BEKA RL Looms

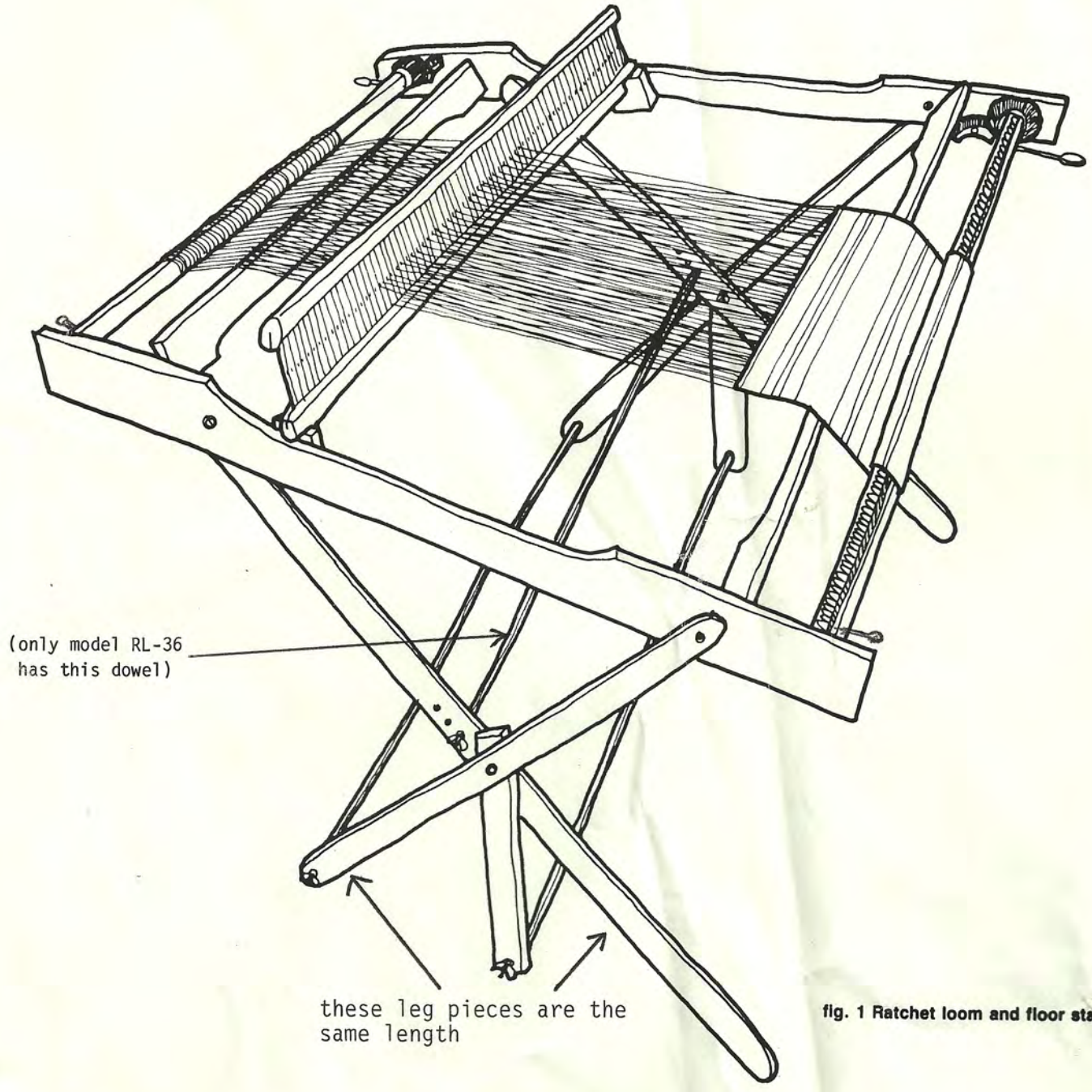
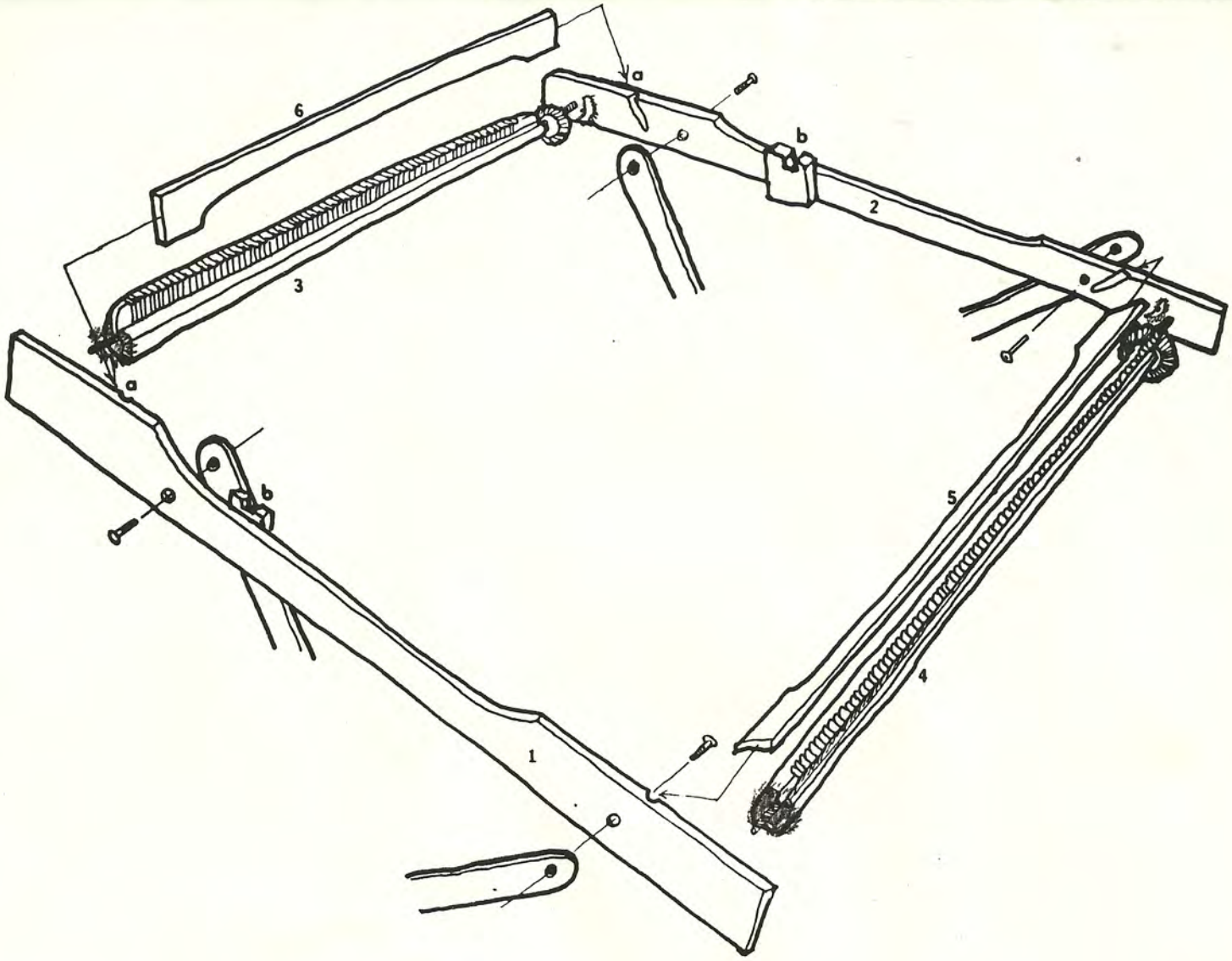


fig. 1 Ratchet loom and floor stand.

Your Beka loom has been individually handcrafted from quality materials and will give you maximum functional versatility. To preserve the beauty of the loom, we recommend that you treat it like any other piece of fine furniture. In return, it will give you many years of enjoyment.

Beka, Inc. 542 Selby Ave. St. Paul, MN. 55102 (651) 222-7005



Note: Attach the pawls to the inside of each side piece. Use the screws provided, passing a screw through a pawl, and then screwing it in the holes provided. Do not tighten them so much that movement is prevented (see piece 2 in above figure).

Loom Assembly

1. Position the pieces of the loom frame as shown in fig. 2. The side pieces (1 and 2) should be placed with their flat sides down and the shed blocks toward the back of the loom and inside the frame. The warp beam(s) and cloth beam (pieces 3 and 4) should be placed with the dents facing upward and their rounded sides facing inside the loom frame.
2. Insert the ends of the warp beam(s) and cloth beam into the holes in side piece 1.
3. Fit side piece 2 in place.
4. Slip the breast beam and the back beam (pieces 5 and 6) into the dovetail grooves in the side pieces.

fig. 2
1 and 2. side pieces
a. dovetail grooves
b. shed blocks
3. warp beam
4. cloth beam
5. breast beam
6. back beam

Also included:
one pick-up stick
two stick shuttles
three rigid heddles
(one each-8, 10, and 12 dent)

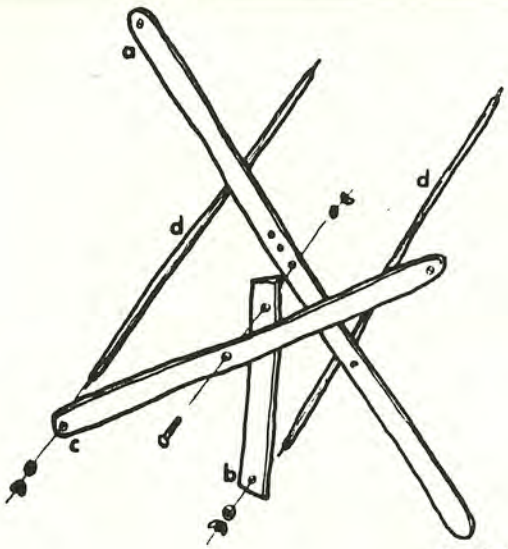


fig. 3 floor stand

Floor stand assembly

1. Attach the 3 legs of each side to each other with the bolts provided. The recess on the inner (longest) leg (a) faces the inside, and the rounded ends of the legs sit on the floor (figs. 1 and 3). Insert the bolts from the flat side of the legs so that the protruding ends will be in the recess.
2. Connect the two sets of legs by inserting the two dowels (d) between legs b (fig. 3). The longer dowel fits between the two outer (back) legs and the shorter dowel between the short (middle) legs.
3. Turn the loom frame upside down. Attach floor stand to loom frame — legs a and c with the bolts provided.
4. Turn the loom and floor stand right side up and tighten all bolts.
5. Adjust angle of loom if desired, by changing the point the legs are crossed.

Preparing for weaving

1. Select one of the three rigid heddles (see sett below) and place it in the shed block notch, longer edge down, BEKA letters on plastic facing front beam. See fig. 1. This is "neutral" for threading.
2. Mark the center of the heddle and the center of the warp beam(s) and fabric beam as a reference point for centering your work.

Project size

BEKA MODEL RL frame looms come in various weaving widths. The width of the heddle determines the maximum weaving width. RL looms will hold 8 to 12 yards of warp yarn, depending on the thickness of the yarn and the thickness of the finished fabric.

Sett

Three different dent heddles come with RL looms. These accommodate different weights of yarn at different spacings or *setts*, making your BEKA loom a versatile weaving tool.

- The 8 dent heddle has large holes and is used for heavy yarns, novelty yarns and mohair, at a sett of 8 warp ends per inch, or 8 e.p.i.
- The 10 dent heddle is the standard frame loom heddle, and is used for yarns such as weaving wools, 3/2 perle cotton and sport weight yarns, at a sett of 10 warp ends per inch, or 10 e.p.i.
- The 12 dent heddle is used for finer wools, 5/2 perle cotton or cottolin at a sett of 12 warp ends per inch, or 12 e.p.i.
- In addition, all three heddles may be threaded at half density by filling every other hole and slot, to obtain setts of 4 e.p.i., 5 e.p.i. and 6 e.p.i. These wider setts are used for weft faced fabrics.

Yarns

A warp yarn should be chosen for its strength, and choice is limited to what will fit into the holes in the heddles. Some examples of a warp yarns appropriate for each heddle size are given above. Any type of yarn or fiber may be used for weft.

Calculating the warp

To figure the amount of warp yarn needed for your project, determine the sett of the fabric you wish to make, and its finished dimensions. The following formulas are used to calculate warp amounts.

number of warp ends needed = finished width x sett.

length of each warp end = finished length + 10% take-up + 24" loom waste.

total warp yardage =

$$\frac{\text{number of warp ends x length of each end}}{36}$$

For a balanced weave fabric, you will need an equal amount of weft yarn as warp yarn. Fow a weft faced fabric, you will need at least 4 times as much weft yarn as warp.

Sample project

For a balanced weave fabric 24 inches wide and 36 inches long, warp should be calculated as follows:

20" x 10 e.p.i. = 200 warp ends.

36" + 24" = 64" warp length.

$\frac{200 \times 64}{36}$ = 355 yards warp yarn needed, plus 355 yds of weft or 710 yds total yarn for project.

Warping equipment needed

A BEKA warping board, or an equivalent device for measuring warp yarn.

A piece of heavy paper cut 2" wider then your warp, and the length of your warp.

Scissors

Warp yarn

Steel crochet hook #8 (provided with loom)

For method 2, you will also need 5 to 6 yards of strong string or cord, and the 2 shuttles that come with the loom.

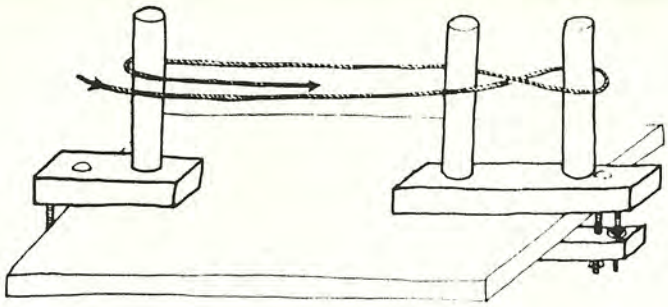


fig. 4

Measuring Warp

Set up warping posts to desired length (fig. 4), or determine where warp length will fit on a warping board (fig. 5). Tie the yarn loosely to the end post to secure it. Wind the warp in a continuous series of figure-eight loops, forming a *warp cross* at the two close pegs.

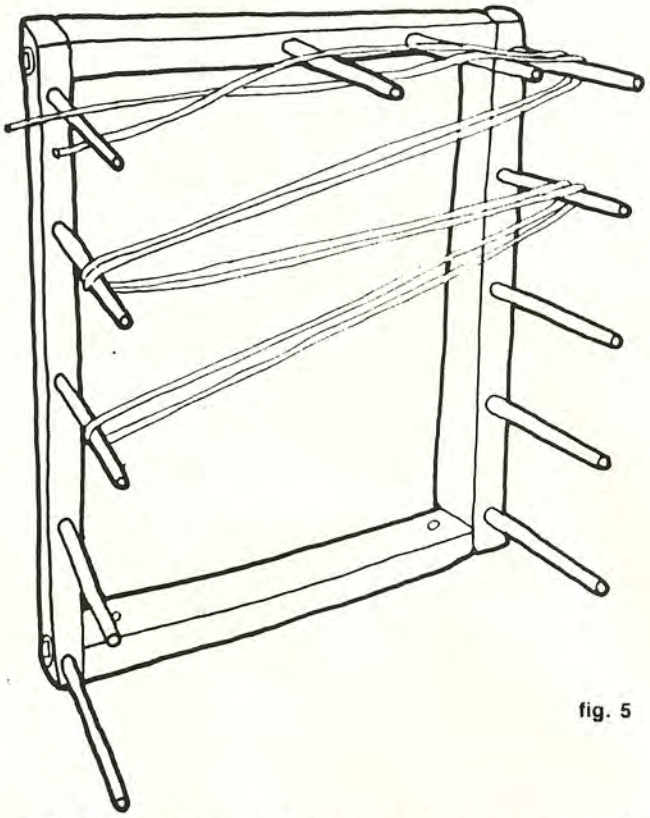


fig. 5

Each figure-eight loop is composed of two warp ends. The warp cross serves to keep the threads in the exact order in which they are wound. When the desired number of warp ends has been measured, tie the yarn loosely to the end post again and cut it off. With a contrasting thread, tie through the warp cross to preserve it (fig. 6). Make another tie at the opposite end of the warp. For method 1 below, mark the ends of the warp loops nearest the cross with a marking pen (fig. 6)

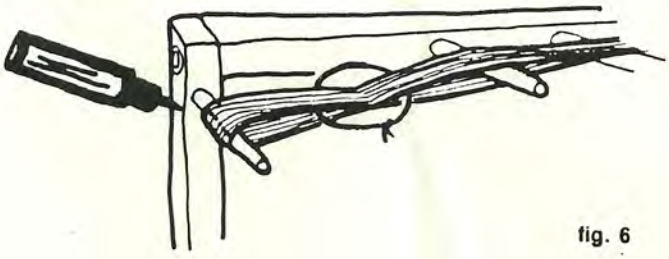


fig. 6

Dressing the loom

Method 1: *Recommended for short warps and 4, 5, or 6 e.p.i. fabrics. Do not use for multiple heddle warps.* In this method, warp loops are not cut until the warp has been wound onto the loom.

1. Center your warp. Determine the starting point for threading the heddle, according to the width of your project.

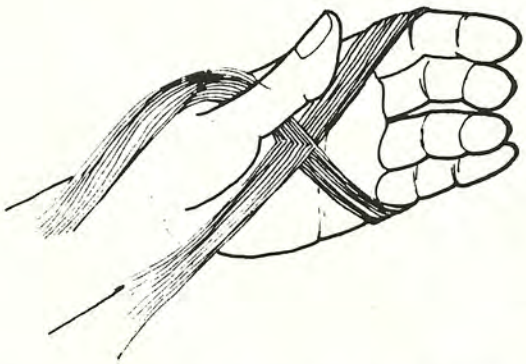


fig. 7

2. Lift the warp chain off board or posts. Place left hand through the warp cross with fingers in top loop and thumb below cross (fig. 7). Remove cross tie.
3. Pick up the top loop from the cross and insert it through the first slot in the heddle, bring it over the back beam, under the warp beam and loop it around the first dent on the warp beam (fig. 8). The slots in the 10 dent heddle correspond to the notches between dents on each beam. Take care to center the markings on the warp loops over the dents. Continue to place loops of warp in every slot and around each dent for balanced weave fabrics; in every other slot and around every other dent for weft faced fabrics; until all warp loops have been placed.

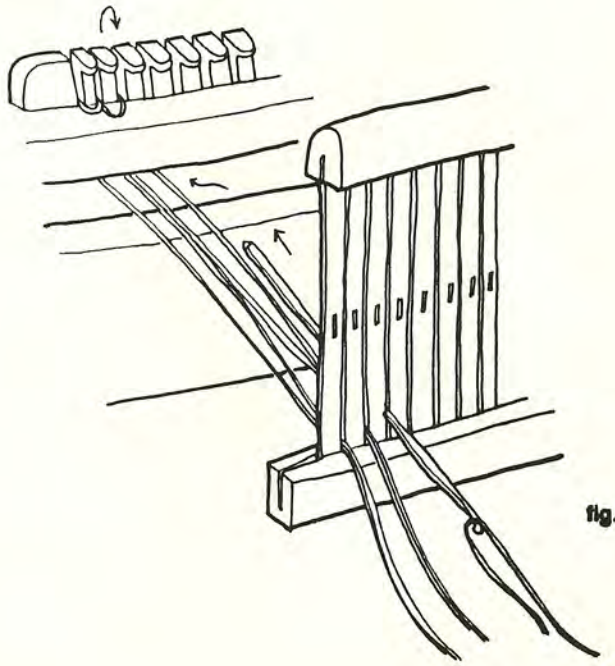


fig. 8

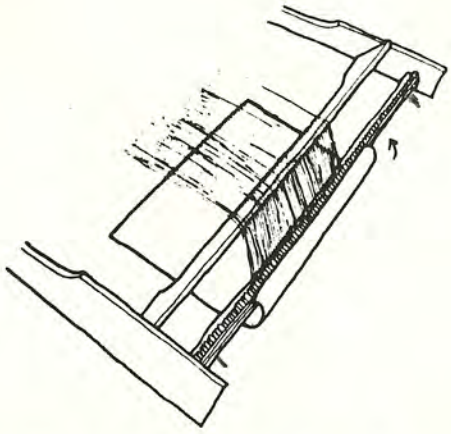


fig. 9

4. Wind warp onto the warp beam with heavy paper wound between the layers to maintain an even tension (fig. 9). To do this, insert the edge of the paper under warp loops. Release the pawl on the warp beam, and rotate the beam one full turn, stop, engage the pawls and pull back on the warp ends to tighten them. Shake out any tangles in the yarn with a whipping motion. Repeat this winding and tightening process until the end of the warp is 8 inches in front of the cloth beam.
5. Cut the end of the warp and shake out any further tangles.

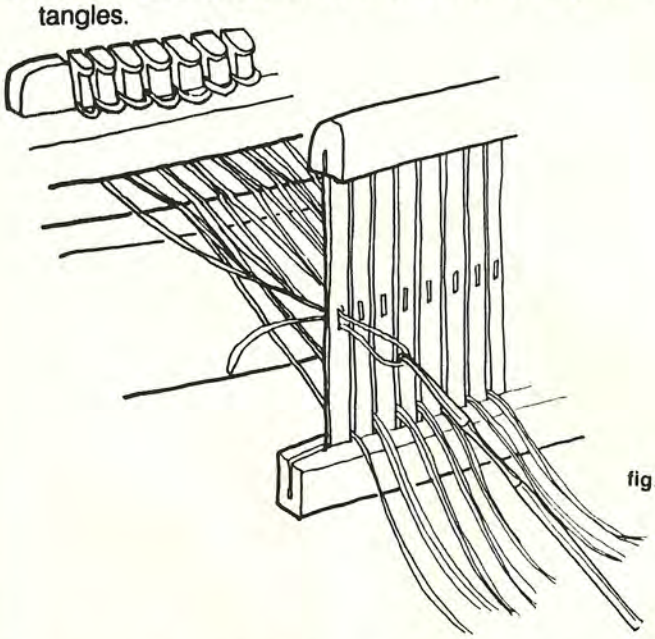


fig. 10

6. Thread the holes in the heddle by pulling one warp end out of each slot and inserting it into the adjacent hole using the hook provided (fig. 10). *Be careful to hook the ends of the threads only, so as not to weaken them.*
7. Bring the warp ends over the breast beam, under the cloth beam and into the notches on the cloth beam, distributing the warp ends evenly across the beam.
8. Temporarily tie 4 threads at each end into bows against the dents. **Place the heddle in the upper position on the shed blocks** (fig. 11). Now tie all the warp ends in groups of 4 or 8 into bows against the dents (fig. 11). Try to maintain an even tension while tying.

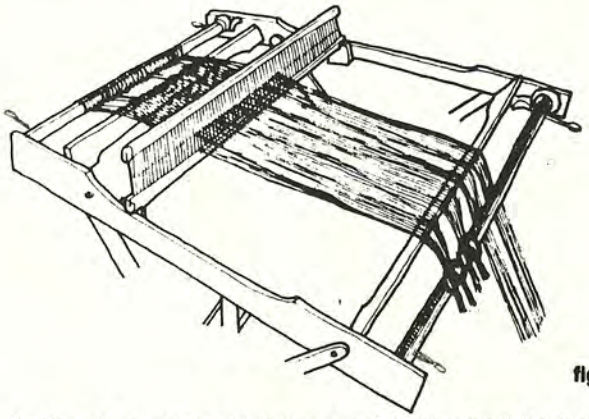


fig. 11

9. Check warp tension by placing the heddle below the shed blocks. If the heddle slides forward, tension is too loose. Tighten it by tightening the warp beam until the heddle is held firmly under the shed blocks. Spots of uneven tension can be adjusted by retying the appropriate bows.

Dressing the loom

Method 2: *Recommended for striped warps, 8 or 12 dent heddles and multiple heddle warps.*

After the warp has been measured on warping posts or board:

1. Tie a loop of cord loosely through the warp cross. See fig. 6 above.
2. Make a "choke" tie with 18" of cord about 12 inches from the cross. This should be tied very tightly.
3. Carefully cut **both** ends of the warp and remove it from the warping device.

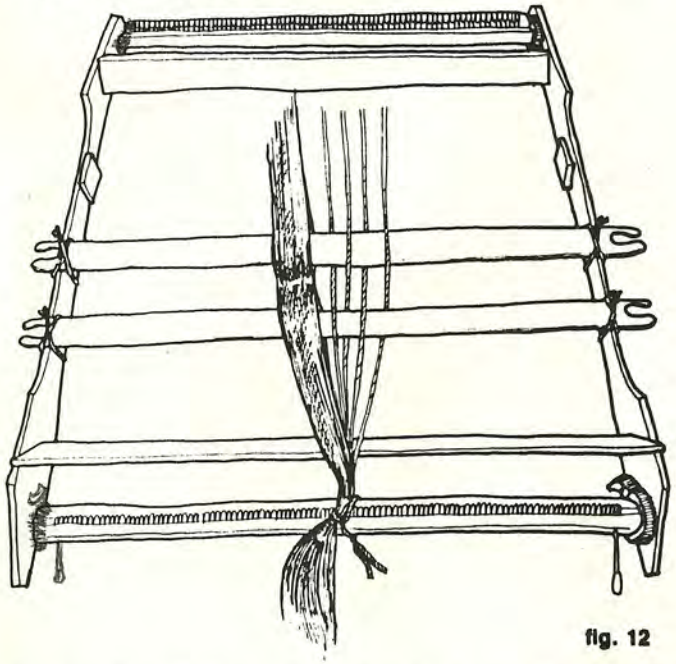


fig. 12

4. Insert the two shuttles in the warp cross, one on each side, and tie them to the sides of the loom just in front of the heddle (fig. 12).
5. Use the long ends of the "choke" tie cord to tie the warp to the cloth beam (fig. 12).

6. Remove the cross tie and spread the warp cross out on the two shuttles.
7. Sit at the back of the loom for threading. Determine the starting point for threading the heddle, according to the width of your weaving.
8. Withdraw threads from the cross in order, one at a time, and thread them through both holes and slots in the heddle, using the hook provided. *Be careful to hook the ends of the threads only, so as not to weaken them.*

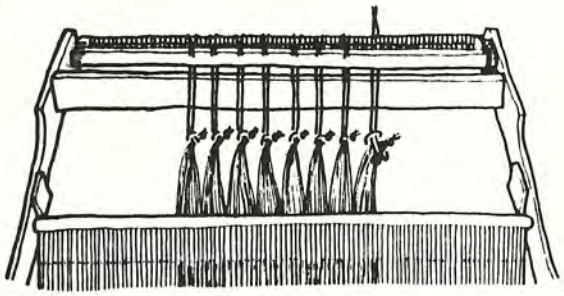


fig. 13

9. When 10 ends have been threaded, tie them together in an overhand knot (fig. 13). Continue until all warp ends have been threaded and tied.
10. Cut pieces of cord 14 inches long, one for each warp bundle. Fold the cords in half and tie the ends in an overhand knot.
11. Attach the cord loops to the warp bundles with a larks head knot (fig. 13). Bring the knotted ends of cord over the back beam, under the warp beam and hook them over several warp beam dents.
12. Wind warp yarn onto the warp beam with paper inserted between the layers as in Method 1, step 4. Wind until the end of the warp is between the cloth beam and the breast beam.

Move to the front of the loom.

13. Adjust the cloth beam so the dents are pointing toward you at a slight angle. Adjust the warp beam so the warp bundles are 3 inches inside the cloth beam. **Place the heddle in the upper position on the shed blocks.**
14. Tie warp ends into bundles of 10 again as in step 9 above.
15. Measure a single cord, allowing 10 inches for each warp bundle. Wind it into a butterfly or small ball.
16. Tie the end of the cord around the first 2 or 3 dents on the cloth beam. Bring it under the cloth beam, over the breast beam and pass it through the first warp bundle. Bring it back over the breast beam, under the cloth beam, and around the next group of dents (fig. 14). Continue across until all warp bundles are lashed. Try to maintain some tension on the cord while lashing, and *do not allow any warp bundles to touch the cloth beam.* Tie the end of the lashing cord to the last 2 or 3 dents on the cloth beam.

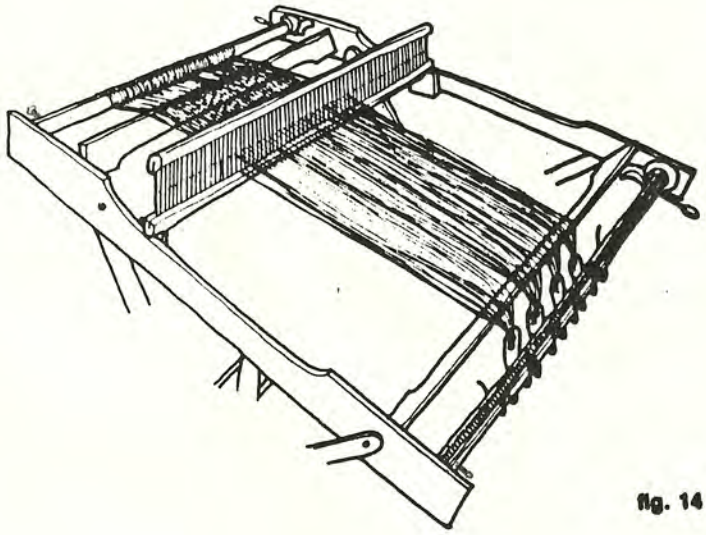


fig. 14

17. Check and adjust the tension as in Method 1, step 9. Spots of uneven tension may be adjusted by tugging on the lashing cord and distributing the slack evenly across the warp.
18. Weave a heading of rag strips, paper strips or heavy yarn to spread the groups of warp to their proper sett. This heading will be unravelled after the piece is removed from the loom.

Beginning to weave

Wind shuttles with weft yarn.

Forming the sheds

1. Raise the heddle and stand it on top of the shed blocks. An opening is formed between the hole threads and slot threads. This is the *upper shed.*
2. Pass the shuttle through the shed. Lay the weft yarn at a 30-40 degree angle, leaving a 2 inch 'tail' at the edge.
3. Put down the shuttle and grasp the heddle with both hands for even beating. Bring the heddle forward to press the weft in place, parallel to the cloth beam.
4. Return the heddle to the shed blocks, this time placing it below the blocks to form the *lower shed.* Insert the weft into this shed, forming a similar angle. Insert the 'tail' from the previous row into this shed.
5. Repeat the beating motion.

Continue to alternate between upper and lower sheds, passing weft and beating each time, and maintaining a constant weft angle for even edges.

note: The exact angle of weft needed will vary with each type of yarn used, and the sett. Too steep an angle will cause loopy edges; an insufficient angle will cause the fabric to narrow. Experiment with the angle you need to obtain a good selvage.

Advancing the warp

When the fabric nears the shed blocks, it will be necessary to advance the warp.

1. Release the pawl on the warp beam and unwind some warp. Re-engage the pawl.
2. Release the cloth beam pawl and wind the fabric onto the cloth beam, stopping 3 inches from the breast beam. Re-engage the pawl.
3. Readjust warp tension.

note: To protect the fabric from damage by the cloth beam dents, insert a piece of heavy paper under the fabric for the first 2 or 3 turns around the cloth beam.

Adding weft

When the yarn on the shuttle runs out, wind more yarn, overlap the ends of the old and new yarns in the same shed for about 1 inch, and continue weaving.

Changing colors

End one color by leaving a 2 inch 'tail' of weft at the selvage, which is taken around the last warp end and back into the shed. Start the new color in the same way at the other side.

Ending

When the cloth beam is filled and the warp cannot be advanced farther, end the weaving by leaving a 2 inch 'tail' of weft which is taken around the last warp end and back into the shed.

Tying off

To tie off the weaving, cut several warp ends behind the heddle and tie 2-4 ends in an overhand knot against the edge of the fabric. Continue cutting and tying a few threads at a time, until all warp ends are tied off. Unwind the fabric from the cloth beam, lift off the weaving, remove heading, if any, and tie off warp ends against the fabric edge in a similar manner.