

DRESSING THE *Loom*

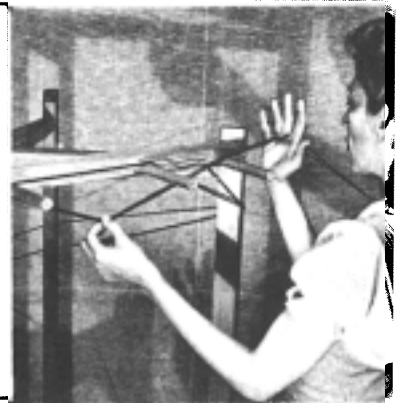


A HANDBOOK for Weavers showing the Direct Beaming Method of Warping

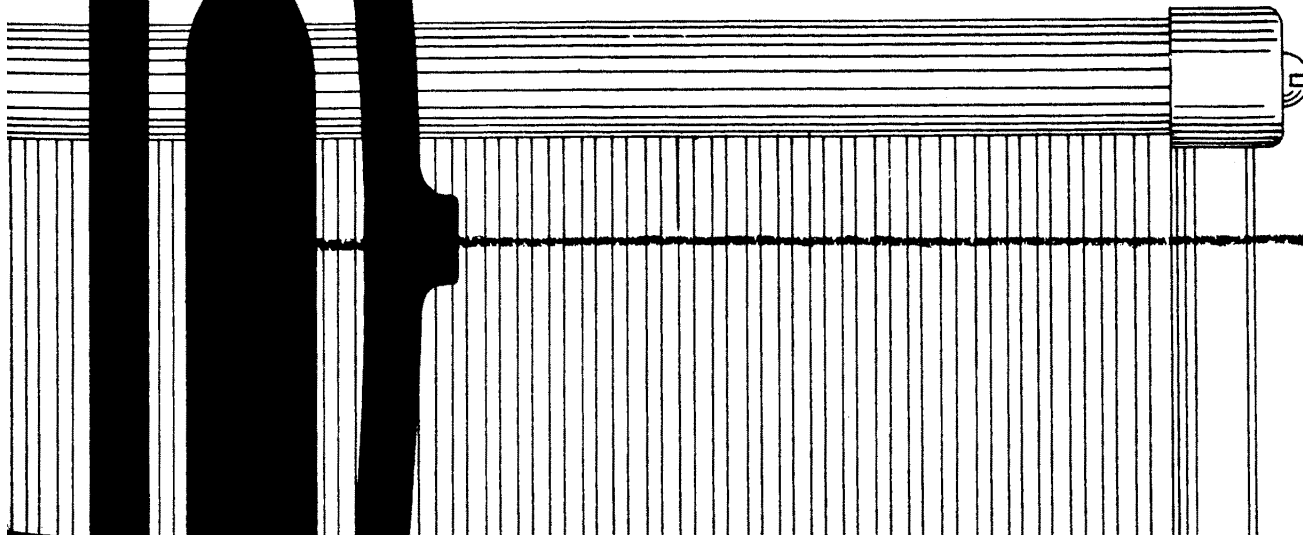
By IDA GRAE



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A HANDBOOK for Weavers showing the Direct Beaming Method of Warping



By **IDA GRAE**

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INTRODUCTION

In the preparation of this handbook the author has been very much aware of the limitations of trying to describe in words a process which is primarily visual and manipulative. A generous use of photographs has been made in the hopes that the reader would have the feeling that he was observing the warping process.

Although direct beaming differs in some respects from other methods of warping, once learned, its benefits are apparent. The primary advantage is that the warp receives a minimum

of handling or abrasion. The resultant is no tangles in beaming, less warp breakage in weaving, and greater beaming speed in long warps and sticky warps. For advanced techniques such as double beam warping and chine', it is indispensable.

Direct beaming is not a new way of warping. It is one of the oldest methods of getting a warp on a beam, and with the exception of the United States, is universally used.

WARP CALCULATIONS

There are three calculations necessary before a warp can be made.

1. First we must decide upon the width of the cloth, and the density of the warp threads per inch. If, for example, the warp is to be 14 inches wide and the density or sett 12 threads per inch, there will be 14x12 or 168 threads or ends in the warp.
2. The second calculation is concerned with the yards of cloth that are needed for a project. For example: Eight place mats are desired. The length of one mat finished is 19 inches plus 3 inches for hems. Therefore, the length of one raw unit is 22 inches. 8x22 inches is 176 inches of cloth required for eight place mats. Now allow for loom waste, say, 24 inches, and for shrinkage, 16 inches. We now have a total of 176 plus 40 or 216 inches of cloth needed. Divide by 36, and the result is 6 yards of cloth or a 6 yard warp needed for eight place mats.

By loom waste we mean that part of the warp which is used up for tying, and the remaining unusable warp left at the completion of the project. Allow from one-half yard for a 20 inch loom to one yard for a 45 inch loom.

By shrinkage we mean the take-up of the woven cloth after it is taken off the loom. Allow from five to 15 per cent for this. Allowances necessary because of shrinkage after washing, or for take-up due to heavy weft are not included in the above example.

3. The last calculation aims at finding out just how much warp yarn will be necessary for the planned project. Since the total cloth yardage is 6 yards, the warp must be that long. However, there are 168 ends in the warp and each must be 6 yards. Therefore, multiply 168 ends by 6 yards. The answer is 1008 yards of warp yarn needed.

Summarizing the above calculation in formulae:

1. $\text{Width} \times \text{sett} = \text{Number of ends in the warp.}$
2. $\text{Length of cloth needed for project plus allowances for loom waste and shrinkage, converted to yards} = \text{Cloth yardage needed.}$
3. $\text{Cloth yardage needed} \times \text{number of ends in the warp} = \text{Yards of warp yarn needed.}$

MAKING THE WARP

1. Measure off a length of string as long as the warp needs to be. This we call the guide thread. Tie one end of the guide to the outside cross peg, and the other to the end peg of the reel.

SEE PLATE I

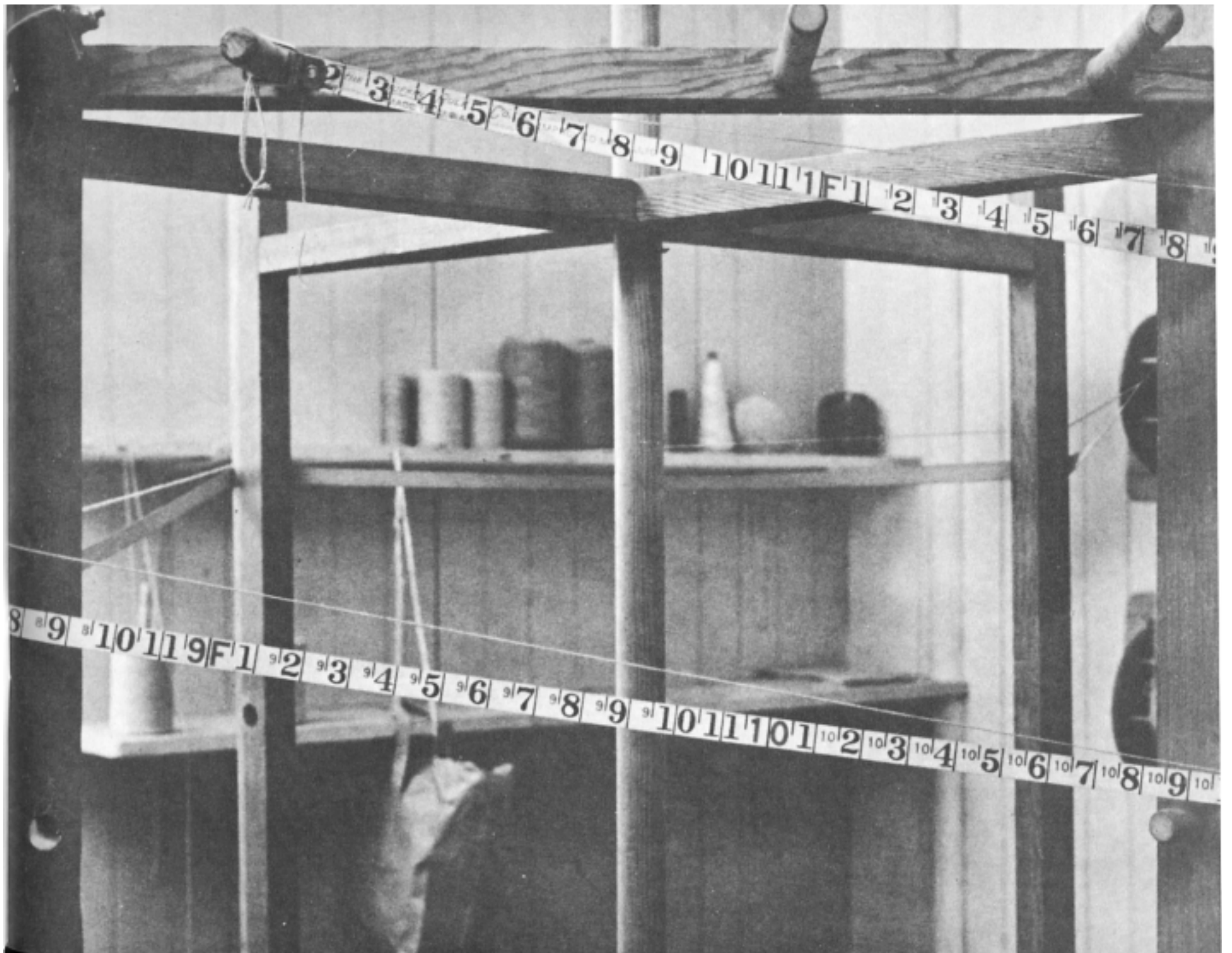


PLATE 2

2. Start warping at the end peg of the reel, following the track of the guide thread. Use the right hand to guide the warp ends, letting each end ride between each finger. Up to four ends (from 4 spools) at a time can be run in this way. Use a paddle for more than four ends. Let the warp ends slip easily between the fingers. Do not exert tension. Use the left hand for turning the reel.

SEE PLATE 2



PLATE 3

3. **MAKE CROSS.** At the top of the reel there are three pegs. As the warp end (or ends) you are laying on reaches the first of these pegs begin forming a figure eight. In the photograph the approaching warp ends are going *under* the first peg, and the returning warp ends are going *over* the first peg. It is important that you continue the pattern established at the cross for the total number of ends. You could have done the reverse, that is, approaching warp ends travelling *over* first cross peg, and returning warp ends travelling *under* first cross peg. The cross is a device for keeping consecutive order of warp ends. If you are warping with one spool at a time, at the cross there will be under one, over one. (For spreading this will form a group of two ends.) If you are warping with two spools at a time, at the cross there will be under two, over two.

(For spreading this will form a group of four ends.)

SEE PLATE 3

4. Continue until the number of warp ends needed are on the reel. Finish at the bottom peg.

If you are making a mixed warp (mixed in color or texture), break the warp end at the cross or end peg, and tie on the new thread. For example: The warp plan calls for ten black and one red and repeat. Proceed thus: Lay on ten black, finishing at the bottom or end peg. Break black and tie on red. Go to cross. Break red and tie on black. Lay on ten black ends. This time tenth end falls at the cross. Break black at outside cross peg and tie on red. Etc. The result will be one continuous warp with changes in yarn made at one reeling. It is unnecessary and cumbersome to make as many chains as there are changes in types of yarn or color.

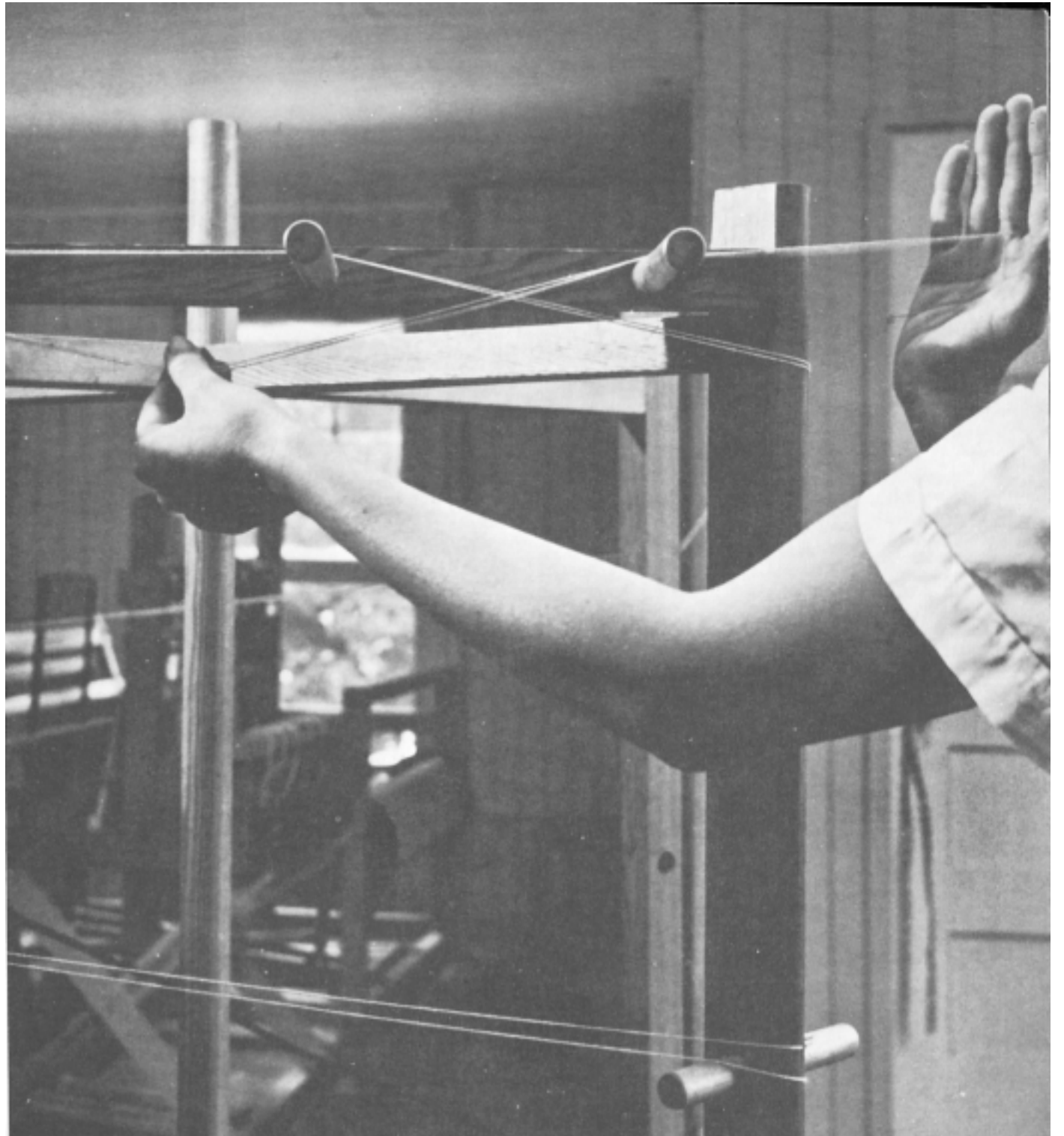


PLATE 4

TIE WARP. Using string, tie four cross ties and one safety tie about two-thirds yard from the cross.

Since the cross is the only place in our warp that a consecutive order of ends is preserved we must make it secure before the warp is removed from the reel. Each leg of the figure eight must be tied with some string. Then tie the fifth tie, the safety, about two-thirds of a yard from the cross. The purpose of this tie is to keep body of warp intact throughout the spreading procedure. Therefore make this a tight tie.

SEE PLATE 4

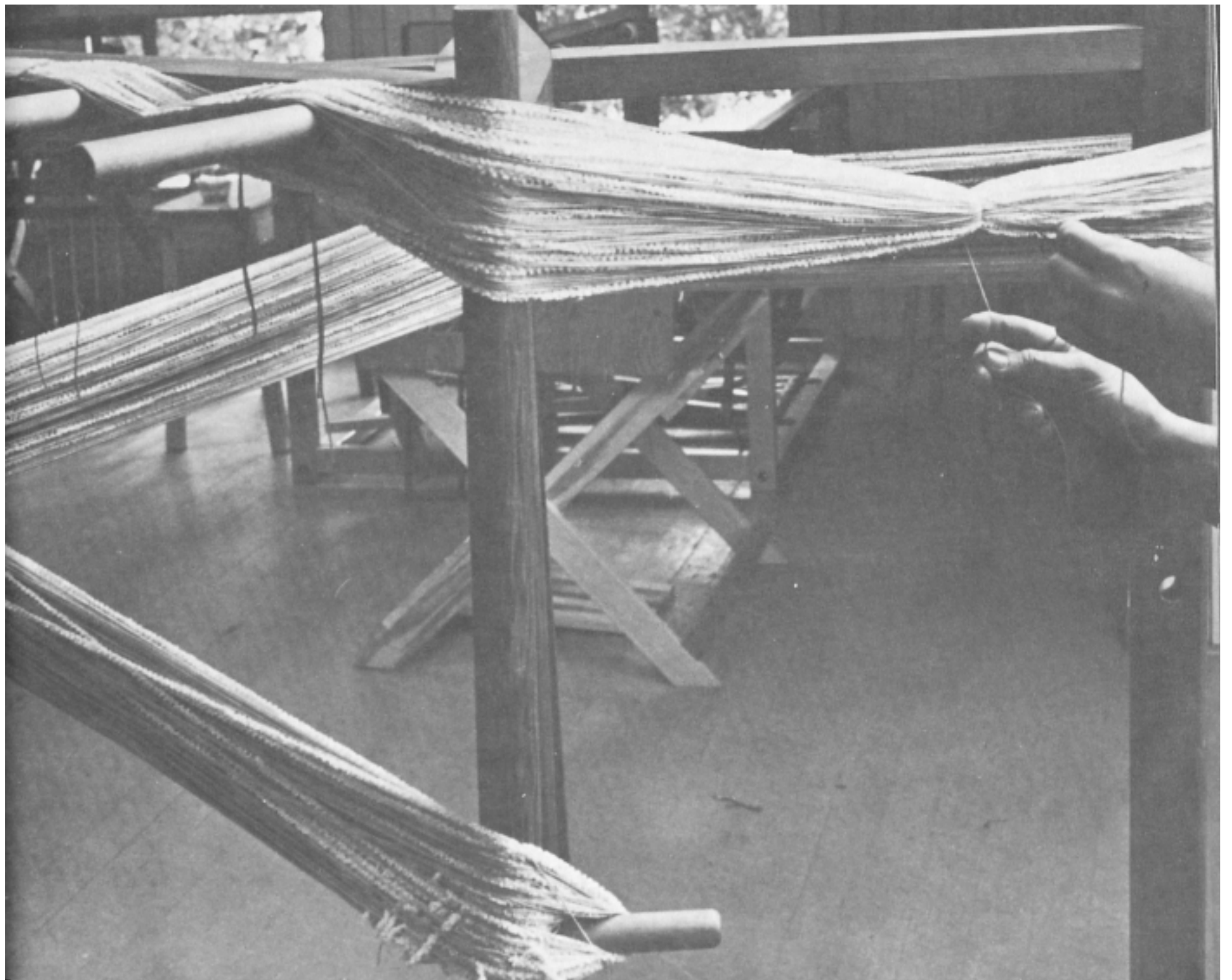


PLATE 5

6. REMOVE WARP from bottom peg of the reel and begin chaining off. Using left hand, grasp the body of the warp in front of the end peg on the reel. Remove the end peg with the right hand. Use the right hand as a crochet hook, inserting it into the space of the warp formerly occupied by the end peg. Begin chaining off. Brace your foot against the reel to prevent it from turning too fast as you chain off.

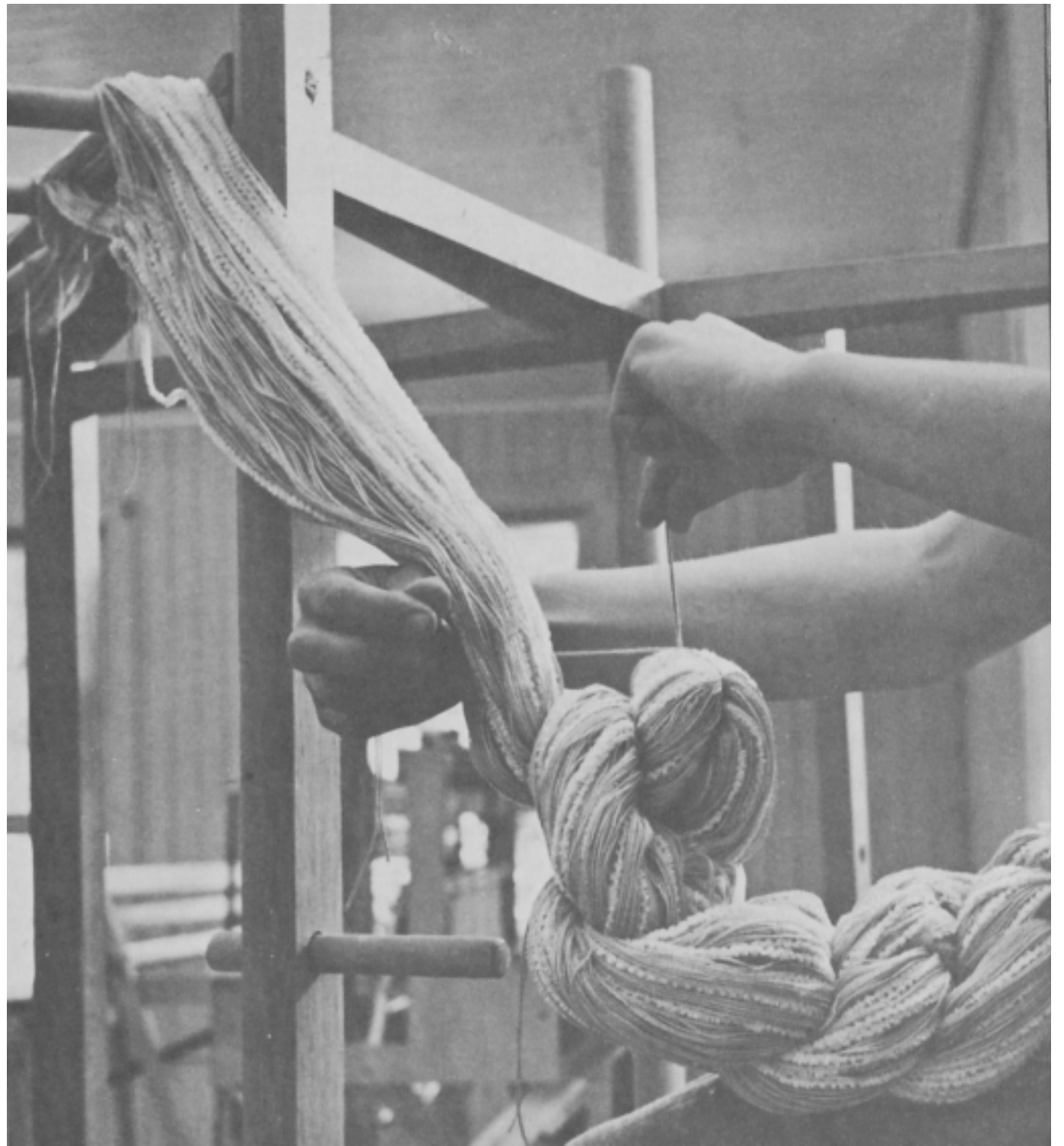
SEE PLATE 5



PLATE 6

7. CHAIN warp up to the SAFETY and tie the last loop of the chain to the body of the warp. The purpose of this tie is to keep the warp from unchaining. Place lease rods through the cross and tie them together at both ends. You will find that shoe laces make convenient and long lasting ties.

SEE PLATE 6



SPREADING

The purpose is to spread the warp to the planned width following the consecutive order in the cross. For spreading, a coarse reed or raddle is necessary.

SPREADING IN A REED

1. Place the lease rods (which are in the warp cross) across the backs of two chairs.
2. Place the reed used for spreading in front of lease rods on the same chairs. Any reed may be used for spreading, irrespective of its dents per inch. However, you must be certain that it is a coarse enough reed (fewer dents per inch) to permit easy clearing of warp groups. Also, spreading proceeds faster if there are fewer dents per inch. Although one can spread a warp to 20 ends per inch in a number six reed, it would be simpler if a number ten reed were available.
3. UNTIE STRING ties at the cross.
Now that lease rods are in the cross and secured to each other, there is no further need for the cross ties. The lease rods still

preserve the cross, but permit spreading out of the warp groups. Do not untie safety tie or chain tie.

SEE PLATE 7

PLATE
7

Examples of the simple arithmetic necessary for making a spreading plan will now be given.

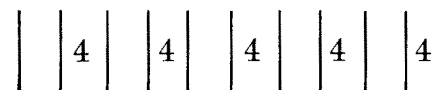
PROBLEM: Sett 20 threads per inch.

Width 45 inches.

Reed used: a number ten.

Warp laid on with two spools at one time.

SOLUTION: A warp laid on with two spools at one time will divide into groups of four ends at the cross. It will not be possible to divide the warp into smaller units. One inch of a number ten reed has ten dents:



(Read all spreading diagrams from right to left).

Sley one group of four ends in every other dent for 45 inches.



PROBLEM: Sett 20 threads per inch.

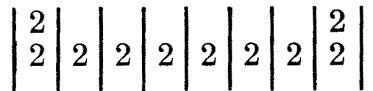
Width 24 inches.

Reed used: a number eight.

Warp laid on with one spool at a time.

SOLUTION: A warp laid on with one spool at a time will divide into groups of two ends at the cross.

One inch of a number eight reed has eight dents:



Sley two groups in the first dent, and one group in each dent for six dents. Then sley two groups in last dent of inch.

Repeat in this order for 24 inches.

PROBLEM: Sett 20 threads per inch.

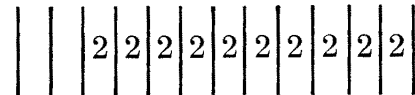
Width 30 inches.

Reed used: a number twelve.

Warp laid on with one spool at a time.

SOLUTION: A warp laid on with one spool at a time will divide into groups of two ends at the cross.

One inch of a number twelve reed has twelve dents:



Sley one group of two ends in every dent for ten dents. Then skip two dents. Repeat for width.

4. Find center of reed. Measure one-half of the width of your warp to the right of center on the reed. This dent is the place where your first warp group is sleyed. Follow the consecutive order in the cross. Sley the number of threads per inch according to your spreading plan. Remember that your warp will be sleyed in groups according to the number of spools used together to make the warp. Because of this, spreading is a faster operation than the final reeding. If a raddle is used, the spreading will take about 15 minutes for a 40 inch warp of average density.

PLATE
8

SEE PLATE 8



PLATE 9

5. Place dowel through loop ends of the warp which hang under the reed. The most efficient method is to hold the closest lease rod against the reed, and tug gently at the first group of loops until the shed opens up. Place a dowel through this shed. Continue across the warp in this manner.

SEE PLATE 9

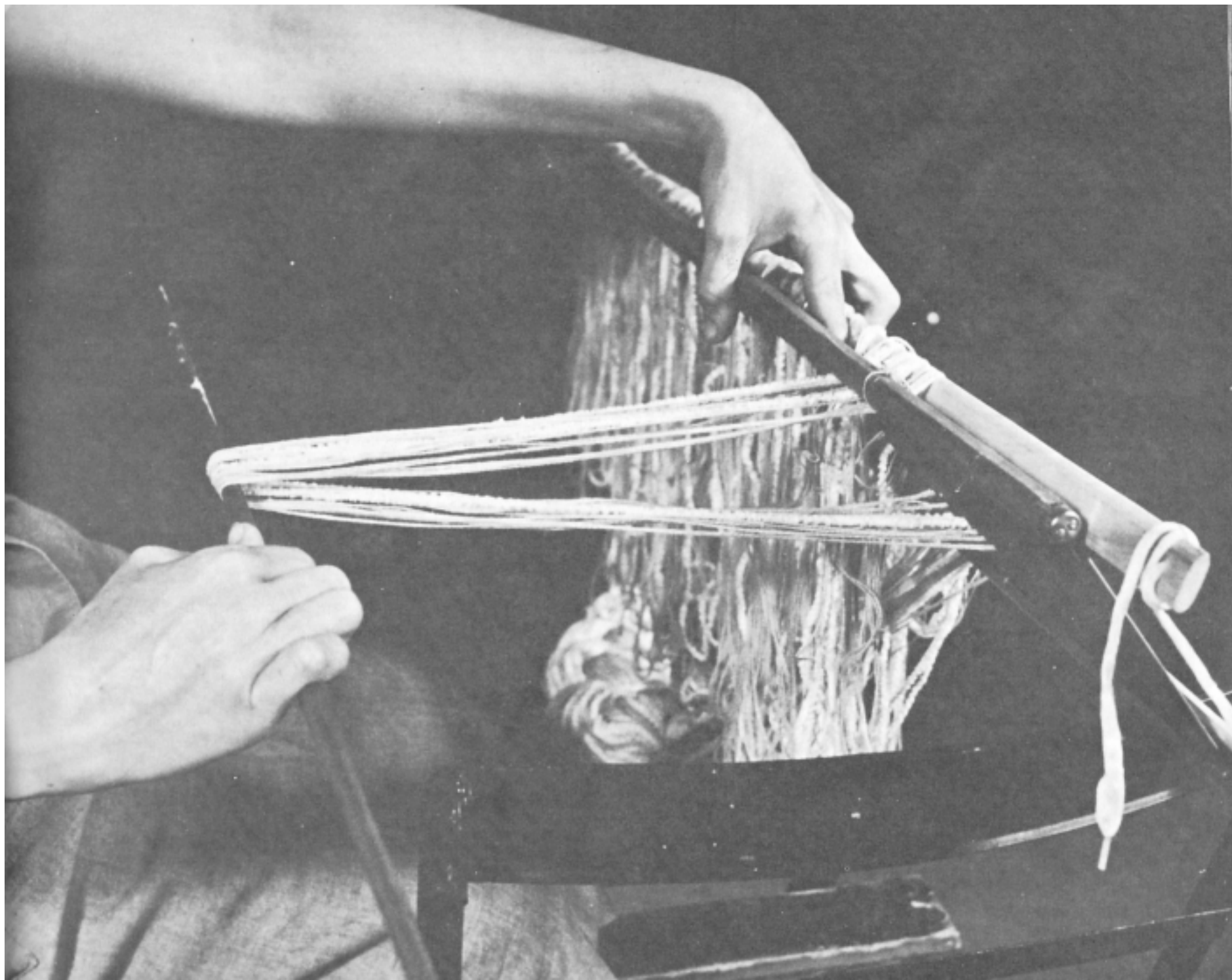


PLATE IO

6. Move the warp (including the spreading reed and lease rods) to the undressed loom. (By undressed loom we mean that the harnesses are removed. If harnesses are not removable push the heddles to either side. If heddles are still in the way, it is possible to ride the warp over the castle.) Be certain that the dowel going through the ropes at the back apron is parallel to the whip beam.

SEE PLATE IO

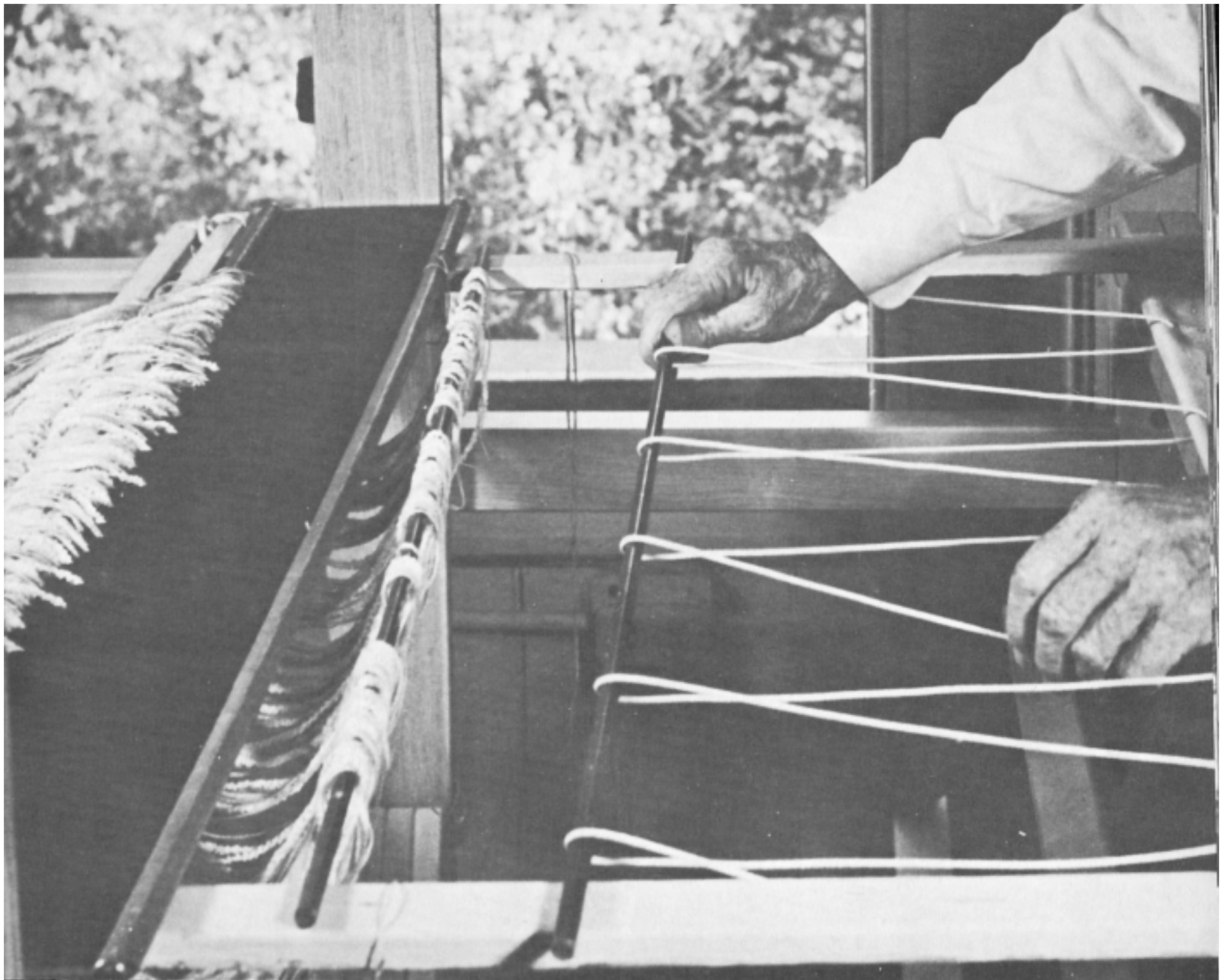
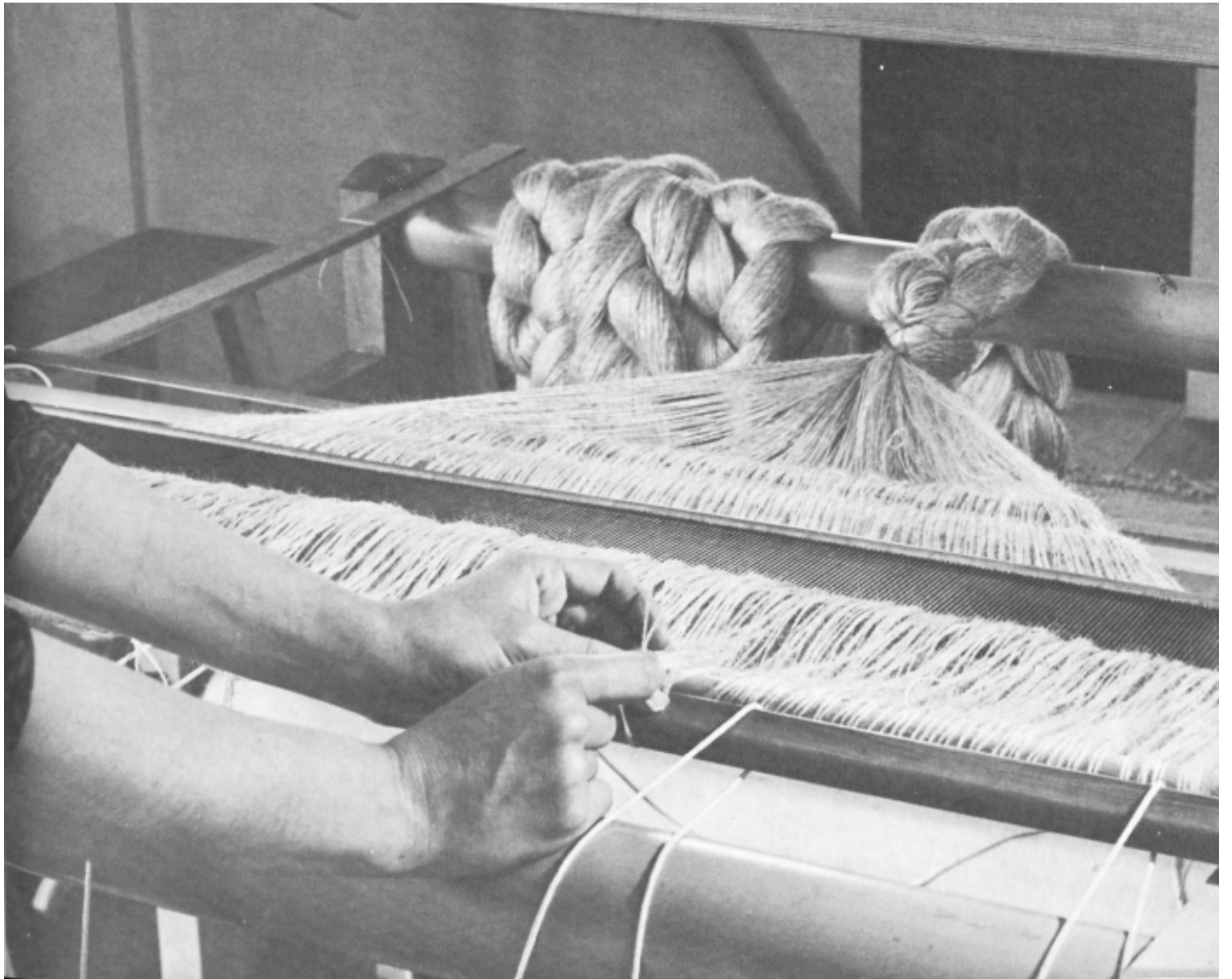


PLATE II

7. Tie the dowel carrying the warp to the dowel on the back apron in at least three places: at each end and at the center. Straighten the warp loops on the dowel so that each group is going in a straight line from the reed, and the width of the warp is centered on the loom.

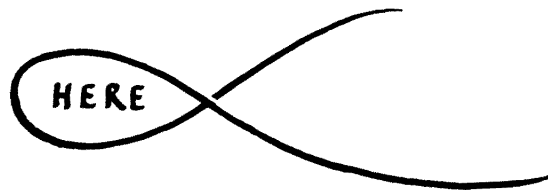


SPREADING IN A RADDLE

ALTERNATE SPREADING METHOD:

A raddle is more convenient for spreading than a reed because there are fewer dents per inch, and because it has a removable cap. If a raddle is available, omit spreading procedure as given for reed, and do the following:

1. At the warping reel, after you have placed lease rods in the cross, insert a dowel (wider than warp, but must fit on loom) into the shed formed by the lease rod closest to end of warp.



2. Move the warp to undressed loom. Tie dowel carrying warp to dowel going through ropes on back apron. (Tie in center and at both ends.)
3. Tie raddle to batten or to loom uprights. Remove cap of raddle. (In photograph, raddle and lease rods are resting on slats placed on whip and breast beams.)
4. To find starting point measure raddle for center, and measure one-half the width of warp to the right of center. Lay paper over part of raddle and let warp rest on this.
5. Untie string ties on cross. Begin at right and place warp groups in each dent of raddle according to sett. Follow consecutive order in the cross.

SEE PLATE 12 AND PLATE 13



PLATE 13

Examples of arithmetic necessary for making a spreading plan will now be given.

PROBLEM: Sett 20 threads per inch.

Width 14 inches.

Raddle used: five dents per inch.

Warp laid on with two spools at one time.

SOLUTION: A warp laid on with two spools at one time will divide into groups of four ends at the cross. One inch of a five dent raddle has five dents:

4	4	4	4	4
---	---	---	---	---

Sley one group of four ends in every dent for 14 inches.

PROBLEM: Sett 12 threads per inch.

Width 45 inches.

Raddle used: four dents per inch.

Warp laid on with four spools at one time.

SOLUTION: A warp laid on with four spools at one time will divide into groups of eight ends at the cross.

Two inches of a four dent raddle have eight dents:

8	8	8
---	---	---

Sley one group of eight ends in first dent, skip two dents; sley eight ends in next dent, skip two dents; sley eight ends in next dent, skip one dent.

Repeat for width of warp.

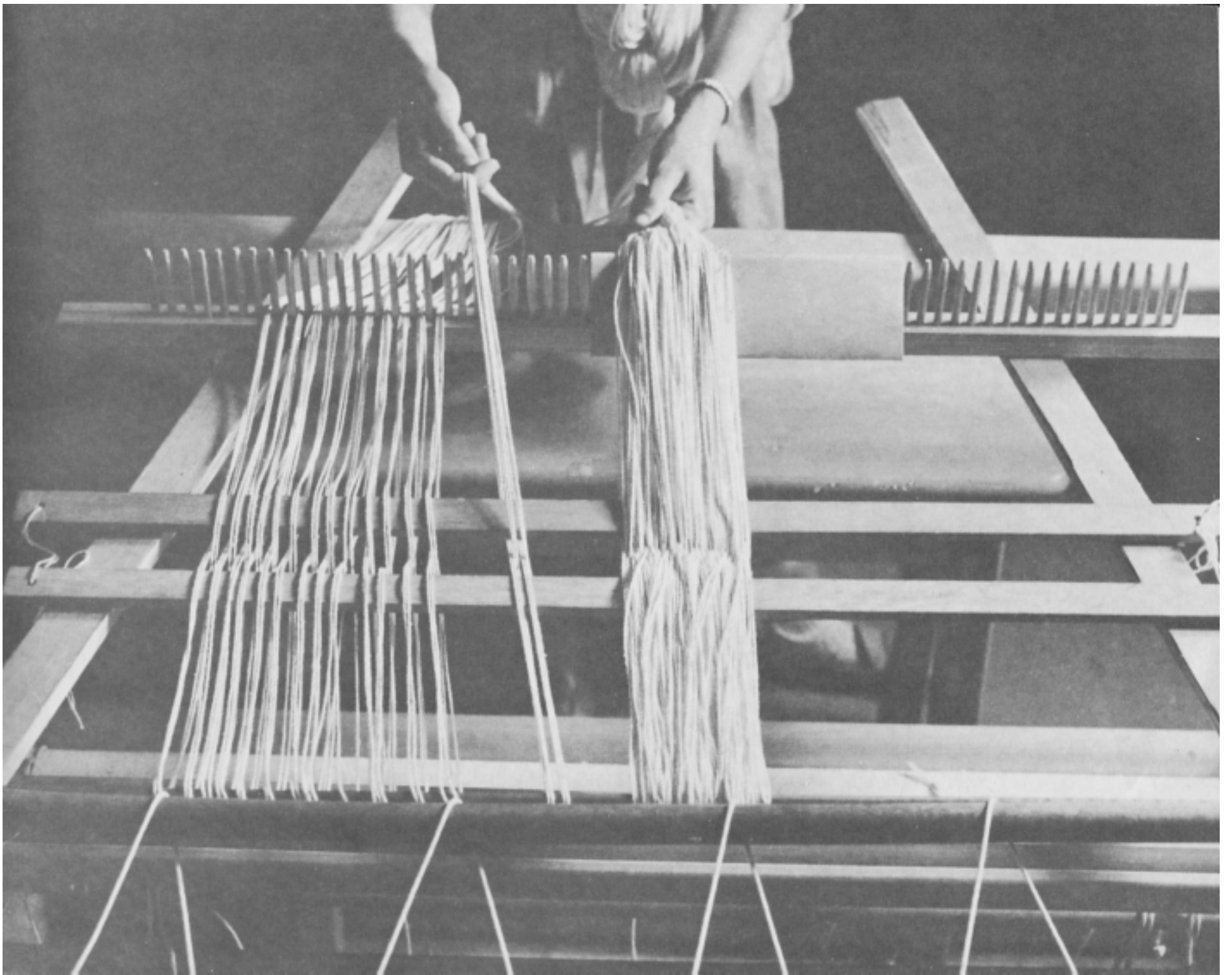
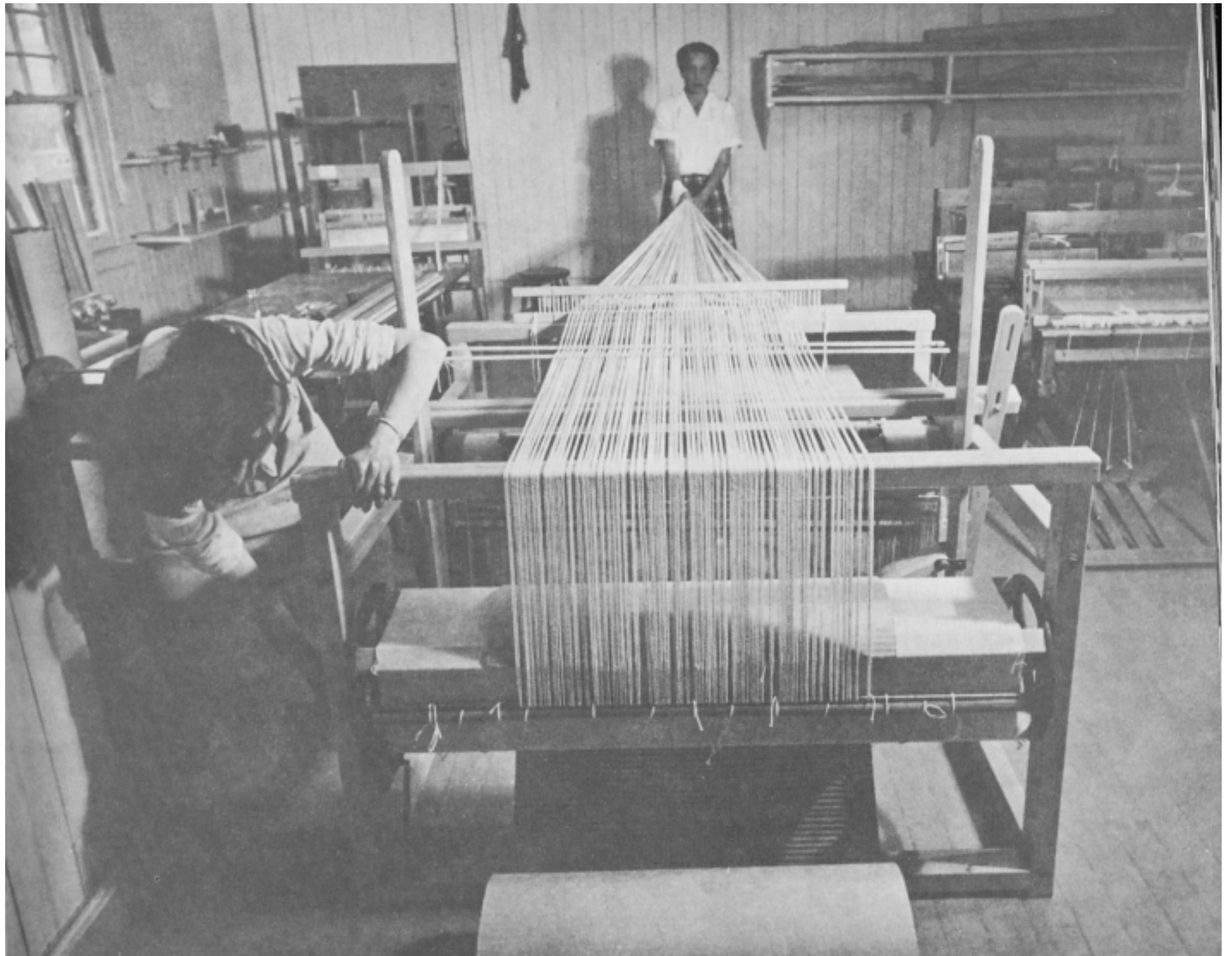


PLATE 14

6. When warp is spread, put cap of raddle on.
Tie cap to raddle.
7. Straighten the warp loops on the dowel tied to the loom, so that each group is going in a straight line from the raddle dents and is centered on the loom.
8. For beaming; the raddle may remain in this position (secured to loom uprights), or it may be clamped on to breast beam. In the photograph the raddle is tied to the breast beam.

SEE PLATE 14



BEAMING

The process of winding the warp on the warp beam is called beaming.

1. Changing the Cross: (If a raddle was used for spreading, the cross is where it belongs. Do not change. Proceed to Beaming, see 2, below.) The cross must be moved to a position between the reed and the whip beam because at the end of beaming, the warp end loops are cut and the reed is removed. The changing of the cross involves a process

simple to do, but difficult to describe. It takes about two minutes to accomplish.

The warp is held taut in front of the loom. The lease nearest the reed is brought against the reed, and set on end. This shed now appears on the other side of the reed, between the whip beam and the reed. A new lease is inserted through this shed and moved toward the whip beam.

SEE PLATE 15

Remove the old lease rod. SEE PLATE 16

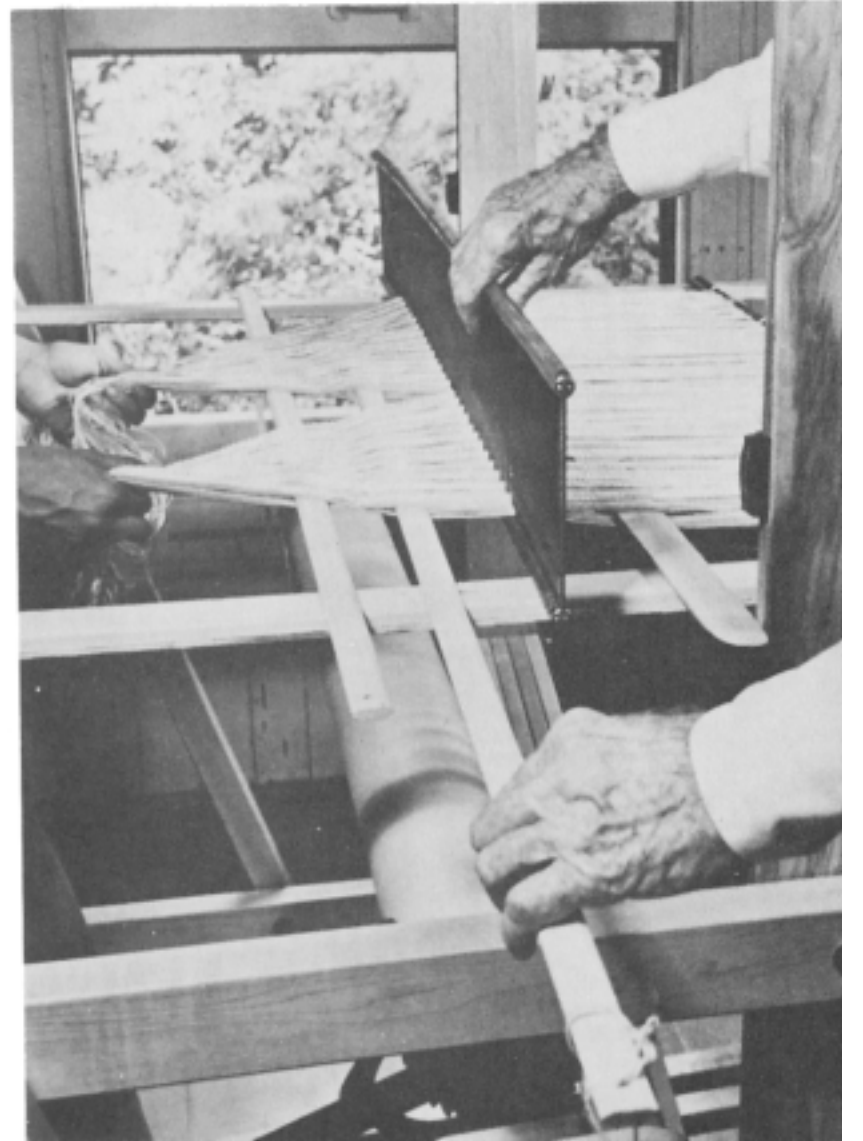
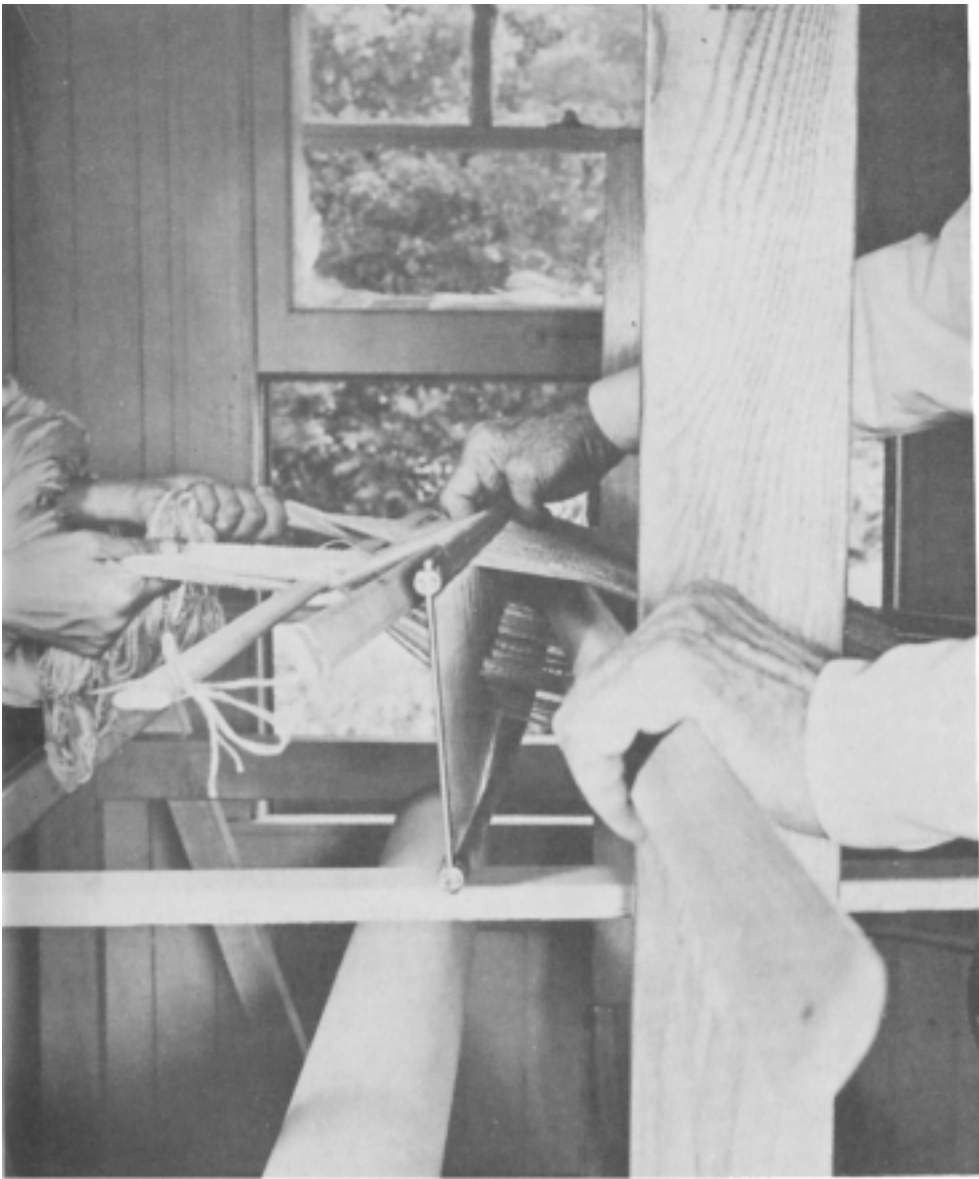
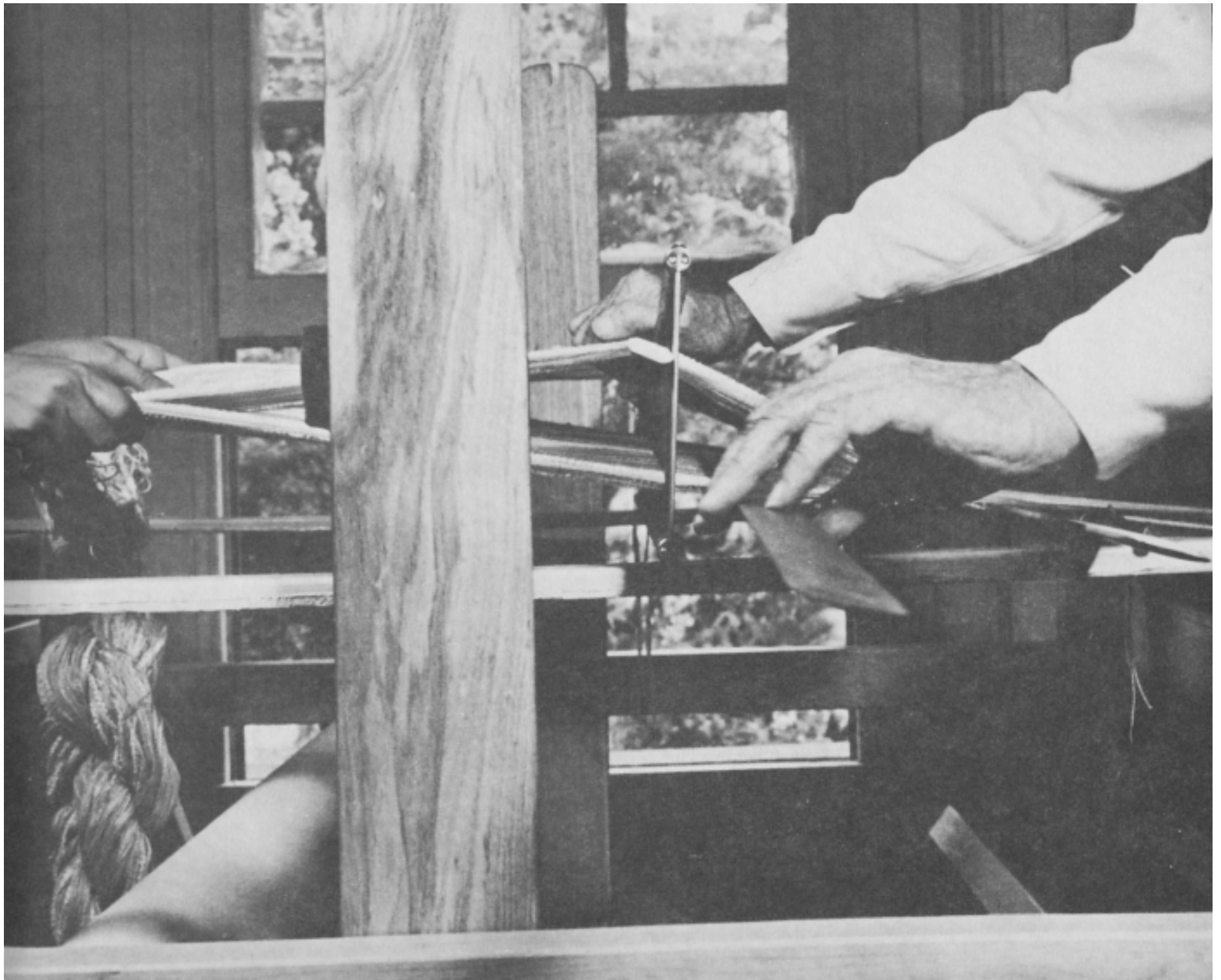


PLATE 17

Now slide the second member of the original lease pair up to the reed, and lift it up. The second shed now appears behind the reed. Insert another lease in this shed. Secure the new lease pair to each other with shoe laces. Remove the remaining old lease rod. The cross is now between the whip beam and the reed.

SEE PLATE 17



2. Beaming: It will take students 25 minutes to beam 20 yards of 20/2 cotton, densely sett, 40 inches wide.

UNTIE the safety tie and the tie holding the warp chain. UNCHAIN as much warp as the room will permit. Hold the warp TAUT. SHAKE hard.

The HELPER brings the reed forward and leaves it hanging about two feet from the warp holder. The helper then slides the lease rods forward to the reed. (If a raddle is used, it remains stationary throughout beaming, clamped to the breast beam. The lease rods remain in position, tied to the loom uprights.) The warp is now even and

taut. There should be absolutely no trouble in this operation. At no time will there be tangles or clots of warp if the warp has been handled properly. We never comb or brush the warp. A smooth, even warp beaming rapidly is routine in this method.

ROLL WARP ON. Use warp sticks generously. Corrugated paper is also good, but takes up more space on the beam. Sticks or paper are used to keep the layers of warp separate and the edges flat. If no separation were used, the warp layers would tend to settle between each other, fall off the edges, and thus yield a warp of uneven tension.

SEE PLATE 18 AND PLATE 14

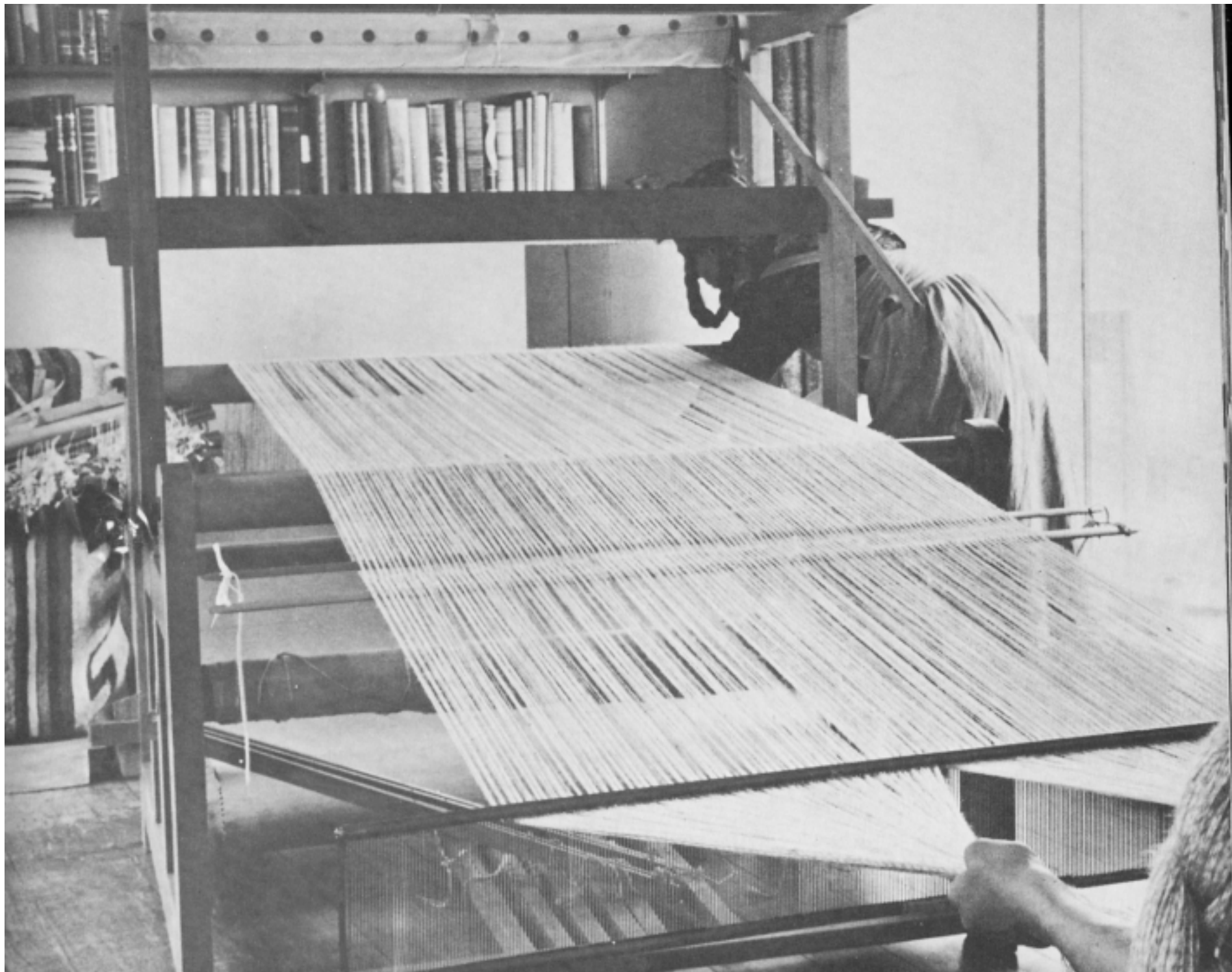


PLATE 19

3. As soon as the warp is beamed, cut across the warp behind the spreading reed or raddle. There are now single warp ends for the first time. Do not remove the lease rods. Tie them to the loom uprights in preparation for heddling.

SEE PLATE 19



PLATE 20

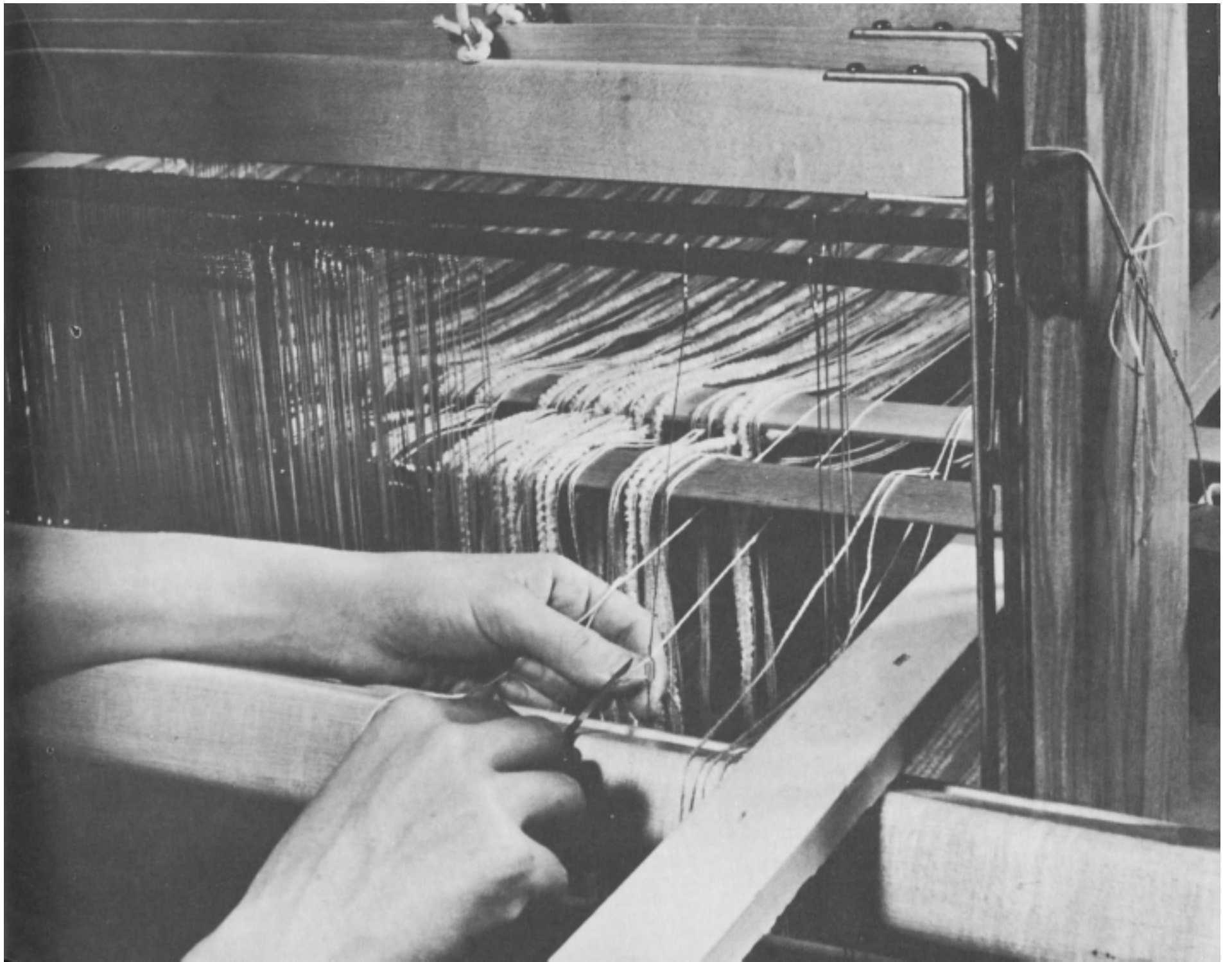
HEDDLING

The process of threading each heddle eye with a warp end in a predetermined order of harnesses is called heddling or threading.

1. Replace the harnesses in the loom.
2. Sit comfortably, as close to the harnesses as you can. Removing the breast beam in a large loom makes heddling easier.

Heddle from right to left, taking the warp ends in their consecutive order as they lie in the cross.

SEE PLATE 20



REEDING OR SLEYING

The process of threading each warp end through the reed dents according to the density desired, and the space plan of the cloth, is called sleying or reeding.

1. Keep the reed flat in front of the harnesses.

The reed is supported by two slats on either side of the loom, resting on the whip beam and the lower cross piece of the batten. It is

much easier to sley with the reed out of the batten.

2. Sley from right to left, taking the warp ends in their consecutive order from the heddles.

SEE PLATE 21

3. When the sleying is completed place the reed in the batten.



TYING

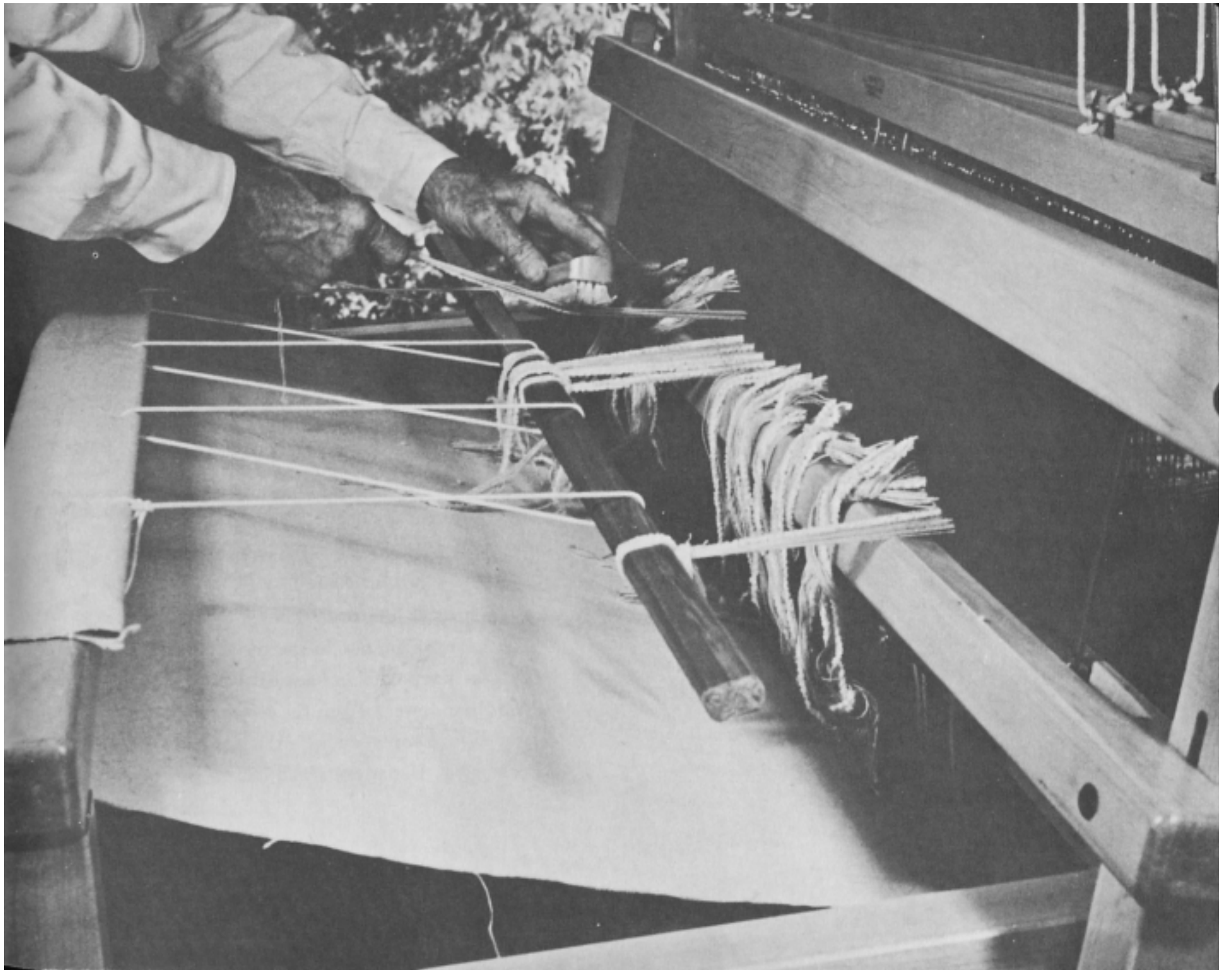
The process of tying the warp ends to the front apron is called tying.

1. See that the dowel going through the ropes of the front apron is parallel to the breast beam.
2. Tie small, even groups of warp ends around the dowel at the front apron. (You may brush ends if they are twisted.) For this tie use the first half of a square knot.

SEE PLATE 22

3. Adjust the tension of the knots so that the warp is evenly taut.
4. Complete the square knot.

WEAVING MAY NOW BEGIN.



TYING ON

SUPPLEMENT

Tying on is the process of tying new warp to old warp, end to end, for the purpose of retaining previous heddling and sleying. If it is necessary to reproduce a textile which has just been completed, it may be practical to tie on the repeat warp.

1. Before cutting off completed yardage, weave an extra three or four inches. Weave with a sticky filler, or if a smooth filler is used brush rubber cement on edge of strip of weaving.

SEE PLATE 23

2. Treadle tabby A(1,3), and insert lease rod in shed *behind* heddles. Move this lease

rod toward whip beam.

3. Treadle tabby B(2,4), and insert other lease in this shed behind heddles. Tie pair of leases together with shoe laces. You now have the cross behind the heddles.
4. Tie the top of the heddle frames together on each side.
5. Cut yardage off loom, leaving the extra heading with the reed. This strip of cloth holds the warp ends in the reed.
6. Cut the warp ends in back of the loom free from the dowel tied to the back apron. As you cut a group of ends tie them against the lease rods. Use a tie which can be quickly undone.



PLATE 24

7. Undress the loom: Take reed out of the batten and move all together; warp ends, lease rods, harnesses, reed, and cloth strip.
8. New warp is prepared and beamed as usual (direct beaming). As soon as the warp is beamed, cut across the warp behind the spreading reed or raddle. There are now single warp ends. **DO NOT REMOVE LEASES.** Tie them to the whip beam in preparation for tying on.
9. Place harnesses in position on loom, including the old warp ends, leases, reed, etc. Place

the reed in the batten.

10. Working from the back of the loom, tie new warp to old warp, end for end, following the consecutive order in the cross. Make square knots.

SEE PLATE 24

11. When tying is completed, pull enough warp through from the front so that the old warp ends can be cut off. Cut off old warp ends.
12. Tie new warp ends to dowel at front apron. See TYING.



A C K N O W L E D G E M E N T S

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