

# **GUIDE TO HAND WEAVING**

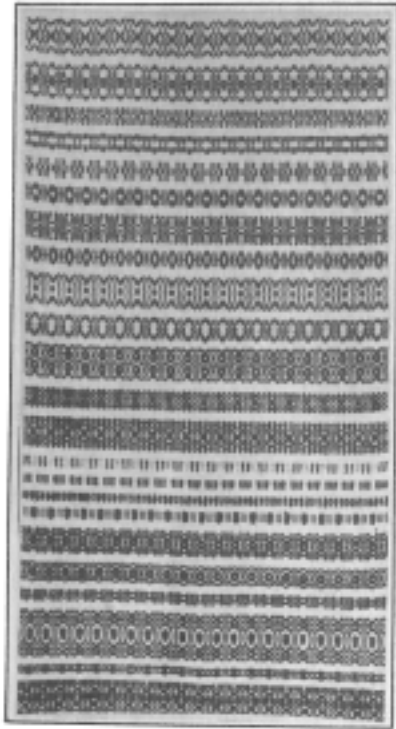
**ARRANGED FOR USE ON THE LOOMS OF**

**REED LOOM COMPANY**

**Of Springfield, Ohio**

**Compiled by Mary M. Atwater**

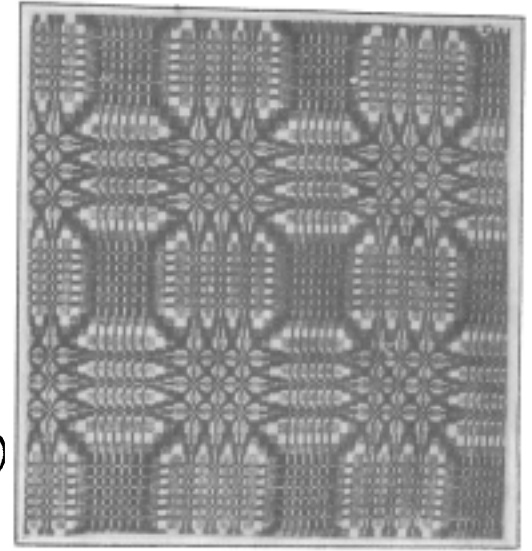
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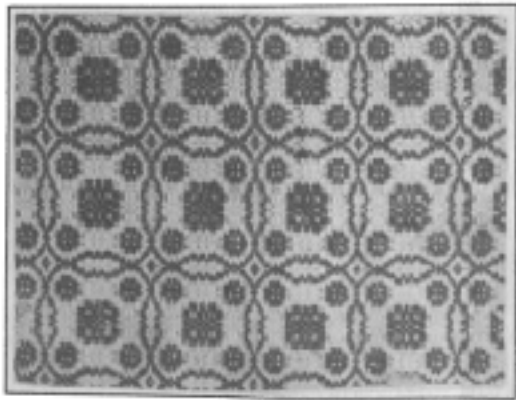
(a)



b)



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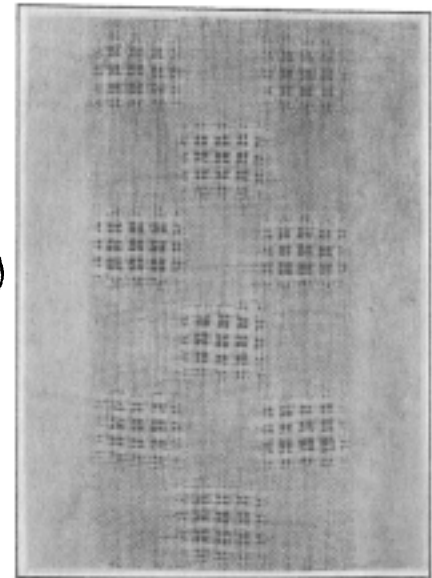


(d)

### Hand-Woven Fabrics

- (a) Sampler, "Honeysuckle," draft 11
- (b) Rug, "Dog Tracks," draft 13
- (c) Coverlet Pattern, "Fine Bloom," draft 14
- (d) Coverlet Pattern, "Whig Rose," draft 15
- (e) Linen, "Mock-Leno," draft 19

(e)



GUIDE to HAND-WEAVING  
Arranged for use on the Looms built by the REED LOOM CO.  
by  
Mary M. Atwater

"Weaving" is the process of producing a textile fabric by making an interlacing of threads or strands of material. Some primitive forms of weaving are done without any form of equipment, but for most kinds of weaving a loom is required.

A "loom" consists essentially of a frame over which one system of threads, -- the threads that run lengthwise of the fabric -- may be held at a stretch. This frame is usually provided with a roller at either end; on one of these rollers, called the "warp-beam", the unwoven part of the warp is wound, and on the other the finished cloth is rolled up as it is made. The rollers are provided with ratchets for stretching the warp.

In addition to the rollers, most looms are provided with a "shedding mechanism" by means of which the warp-threads may be drawn apart and an opening or "shed" produced. Through this shed the shuttle that carries the "weft" or cross-thread may be passed back and forth. Most looms are also provided with a beater or "batten" by means of which the "shoots" or "picks" of weft may be driven close together for the making of a firm fabric.

Looms differ chiefly in the detail of the shedding mechanism. On simple hand-loom this consists as a rule of two or more frame or "harnesses" strung with "Heddles" and operated by levers, cams, or foot-treadles. These harnesses are set or hung in the loom between the front and back beams, and the warp passes through the eyes of the heddles. By raising and lowering the harnesses the desired sheds are produced.

Three of the looms built by the Reed Manufacturing Co., -- the "Weavers' Friend," the "Ideal," and "Little Dandy" looms -- are equipped with two harnesses only, and only two sheds can be made. The "Cambridge" loom is equipped with four harnesses, and a variety of sheds may be produced by raising and lowering the harnesses in various combinations. On the number of sheds producible depends the variety and intricacy of the patterns available to the weaver.

Diagram I shows a sketch of the "Cambridge" loom with the parts named for convenient reference. Corresponding parts of the two-harness looms are, of course, similarly named.

In weaving of any sort the first consideration is the loom. Make certain that the loom is correctly assembled and properly adjusted so that it operates easily, and see that all nuts and bolts are tight. It is impossible to do good work on a loom that is out of adjustment -- a simple point but often neglected by hand-weavers.

Next come the processes involved in preparing the loom for weaving -- "dressing" the loom. These consist of "warping", "beaming" the warp, threading the heddles or "drawing-in", carrying the warp through the "reed" or "sley" (the slotted metal strip held in the frame of the batten), and finally "tieing-in" or attaching the warp-ends to the cloth-beam.

Warping and Beaming. As the looms of the Reed Manufacturing Co. are all equipped with the labor-saving "sectional warp-beam", warping and beaming are accomplished in one operation. It is planned, let us say, to dress the loom with fifteen yards of carpet warp set at 12 ends to the inch: As the warp-beam is divided into spaces that correspond to  $2\frac{1}{2}$ " in the reed, 30 threads should be wound on each section; thirty spools of warp-

thread will therefore be required. These should be set in the spool-rack or "creel", care being taken that all unwind in the same direction. Set the spool-rack directly behind the loom and about four feet from it. Set the metal "guide" (the metal plate punched with holes) upright in the slot of the back-beam, directly above the section to be warped first, and thread the ends from the spools through this guide. It is well to begin with the spools on the lowest row of the rack, taking them through the lowest holes in the guide. Care should be taken not to cross the warp-threads. Now unfasten the cords attached to the warp-beam and bring the cord that corresponds to the first section up within the back-beam and attach the strand or "bout" of warp from the guide firmly in the bight of the loop on the cord. The loop-knot shown at (e) Diagram II is used by most weavers. Set the measuring device on the end of the beam at zero and turn the beam over with the crank till fifteen yards have been warped. Each complete revolution of the beam warps a yard.

It is necessary to hold the strand of warp firmly between the fingers at a point below the guide so that the warp will go on tight and even, wherefore it is well to have an assistant turn the crank.

When the desired yardage has been warped, loop the strand of threads around one of the pegs on the beam and cut the strand. Attach the strand to the loop of the cord in the next section of the beam, move the guide till it is directly above the second section, set the measuring device back at zero, and proceed as before. Warp all sections in this manner.

(For a fine warp at, say 24 to the inch the process of warping is the same but twice as many spools must be set in the rack.)

For a warp narrower than the full width of the beam, warp as many of the middle sections as desired, omitting sections at either end of the beam.

Drawing in. The next step is to thread the warp through the heddles. First unhook the metal strips on which the heddles run and push the heddles toward the left hand side of the loom. Now untie from its peg the strand of warp nearest the right hand end of the warp-beam. Carry this up behind the back-beam of the loom and over the top of the harnesses. It should be long enough to extend about 18" beyond the heddles. When drawing in with an assistant, take up a position in front of the loom and draw the warp-threads through the eyes of the heddles, using the hook provided with the loom. The assistant stands back of the loom, selects the threads in succession and holds them in position to be caught by the hook. When drawing in alone take a position at the right hand side of the loom directly opposite the ends of the harnesses; select with the left hand the heddle to be threaded and with the right hand the first thread of the warp; double the thread and thrust it through the eye of the heddle as in threading a darning needle. The hook is not used. As the heddles are threaded they should be drawn toward the right-hand end of the harnesses. In drawing-in be careful not to cross the warp-threads but to select always the next thread in order. However, perfect exactness in this is not necessary.

For two-harness weaving the usual manner of drawing in is to thread first a heddle on the first harness and then one of the back harness, and so in succession. This is represented on Diagram III at draft No. 1. The two horizontal rows of the draft represent the two harnesses -- the lower row, numbered "1" being taken as the front harness

and the upper row as the back harness. The black squares represent warp-threads threaded through heddles on the harness indicated by the row in which they occur. This work must be done with exactness, and mistakes in threading must be corrected.

Draft No. 2 represents a different system of threading, two heddles on the front harness and two on the back being threaded alternately. Draft No. 3 shows a still different order of threading: one thread on the front harness, two on the back harness, and so on.

As drawing-in proceeds, each strand of thirty threads should be looped together with the loop-knot to keep them from falling out of the heddles.

Sleying. Drawing the warp through the reed or sley is called "sleying". For this take up a position in front of the loom; push the threaded heddles back toward the left hand side of the loom; set the batten upright and fasten it in this position with a cord. Now with the left hand hold the first strand of warp-threads at a tension and with the hook select the first one, threaded through the first heddle; hook this thread over the forefinger of the left hand. Insert the hook in the first space or "dent" of the reed, holding the hook slotted edge down; catch the thread and draw it through. In this way proceed, drawing one thread through each space. (When fine warp is used two or more threads are drawn through each dent.)

The work of sleying must be done with exactness; a missed dent or a dent with too many threads will result in unsightly streaks in the woven fabric, while if threads are crossed in the reed the sheds will not open and weaving will be impossible. If a mistake is made the work must be done over.

Tying in. Attaching the warp-ends to the cloth-beam is the final process in dressing the loom. Bring the cords attached to the cloth-beam up around the breast-beam and insert a strip of wood through the loops. (The warp may be tied in directly to the loops but the bar is more convenient.) Make the tie as shown at (g) diagram II, taking care to have no loose threads and to tie all strands at the same tension.

To begin weaving. Stretch the warp by turning the cloth-beam; do not, however, stretch it too tight. Open one of the sheds and insert a "lease-stick" -- a flat strip of wood somewhat longer than the reed -- or put in a strand of coarse weft material. Change the shed and put in another stick or strand of coarse weft. Weave back and forth several times with coarse material and press the weft together with strokes of the batten. When the warp is spaced evenly across the loom, weave a "heading" -- an inch or so in plain weave using warp-thread as weft.

The process of weaving is as follows: open the first shed and throw the shuttle from right to left. With the shed still open beat with the batten (two light, sharp beats are better than one heavy thump). Open the opposite shed and beat again. Throw the shuttle and beat. Change the shed, beat, throw the shuttle, beat, and so on.

Loose ends of weft should be turned around a selvage thread and brought back into the shed. Ends of weft should be joined by lapping under a few warp-threads and woven in. In joining weft ends the square knot should be used as this can be taken out quickly and easily without untying. A knot in the weft should never be woven in. Join warp-threads with the weavers' knot. In case of a broken warp-thread, tie a length of warp to the broken warp-end and wind this around a pin inserted in the web. Do not attempt to tie two broken ends together.

The foregoing processes are the same for all kinds of hand-weaving. From this point on, however, the practise varies with the loom used and the fabric to be made.

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For rugs in plain weave ordinary four-ply carpet warp set at 12 ends to the inch serves very well. Warp set at 10 to the inch is sometimes used but does not make so durable a rug, and warp at 15 to the inch shows a too "warp" effect for plain rugs.

The weft may be coarse woolen rug-yarns, cotton "roving", cotton chenille, or cut rags. Wool makes the handsomest and most durable rug, but also the most expensive. Cotton chenille is excellent for bath-mats. Rags make an excellent rug when properly prepared. Cotton roving makes a thick, heavy rug that lies well on the floor.

It is impossible to make a good rug of rags poorly cut and badly sewed. Small scraps of different fabrics should not be used, nor material cut in different widths, or cut on the bias. Some waste material, as old blankets, old sheets, etc., may be stripped and woven into good rugs, and cheap new material, -- mill-ends or the like -- weave well. To strip up a wide piece of material, as a sheet, measure off inch-wide spaces across one end, cut down about eight inches at each space. Now gather up every other strip and hold tightly, having another person gather the remaining strips. Now walk away from your helper, pulling strongly on the cloth. The entire piece can in this way be stripped at one operation.

Long strips need not be sewed, the ends being lapped under a few warp-threads where they are joined. If it is necessary to sew the rags lap the two strips about two inches, fold lengthwise and stitch along the fold. Do not stitch across as this makes a lump when woven in.

"Hit and miss" effects are made by joining pieces of different colors. More attractive rugs are made by using material all in one color with contrasting colors for borders across the ends. The arrow-head or chevron effect often used in these borders is made by twisting together two strands of different color and weaving in the twist. The material must be given a right-hand twist for one shot and a left-hand twist for the return shot.

Elaborate figures are sometimes made in rag rugs by what is called the "inlay" process. Material in the colors of the desired pattern is cut into strips wider than the strip being used for the body of the rug. These strips, cut the desired length for the spot of color intended, are wrapped around the shoot of ordinary weft as it lies in the open shed before beating. The work must be done with precision and ravelled edges must be avoided. The process is tedious but the effects are often pleasing.

A thicker, heavier rug will result from threading as in draft 2 rather than as in draft 1, and the warp will show less.

A simple pattern in squares or stripes may be woven by threading the loom as at draft 3. The "blocks" may, of course, be any width desired. To weave, use "craft" wool in two colors, as blue and tan, with two shuttles. Or use fine-cut rags -- finer than for ordinary plain weaving. Open the first shed and weave a pick in blue, then the opposite shed and weave a pick of tan. Alternate till the block is of the depth desired. Then put in two shots of blue in succession and alternate the other way -- the first shed in tan and the second shed in blue. Weaving without changing produces a striped effect.

To weave a rug like the illustration, thread as at draft 2 but put three threads instead of two on each harness. Use two shuttles wound with medium fine material in con-

trasting colors as described above.

Begin by putting in ten successive shots in tan. Weave the first little border: shed 1, blue; shed 2, tan. Repeat for 7 shots. Then shed 2, blue; shed 1, tan. Repeat for 7 shots. Shed 1, blue; shed 2, tan. Repeat for seven shots. Ten shots in tan.

The remaining borders are made in a similar manner, the changes being made each time by putting in two blue shots in succession. The effect used for the middle of the rug is made by weaving: shed 1, blue; shed 2, tan; shed 1, blue; shed 2, blue; shed 1, tan; shed 2, blue, and repeat six times. Then the weaving as given for the first border.

Many other arrangements of pattern are possible by this means, and a number of colors may be introduced. The work should be very firmly pounded up with the batten, so that the warp is entirely covered. A heavy and handsome rug results.

A similar rug,- with the pattern stripes running lengthwise instead of across,- may be made by using colored material for the warp, set so closely that the weft is entirely covered. Draft No. 4 shows the arrangement of colors required to produce the pattern of the rug illustrated. "Craft" wool set at 16 to the inch will give the desired effect.

A warp in two colors, threaded as at draft No. 5 set very close and woven with two shuttles, gives a still different type of rug that can be made in many interesting patterns. The warp material should be a heavy cotton -- perle cotton #3 is handsome and ordinary carpet-warp may also be used. Set the heavier material about 32 to the inch and carpet-warp about 40 to the inch. The blocks may be any width desired and any design composed of two alternating blocks may be woven in this style. For instance, for a rug with a simple border all around and a pattern of large squares warp 1156 threads -- 592 blue and 564 tan. (Of course any two colors may be used.) Thread as shown on draft No. 5 for six repeats. This makes the right hand border. Thread the next 223 threads like block 1; the next 223 threads like block 2. Repeat these two large blocks again. Thread the left hand border with six repeats of the draft as written.

Weave with two shuttles, one carrying heavy material, such as a strand of rags, and the other carrying warp-thread. Weave a narrow heading in warp-thread. Then weave shed 1 in coarse material and shed 2 in fine; 1, coarse; 2, fine; 1, fine; 2, coarse; 1, fine; 2, coarse; 1, fine; 2, fine. Repeat six times. Weave the first large block: 1, coarse; 2, fine. Repeat as required to make the first block square. Weave the second large block: shed 1, fine; 2, coarse. Repeat as required for second large block. Put in two fine shots in succession and repeat the two large blocks as many times as desired for length of rug. Weave the top border like the bottom border.

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Fine materials may be woven on the two-harness looms. For suit-material, warp in "fabri" yarn set at 24 to the inch and weave in homespun yarn. Different colors or different shades of the same color should be used for warp and weft. Material with stripes running lengthwise may be made by setting the warp in stripes of color and weaving in one color. Stripes running cross-wise are made by warping in one color and weaving in various colors. Plaids are made by setting the warp in stripes and weaving with the same colors in the same order as the warping. By threading as shown at draft 5 and weaving in the same order: dark, light, dark light, for eleven shots and then two dark shots together, a very interesting "log-cabin" effect is produced. This may be further varied by making the blocks of different sizes.

All the forms of weaving so far described, and many more that cannot be mentioned for lack of space, may be woven on any one of the two-harness looms supplied by the Reed Manufacturing Co. They may also, of course, be woven on the Cambridge four-harness loom. The patterns and fabrics described in the following notes cannot be made on two harnesses; these directions, therefore, apply only to the Cambridge loom.

The four-harness shedding mechanism consists of four harness frames hung in pairs over pulleys, which in turn are hung in pairs over a roller at the top of the loom. The harnesses are tied each to one of the "lamms" or leavers attached to the left-hand "cape" or upright of the loom and through the lamms are connected with the foot-treadles. By depressing the treadles certain of the harnesses may be drawn down and the others raised to produce a number of different sheds.

In adjusting the Cambridge loom make certain that the harnesses hang level and at the proper height. A warp-thread passing through the loom should go through the heddles on a straight line when the loom is at rest. If deflected upward, the harnesses hang too high, and if deflected downward the harnesses hang too low. In either case it will be difficult to get a good shed.

With the harnesses correctly hung, proceed to the tie-up. In making the tie-up first tie the harnesses together so that they will not get out of place. Then tie each harness to one of the lamms by means of the snitch-knot as illustrated at (f) diagram II. The function of the lamms is to insure drawing down the harnesses evenly. The lamms should be given a slight upward slant as illustrated on diagram I. When correctly tied, fasten the lamms together to keep them from moving.

The tie-up to the treadles comes next. In most four-harness weaving two harnesses are drawn down for each shed, and as there are six possible combinations of two there are six possible sheds. For this reason the loom is equipped with six treadles. It makes no difference in the operation of the loom which pair of harnesses is tied to which treadle, but the arrangement shown on the tie-up draft given on diagram IV is a convenient arrangement used by many weavers and is the arrangement used for the treadeling directions given for the patterns in this hand-book. According to this tie-up the treadle to the extreme left is numbered "1" and is tied to bring down harnesses 1 and 2 by cords attached to the first two lamms. The second treadle is tied to the two middle lamms and brings down the two middle lamms; the third treadle is tied to the two back lamms; the fourth treadle to the first and fourth lamms; the fifth treadle, numbered "A" on the draft is tied to the first and third lamms and the treadle on the extreme right, numbered "B" on the draft, to the second and fourth lamms.

All these ties must be made with the snitch knot which permits close adjustment. A convenient method to follow is to cut twelve double cords of the required length which should be fastened by a double hitch to the screw-eyes on the under side of the lamms in the correct positions. Then make twelve loops, using the weavers' knot as shown at (d) diagram II to tie the ends together. These loops should be fastened in the corresponding screw-eyes in the treadles. Now sitting under the loom, make all the knots. The treadles should be drawn up till the ends are about a foot from the floor, and care must be taken to adjust the two ties on each treadle so that they pull equally.

The cord used for the tie-up should be a strong woven cord that will not stretch too much. The smallest size of sash-cord, is suitable. The cords will, however, stretch



somewhat at first and it will be necessary for the first week or two to adjust the ties frequently. When doing this always tie the harnesses first so that they will not move. The reason for the adjustable knot is apparent.

If not tied high enough the treadles when drawn down will not open a satisfactory shed, and if tied too high they will be awkward to operate, and will also strike against the cloth-beam and the lamms and will interfere with the operation of the loom.

If the sheds open with difficulty the trouble may be due to faulty action of the pulleys or to stiffness in the top roller. If the roller does not turn easily, release the bolts in the ends a little. A loom should operate easily and make a generous shed. Weaving should not be attempted on a loom that is out of adjustment.

The thousands of patterns possible on a four-harness loom depend on the manner in which the warp is threaded and on the order in which the sheds are opened. Threading drafts for these patterns are written in the manner already familiar from a study of two-harness drafts. There are four horizontal rows that each represent a harness, the lowest row, numbered "1" standing for the front harness. The black squares of the draft each represents a warp-thread drawn through a heddle on the harness indicated by the row in which the square occurs. Draft No. 6, for instance, represents a warp threaded: 1, 2, 3, 4, 1,2,3,4 and so on; draft No. 10 indicates a threading that begins: 1,2,1,2,3,2,3,4,3,4, etc. The weaving directions indicate the order in which the treadles are to be drawn down.

Drafts 6,7,8 and 9 produce simple, fine patterns and are much used in weaving fabrics for clothing. Draft 9 is also often used for linen towelling, sometimes for upholstery fabrics and occasionally for baby-blankets, suitable combinations of materials being selected for these various fabrics. The weaving is done with a single shuttle carrying weft material similar to that used for warp.

Drafts 10, 11 and 12 are simple patterns of the "overshot" type of weaving -- the form of pattern weaving chiefly used by hand-weavers. Two shuttles are used, one carrying the pattern thread -- usually a colored material a good deal heavier than the warp-- and the other carrying a fine thread similar to the warp. These shuttles are used alternately, the pattern thread being woven on treadles 1,2,3 and 4 and the fine thread on treadles A and B. The effect of this system of weaving is to produce a figure in "skips" or "floats" of weft over a foundation in plain over-and-under weave, commonly known as "tabby".

The weaving directions give the pattern shots only, the tabby shots being understood. The complete treadeling for pattern No. 10, for instance, would read as follows: treadle B, fine thread, the shuttle passing from right to left of the loom; treadle 1, pattern thread, this shuttle likewise passing from right to left; treadle A, fine thread, left to right; treadle 1, pattern thread, left to right; treadle B, fine thread, right to left; treadle 1, pattern thread, right to left; treadle A, fine thread, left to right; treadle 2, pattern thread, left to right; and so on through the pattern. Note that the fine or tabby shuttle should run ahead of the pattern shuttle.

The treadeling directions as given for each of these three patterns is the simple "normal" weaving of the pattern. A great many variations of treadeling may be used, making it possible to produce a variety of interesting little borders. The illustration

showing a sampler woven on the "Honeysuckle" threading indicates this in a graphic manner. "Honeysuckle" is specially recommended to beginners and is a wise choice for the first piece of pattern weaving.

Diagram V gives the threading and weaving directions for a rug in overshot pattern weaving. The standard tie-up as shown on Diagram IV was used in writing the weaving directions.

Diagram VI gives the plan, threading and weaving for a coverlet in a very famous old Colonial pattern. "Pine Bloom" is the name by which this pattern was known in the South, and "Isle of Patmos" is the pious New England name. This is not a good pattern for a rug, but can be used for pillow-tops and drapery material.

Diagram VII shows one of the finest of the old patterns, which may be used in many ways, some of which are noted on the diagram. It is a good pattern for rugs, and for this use should be threaded as follows: Begin with a selvage threaded 1,2,3. Begin the pattern at thread 16 of the draft and thread through to the end. Then from the beginning to thread 24 -- the point marked "A" on the draft. Now begin at thread 155 and thread to the end, and again from the beginning to "A". Repeat the 48 threads of this small figure as often as may be required for the body of the rug. After the last repeat thread through to thread 164 and end 3,2,1 for a selvage.

This thread makes a rug with large circles and roses in the corners that produce a pleasing border all around, and a central part in a figure of small rings and roses.

Diagram VIII gives two designs for baby-blankets. Draft No. 17, it will be noted, is woven on a special tie-up and the weaving directions refer to treadles tied as shown on the diagram. The blankets woven as indicated will be about a yard wide, finished, and should be woven about a yard and a quarter long. They should be lightly beaten so that the fabric will be light and soft.

Pattern 18 and 19, diagram IX, are used a great deal for linens, but may also be used for other purposes. Pattern 18 is excellent for upholstery and is also used for all-wool sweater and coat fabrics. Pattern 19 when done in fine, soft wool is charming for shawls and scarves, and may also be used for light-weight all-wool dress material.

The patterns presented are selections from the very large number of patterns available to hand-weavers. They have been chosen as representing types and giving a wide variety.

## TWO METHODS OF SETTING UP A FOUR HARNESS SIX TREADLE LOOM FOR PLAIN WEAVING

### METHOD No. 1

When using all four harnesses for Plain Weaving set up the loom in the following manner:

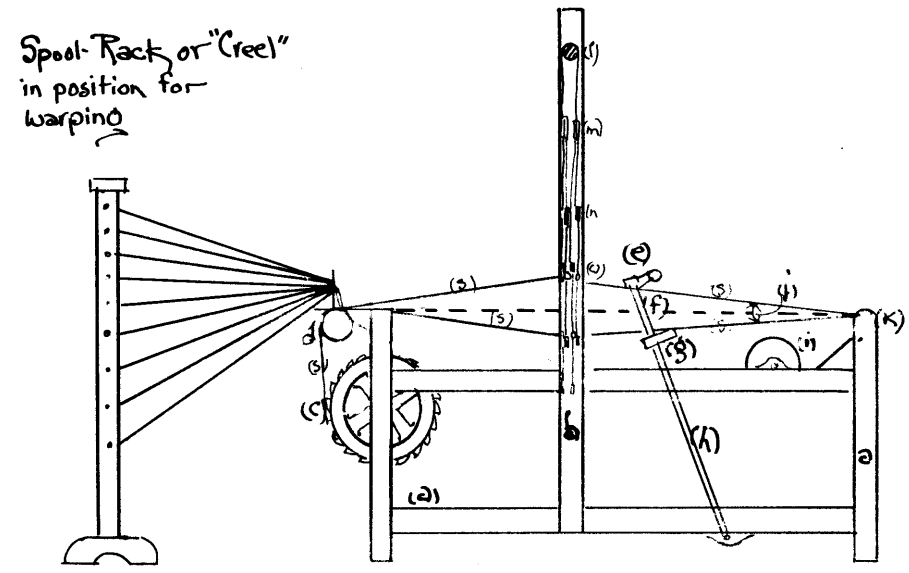
1. Put an equal number of heddles on each of the four heddle frames.
2. Thread the heddles in the following order counting from the back of the loom to the front. Thread, 1-2-3-4—1-2-3-4 and repeat until all the warp is drawn through the heddle eyes.
3. Tie heddle bar No. 1 to Lamm No. 1.  
Tie heddle bar No. 2 to Lamm No. 2.  
Tie heddle bar No. 3 to Lamm No. 3.  
Tie heddle bar No. 4 to Lamm No. 4.
4. Tie Lamm No. 1 and Lamm No. 3 to Treadle No. 1.  
Tie Lamm No. 2 and Lamm No. 4 to treadle No. 2.  
To weave plain weave or tabby weave, alternate pressing treadles No. 1 and No. 2.

### METHOD No. 2

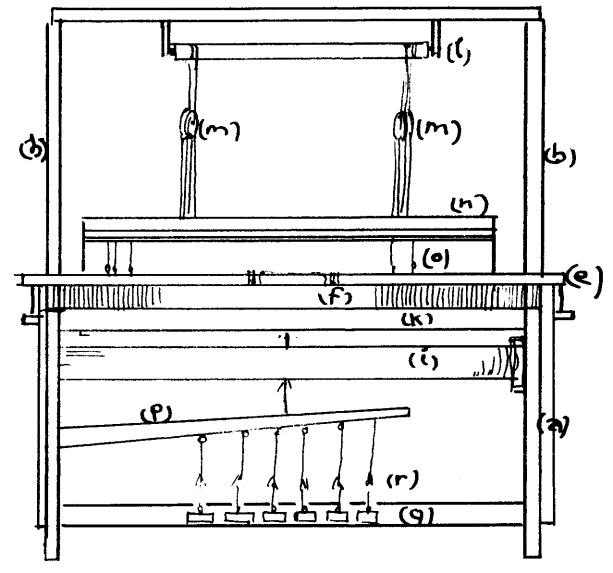
1. Remove two of the four harnesses and two of the four Lamm. Hang the remaining two harnesses one on one side of the pulley and one on the other side of the pulley.
2. Put the same number of heddles on heddle bar No. 1 and No. 2.
3. Thread, 1-2—1-2—until all the threads are threaded through the heddle eyes.
4. Tie heddle bar No. 1 to Lamm No. 1.  
Tie heddle bar No. 2 to Lamm No. 2.
5. Tie Lamm No. 1 to Treadle No. 1.  
Tie Lamm No. 2 to Treadle No. 2.
6. When weaving, alternate treadles No. 1 and No. 2.

Diagram I

Side View of Loom



Front View of Loom

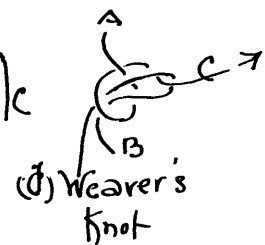
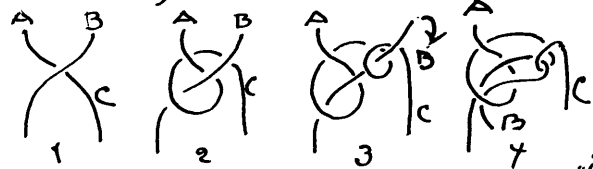
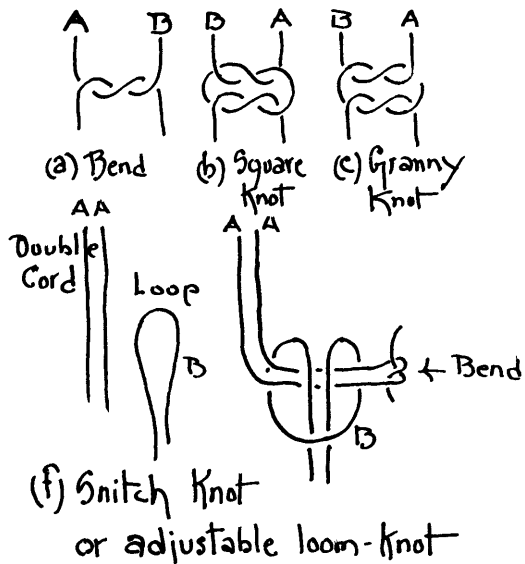


- (a) Frame of loom
- (b) Capes
- (c) Warp-beam
- (d) Back beam
- (e) Battens
- (f) Reed
- (g) Shuttle-Race
- (h) Sword of Battens

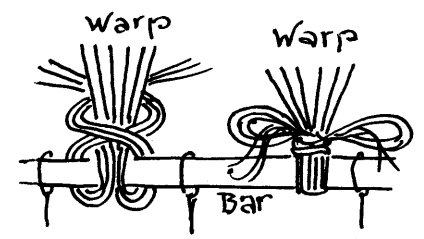
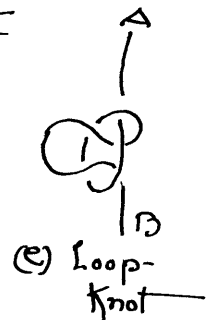
- (i) cloth-beam
- (j) Shed
- (k) Breast Beam
- (l) Roller
- (m) Pulleys
- (n) Harness or Heddle-frame
- (o) Heddles
- (p) Lamms

- (q) Treadles
- (r) ties, made with the switch-knot
- (s) Warp

## Knots used by Weavers



## Diagram II



The square knot is used for tying ends of weft together. When reached in weaving it should be taken out - pull one of the ends straight and the other end will slip off.

The granny knot is used in making tied heddles - see (h)

The weaver's knot ties warp-ends together. It will not slip. To tie the weaver's knot cross the ends "A" and "B" as at "1". Hold the cross between thumb and finger of the left hand. With the cord "C" make a loop around both ends, as at "2", then a loop around "B" as at "3".

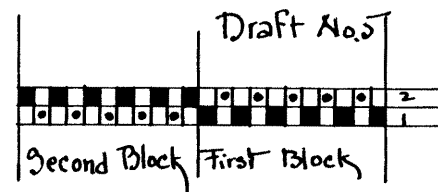
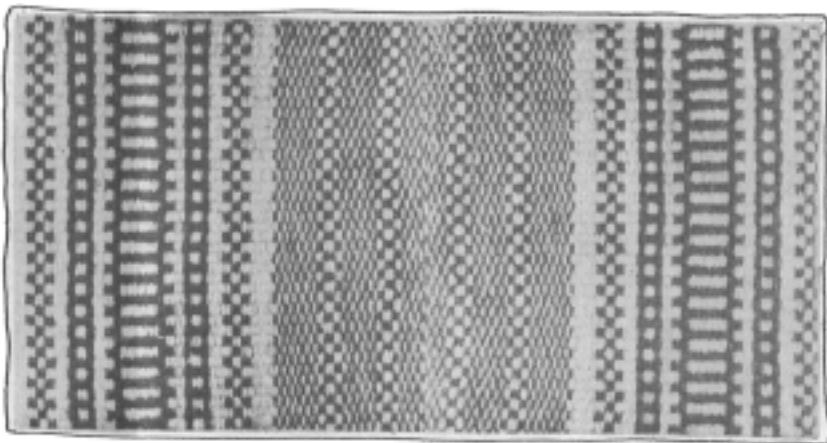
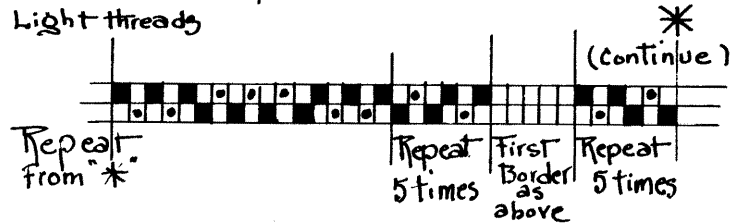
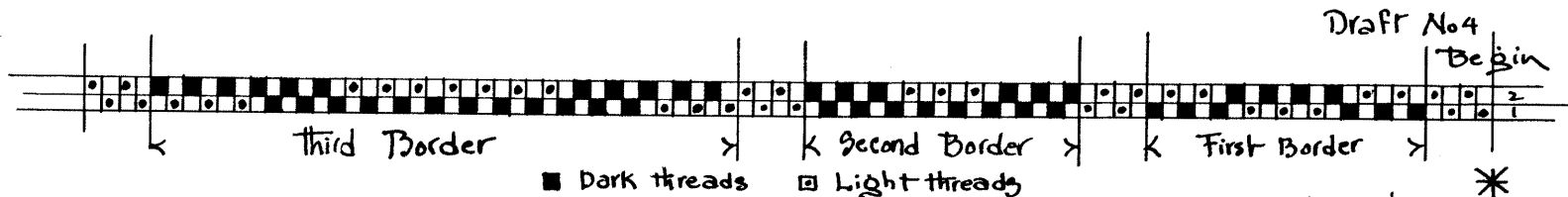
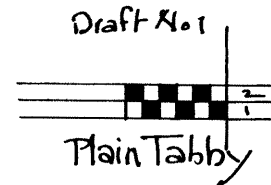
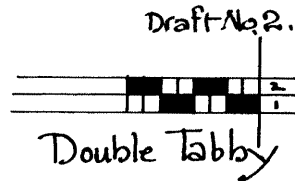
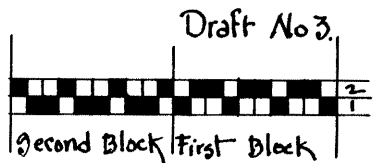
Now turn the end "B" back under the first loop, as at 4. Draw the knot tight by pulling up on "C".

The loop-knot is used to hold strands of warp from falling out of the heddles or reed while "drawing-in". The snitch-knot is used for all adjustable ties on the loom, as from treadles to looms.

(a) illustrates the bow-tie used in tying in, and (h) a tied heddle

# Drafts for Two-Harness Weaving

Diagram III

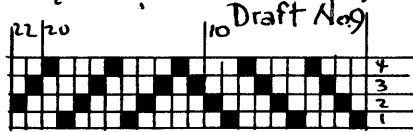


M.M. Atwater  
1931.

# Patterns for Four-Harness Weaving

Diagram IV

Herring-Bone and Goose-Eye



Weave: Herring-Bone, like Twill  
 Goose-Eye: 1, 2, 3, 4, 1, 2  
 3, 4, 1, 2, 3, 2, 1, 4, 3, 2  
 Repeat

Bird-Eye



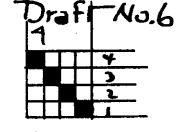
Weave: 1, 2, 3, 4,  
 3, 2,  
 Repeat

Dornik



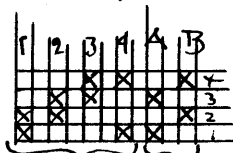
Weave: 1, 2, 3, 4,  
 Repeat

Twill



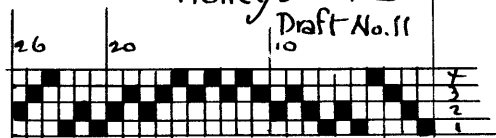
Weave:  
 1, 2, 3, 4  
 Repeat

Tie-Up Draft



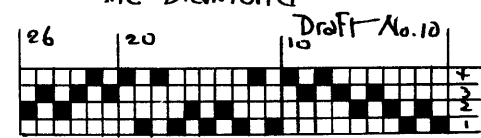
Pattern Tabby

Honeysuckle



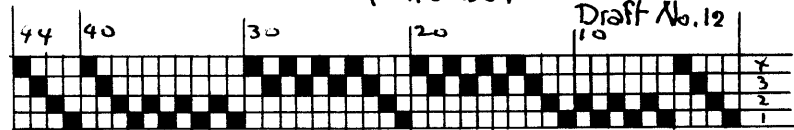
Weave: 1, twice; 2, 3, 4, each once  
 1, 3 times; 2, 3 times; 3, 6 times  
 2, 3 times; 1, 3 times; 4, 3, 2, each  
 once. Repeat

the Diamond



Weave: 1, 3 times; 2, 3 times; 3, 3 times  
 4, 3 times; 1, 1 times; 4, 3 times  
 3, 3 times; 2, 3 times, Repeat

Monk's Belt



Weave Monk's Belt:  
 1, twice; 3, twice; 1, 8 times; 3, 8 times  
 1, twice; 3, 8 times; 1, 8 times; 3, twice  
 1, twice; 3, twice Repeat

# Pattern for a Rug — "Dog Tracks" —

Diagram V

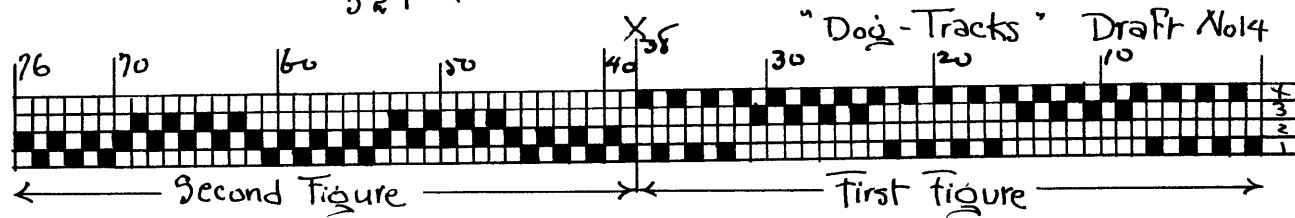
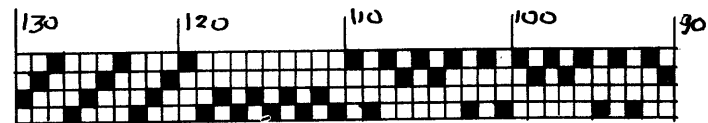
Warp: Carpet warp, 527 ends, set at 15 to the inch

Tabby: Carpet warp

Pattern weft: rags, roving, rug-wool, etc.



Thread: Right hand border 130 threads  
 Then 3 repeats of draft No. 14 228 "  
 First figure, to "X", draft No. 14 38 "  
 Repeat border 130 "  
 End on "1" 1 "  
 527 "



Weave Border:

2, 1, 4, 3, each one shot. Repeat 3 times  
 2, 6 shots  
 3, 2 shots; 4, 2 shots. Repeat 11 times  
 3, 2 shots  
 2, 6 shots  
 3, 4, 1, 2, each one shot. Repeat 3 times

Weave "Dog Tracks"

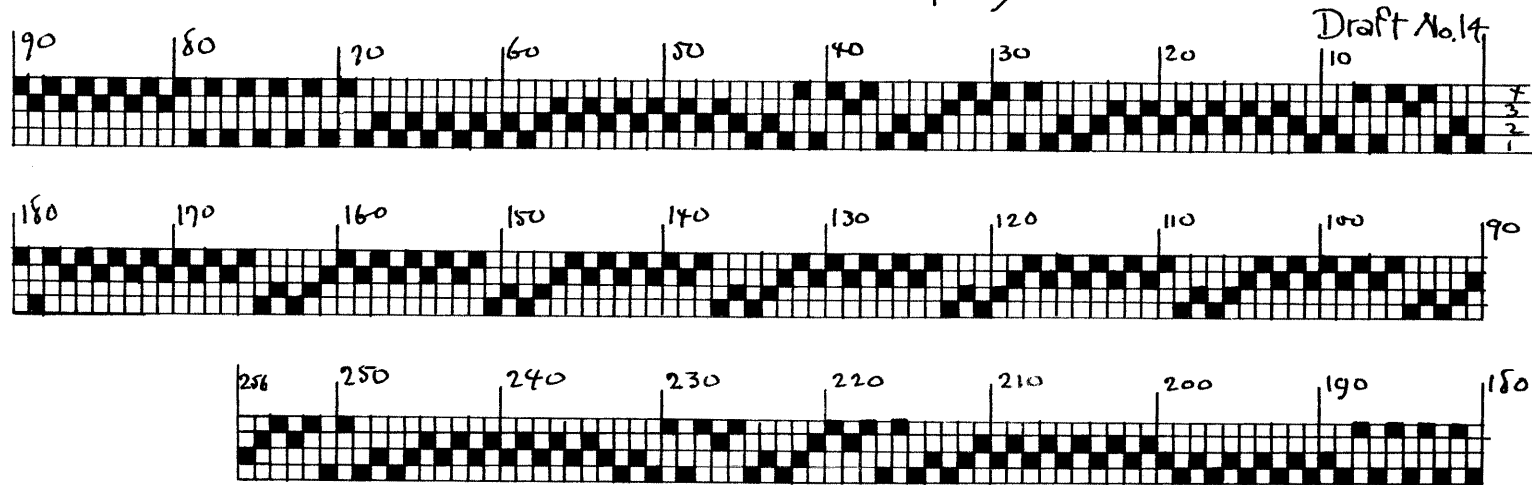
3, 6 shots; 4, 6; 3, 6; 4, 6; 3, 6;  
 2, 6; 1, 6; 2, 6; 1, 6; 2, 6  
 Repeat six and a half times  
 Repeat border

M. M. Atwater  
 1931

Design for a Coverlet. Pattern: "Fine Bloom", or "Isle of Patmos."

Warp: Egyptian cotton "24/3" at 30 threads to the inch, — 1268 ends.  
 Tabby, warp thread, Pattern weft, Shetland or Homespun yarn.

Diagram VI



To thread: Draw in three complete repeats of the draft; then from the beginning again, ending on thread 234. Repeat 13 times more the 20 threads 215-234 (this makes a border) End: 3, 4, 1, 2, 3, 4 for a selvage.

Weave Bottom Border: Treadle 1, 3 times; 4, 3 times; 3, 3 times; 1, 3 times; 3, 3 times; 4, 3 times  
 Repeat this series fourteen times. End with: 1, 3 times

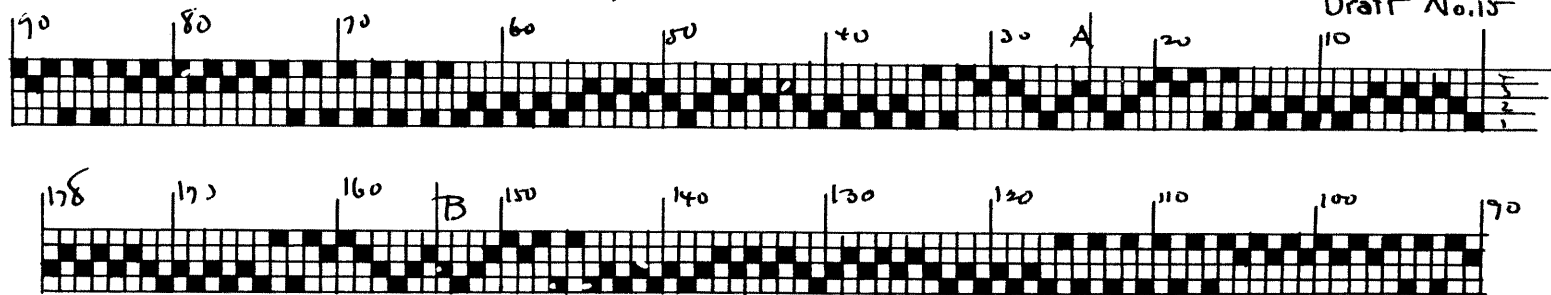
Weave the Pattern: 2, 10 times; 1, 10 times; 4, 10 times; 3, 10 times; 1, 3 times; 3, 8 times;  
 1, 3 times; 3, 8 times; 1, 3 times; 3, 8 times; 1, 3 times; 3, 8 times; 1, 3 times; 3, 8 times  
 1, 3 times; 3, 10 times; 4, 10 times; 1, 10 times; 2, 10 times \* 1, 3 times; 4, 3 times; 3, 3 times  
 1, 3 times; 3, 3 times; 4, 3 times; 1, 3 times; 2, 10 times. Repeat from \* twice more.



# The "Wreath Rose" Pattern.

Diagram VII

Draft No. 15



For a Coverlet: warp 92 threads of perle cotton #10 at 24 to the inch. (this makes each strip about 38" wide.) Draw in three complete repeats of the draft. then repeat the first 164 threads. Make a border by repeating 12 times more the 18 threads 147-164 of the draft. thread a selvage of 8 threads: 1, 2, 3, 4, 1, 2, 3, 4

For tabby use cotton like the warp. Weave the pattern in four-fold Germantown or Zephyr yarn.

Treadle the bottom border: treadle 3, 3 times; 4-3; 1-2; 2-2; 1-2; 2-2; 1-2; 4-3. Repeat thirteen times. End border: 3-3.

\* Treadle the pattern: 2-6; 1-6; 2-2; 1-6; 2-6; 3-10; 4-10; 3-3; 4-3; 3-3; 4-10; 3-10; 2-6; 1-6; 2-2; 1-6; 2-2; 1-6; 2-6; 3-3; 4-3; 1-2; 2-2; 1-2; 2-2; 1-2; 4-3; 3-3; 2-6; 1-6; 2-2; 1-6; 2-6; 3-3; 4-3; 1-2; 2-2; 1-2; 2-2; 1-2; 4-3; 3-3. Repeat from "\*"

For the "Whig Rose" pattern use as a repeat in threading: the 130 threads - 25-154 of the draft (A to B). To weave treadle A to B of the treadeling directions.

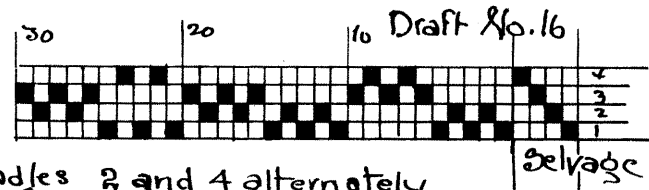
For the "Lover's Knot" pattern thread as for "Whig Rose" and treadle as follows:

1-6; 2-6; 1-2; 2-6; 1-6; 4-10; 3-10; 4-3; 3-3; 4-3; 3-10; 4-10; 1-6; 2-6; 1-2; 2-6; 1-6; 4-3; 3-3; 2-2; 1-2; 2-2; 1-2; 2-2; 3-3; 4-3. Repeat.

# Designs for Baby Blankets

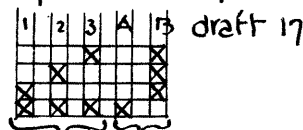
Diagram VIII

Warp 563 ends of Iceland yarn at 15 to the inch —  
 94 threads pink (or blue), 375 ends white, 94 pink.  
 thread: selvage; then 18 repeats of the draft —  
 omitting the selvage on repeats, of course — then  
 the first 15 threads and selvage: 4, 3, 2, 1.

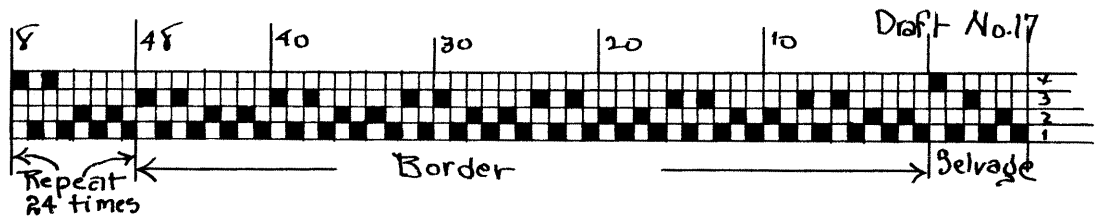


Weave: Treadles 1 and 3 alternately for 12 shots; treadles 2 and 4 alternately for 12 shots. No tabby is used. Treadling is for the regular tie-ups  
 Weave borders top and bottom in color — body of the blanket in white.  
 Weft yarn should be the same as the warp. Beat lightly.

Special tie-up for



Pattern Tabby



Warp 301 ends of four-fold Germantown yarn at 8 to the inch — 55 threads pink (or blue), 191 ends white, 55 ends pink. thread as indicated on the draft — the complete draft once, then 23 additional repeats of the 8-thread pattern for the center. Repeat the border and then the selvage, adding a final thread on harness 1.

Note the special tie-up.

Weave a narrow heading on treadles A and B.

Weave Border: treadle 1, 3 times; treadle B, 3 times in white with treadle B in color between pattern shots. (Treadle A used only in the heading)

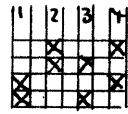
Weave body of Blanket: treadle 1, 3 times; treadle 3, 3 times. Treadle B between pattern shots — all shots in white. Repeat border. Weft material should be yarn like the warp.

M. M. Atwater  
 1931

# Linen Weaves

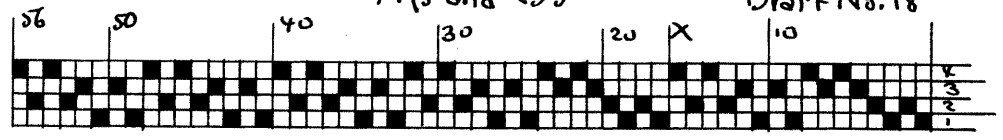
Diagram IX

• Special tie-up



"Ms and Os"

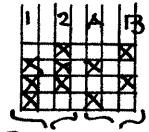
Draft No. 16



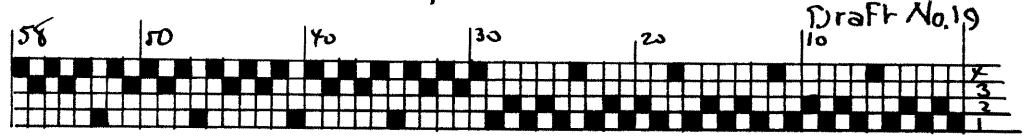
Weave: treadles 3 and 4 alternately for 8 shots; 1 and 2 alternately for 8 shots; 3 and 4 alternately for 8 shots; 1 and 2 alternately for 32 shots. Repeat.  
 This is a good pattern for fine table-linen and towelling. For a small pattern use the first 16 threads to "X" as a repeat.

## The Openwork Weave, or "Mock-Leno"

Special tie-up



Pattern Tabby



Weave first figure: A, 2, A, 2, A, B. Repeat 5 times  
 " Second " 1, B, 1, B, A, B, Repeat 5 "

For heavy curtain material, use coarse linen floss for both warp and weft. Thread: 1, 4, 1, 4, as desired for a tabby border and sley this border 15 to the inch. Thread the body of the curtain as shown on the draft, and sley 7 1/2 to the inch (every other dent of a 15-dent reed). Weave plain tabby for hem on treadles A and B, - beating close. Weave the body of the curtain as indicated, beating lightly. Figures should be square.

For a curtain in plain weave with open-work borders: thread 30 threads 1, 4, 1, 4, and repeat; then the first 30 threads of the draft, repeated twice; then 30 threads threaded 1, 4, 1, 4, and repeat. This completes the side border. For the center, begin at thread 29 of the draft and thread to the end, repeating these 30 threads as may be required. Repeat border. Weave the bottom border as for figure 2, and the body of the curtain as for figure 1.