which the loops are wound. After one whole row of knots is made, the loops may be cut, or left uncut. The cutting is performed in the

same way as in other pile weaves (v), then the gauge is withdrawn. The pattern is obtained exclusively by changing the colours in weft. The quality of a carpet depends mostly on the material used, the number of knots per inch square, and on the pattern; the weaving technique itself of secondary importance.

- CARRIAGE In a Draw-Loom, the frame which supports the Pulley Box. It corresponds to the Top-Castle in an ordinary loom.
- CARTRIDGE SILK Coarse, natural silk fabric of inferior quality, woven in tabby. Originally used for powder containers in artillery shells.
- CASEMENT FABRIC Any light fabric suitable for curtains.
- CASHMERE (fr. Kashmir in India) 1. Wool of a mountain goat from Tibet and Northern India. 2. Fabric made of this wool. 3. Brocaded shawls made in India.
- CASSIMERE (fr. Turk. Quazmir) Soft, light woolen fabric, woven in twill.
- CATGUT A Cross-Weave (v) similar to Gauze, but with warp ends making a full turn around each other between two shots of weft, instead of half a turn, as in Gauze.
- CAT TRACKS Colonial pattern (v), the same as Snail Trail.
- CATALOGNE French term designing rag rugs and runners usually made by yard. Striped, plaided or hit-and-miss.
- CATALPA FLOWER Colonial pattern (v) of the Star-and-Table group. Short draft:

$${}^{12} \, {}^{5} \, {}^{5} \, {}^{12} {}^{12} {}^{12} {}^{12} {}^{5} {}^$$

- CELLULOSE ACETATE Rayon fabrics and rayon fiber obtained by the action of acetic acid on cotton fibers.
- CHAIN (fr. Lat. catena) The same as warp (R). Properly: warp taken from the warping reel, and made into a chain, to keep it from getting tangled.

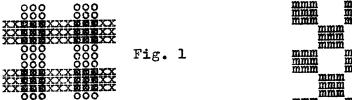


When making the chain the weaver starts from the porrey-end of the warp, forms a loop and passes another loop of the warp through it, then a third through the second and so on. The chain is easily unravelled by pulling the portee-end of the warp.

- CHALLIE, CHALLIS, or CHALLY (fr. Fr. Chale = shawl) Light, woolen fabric woven in tabby.
- CHAMBRAY (fr. Fr. cambrai) Plain fabric with one colour in the warp, and a different colour in the weft.
- CHARIOT WHEEL Colonial pattern (v) of the Wheel-and-Star group.

Short draft:
$$\frac{4}{4}, \frac{4}{5}, \frac{4}{5$$

- CHEESECLOTH Light, very open cotton fabric woven in tabby, originally used for wrapping cheese.
- CHECKS Simple pattern usually obtained by crossing stripes of dark and light colours in warp and weft, as in Fig. 1. However to get the proper "chessboard" effect, a pattern weave is needed such as overshot, crackle, spot or twill (Fig. 2).

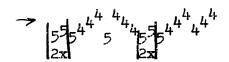




- CHENILLE (caterpillar in Fr.) 1. Yarn with short fringes perpendicular to the core of the yarn, all on one side, or on two opposite sides of the core. Chenille yarn can be woven on a hand-loom. The warp is set as follows: 6 to 8 ends very close, then skip about one inch, and repeat as many times as necessary. Weave as tabby using for weft comparatively thick and soft yarn. After weaving cut the floats half way between the strands of warp. The stripes thus obtained can be used as weft in weaving chenille fabrics.
 - 2. Chenille fabrics have pile on one or both sides. This pile is formed by the fringes of the chenille yarn. In weaving the fringes must be combed before beating, to avoid their being enclosed in the shed. They are combed all up, if pile is on one side only, or both up and down for pile on both sides.

Hand-woven chenille fabrics are called Twice-Woven.

- CHEVIOT (fr. Cheviot Hills in Scotland) Breed of sheep, yarn spun from their wool, and fabric woven from cheviot yarn.
- CHEVRON THREADING (fr. Fr. chevron = rafter) Threading for herringbone twill.
- CHIFFON (rag in Fr.) Thin, light, and soft silk fabric.



- CHINCHILLA CLOTH Heavy woolen fabric napped on one side. Woven in double twill.
- CHINE (Fr. = multicolor) Any pile fabric with design printed on warp before weaving. See Warp Printing.
- CHINTZ (fr. Sanskrit chitra = spotted) Printed cotton fabric woven in tabby.

 \star

handicrafts

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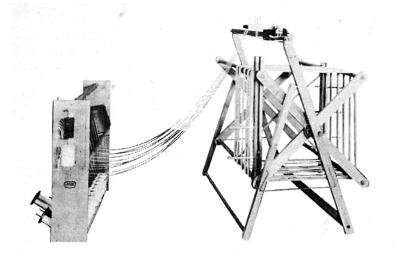
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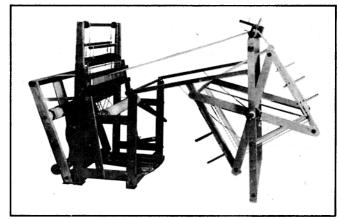
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"Horizontal Warping Mill"

Half-automatic warping mill with Heck-Block (a guiding device). The mill is turned by hand, but the weaver does not touch the yarn except when making crosses. All warp ends are of exactly the same lenght and they are all paral-1el to each other.

The beaming is done directly from the mill. A special brake supplies the desired tension. The whole operation of warping and beaming takes less than one hour for small warps (15 yds. and 400 ends), and only slightly more for long ways. The weaver does not need a helper at any stage of warping or beaming.

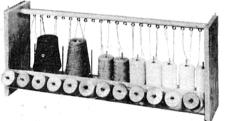


Can be folded when not in use.

With the Heck-Block

	Height	Width ,	Overall length	Net weight	Shipping weight
OPEN: CLOSED:	45" 51"	42" 4"	59"	42 1bs.	60 1bs.
0-3 0-34		the Heck-R	Block, (warp guide	d by hand)	Price: \$27.50 Price: \$32.00

With the Heck-Block and counter of crosses (portees)



0-34

0 - 34A

Bobbin rack: A convertible bobbin holder made for 24 bobbins allowing to unwind commercial bobbins and cones by the end, and unroll wooden bobbins. It is built in a way that you can put a rack one on top of the other to make a combination of 2, 3 or 4 sections of 24 each.

C1. Bobbin rack, without bobbins. Ship, weight: 16 1bs. Price: \$7.50

Doubling stand: (Illustrated on bobbin rack with horizontal warping frame). To wind a bobbin with two different threads. The thread from the lower tube passes through a hole and through the upper tube, then through another hole at the top of the stand.

CO2. Shipping weight: 3 1bs. Price: \$1.50 Price: \$39.50