Starting with your

Susanna

The Rigid Heddle Loom with many useful features

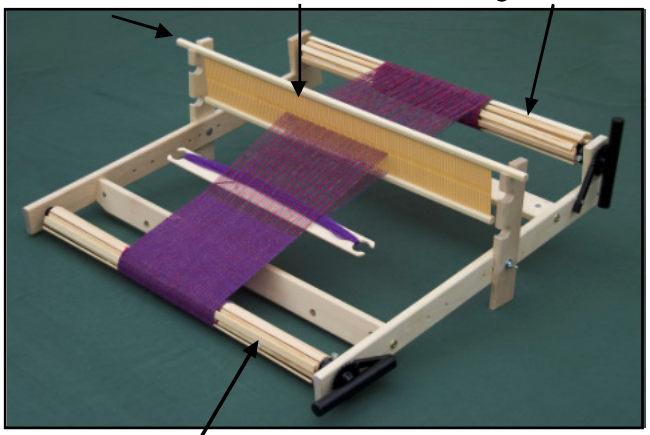
Susanna is a rigid heddle loom which makes weaving easy to learn.

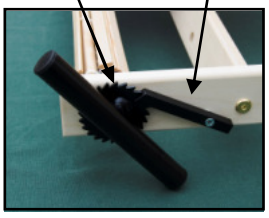
* Weaving width is 70cm, 27 inches
* Choice of heddles, 8, 10 or 12.
* Brackets securely hold the heddle.
* Second heddle bracket is available.
* There is a warping frame with 15 dowels.
* Susanna is easy to clamp to a table.
* A stand is available.
* Made of birch.
* Has sturdy metal ratchets and pawls on the outside of the loom frame.

Words to Know

Beaming sticks are placed on the warp beam as you wind your yarn onto the beam.
Cloth beam is the beam where the woven cloth is wound.
Rigid Heddle has a series of holes and slots for threading yarn to make sheds.
Shed is the space where the yarns separate for weaving.
Shuttle is the flat stick for holding the weft yarn.
Slots are long, narrow spaces in the heddle where the yarns pass.
Warp yarns are those which are wound onto the warp beam of your loom.
Warp beam is the beam at the back of the loom onto which the warp is wound.
Warping is the process of putting yarn on your loom.
Warping frame is a frame for measuring your yarn before putting it on the loom.
Winding the warp is measuring out the yarn before putting it on the loom.
Weft yarn is the yarn you put on the shuttle for weaving
Umbrella swift is used for unwinding skeins of yarn.

A loom stand is available for Susanna





Susanna is easy to assemble. Read through these instructions before assemblying the loom. Read through the yarn winding instructions before winding your yarn.

Warping Instructions

These instructions use the warping frame which is on the back side of the Susanna loom. You can also warp Susanna using the direct warping method. If you would like to have those instructions, please ask for the Emilia loom instructions.

GAD Glimåkra

Assembly of the loom frame

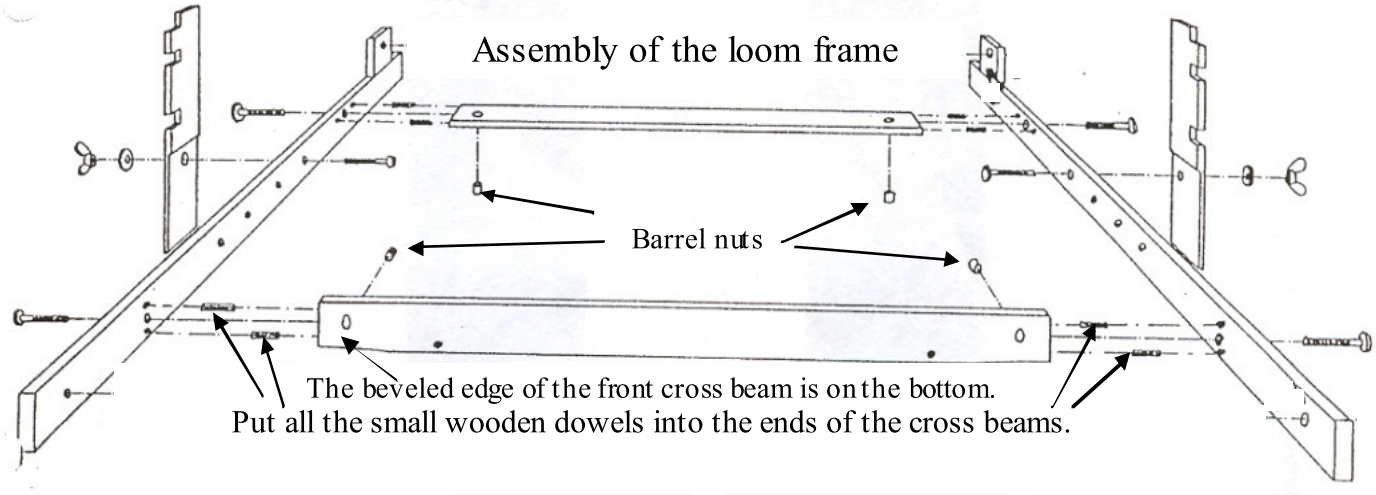
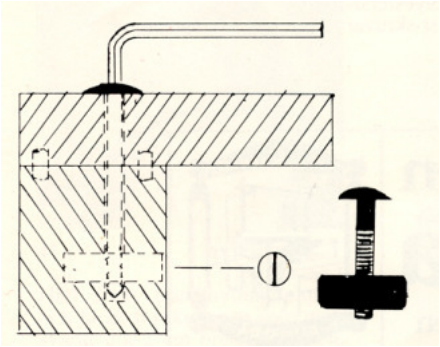
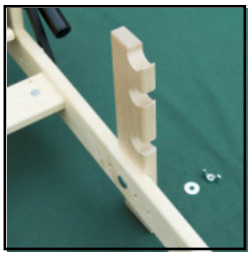


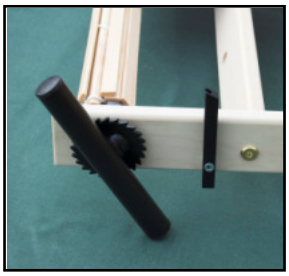
Diagram showing the assembly of the bolt and barrel nut, using the allen key to tighten the bolt.





Brackets

Place brackets on the outside the loom frame, with the bolt going to the outside. Put the washer and wing nut on the outside of the frame. Use any of the four holes.



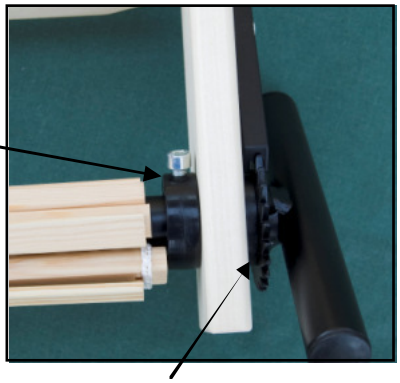
Coth beam ratchet

The warp beam ratchet

Use a screw driver and the screw to attach the pawls. Place the two small washers against the loom frame. Tighten the cloth by turning the warp beam handle clockwise. The cloth beam ratchet tightens the cloth by turning counterclockwise.

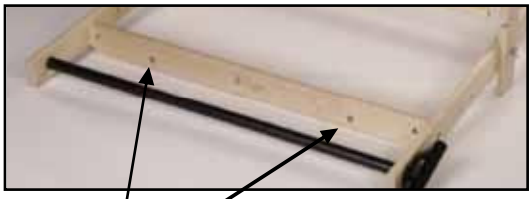
Assembly of the cloth and warp beams. Place the small plastic ring on the beam before inserting the beam into the right side of the frame. Insert the larger plastic ring before putting the beam into the hole in the left side of the frame. The thicker allen key is used to tighten the larger plastic ring against the frame on the right side. This ring holds the beam from moving sideways. Do not tighten too much.

Large plastic ring to keep the beam in place. Do not tighten too hard.

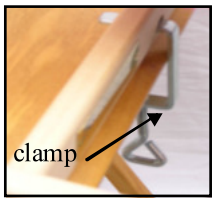


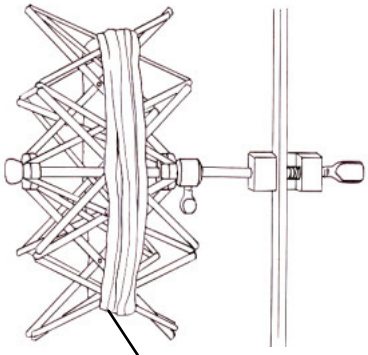
The small black plastic ring is put between the ratchet wheel and the wooden loom frame.

Clamping your loom to a table



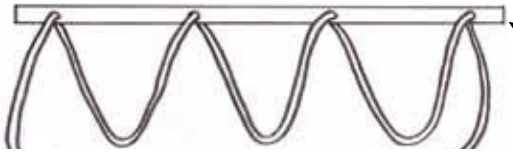
Holes for the two clamps to clamp the loom to a table.





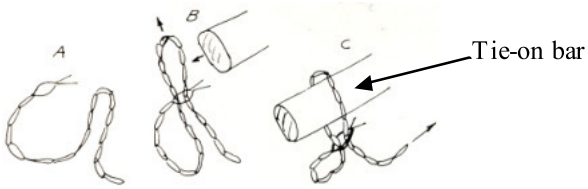
The umbrella swift holds a skein of yarn so that you can wind it into a ball. Attach the swift with the wooden screw. Unwrap your skein of yarn and put your hands inside. Stretch the yarn out to straighten it. Make sure it is not twisted. Place it on the swift. Tighten the yarn on the swift, by tightening the wooden screw.
Don't stretch the yarn too tightly. Untie the yarn ends and make sure the skein unwinds easily.

Attaching beam cords



Cut the beam cord into two parts. Melt the cut ends in a flame to prevent raveling. Thread the cord through each hole in the beam, threading in the same direction.

Make a loop in the end of the cord as in the diagram to hold the *tie-on bar*.



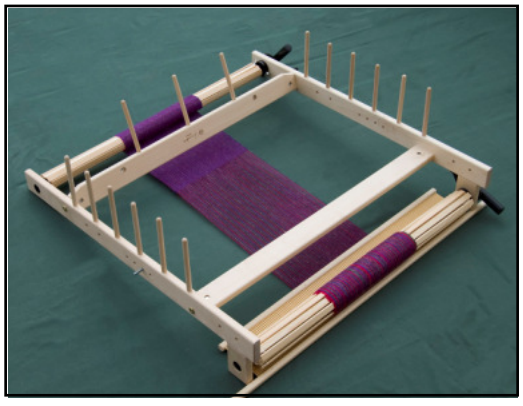
The ball winder winds yarn into a nice tight ball. For winding your warp, take the yarn from the outside of the ball.

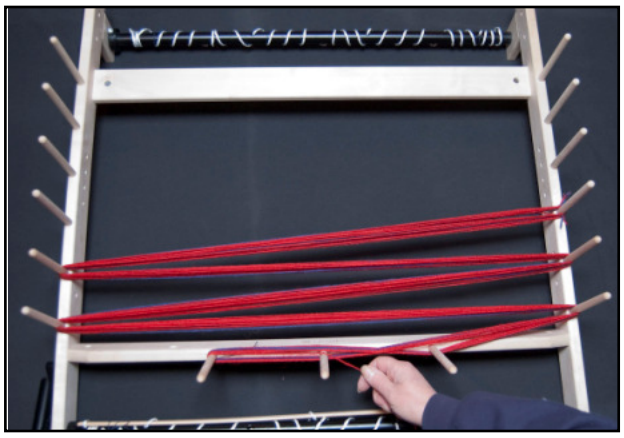
The yarn you put on the loom is called the *warp*

To select a warp yarn for your first project, put the yarn through the hole in the rigid heddle to see that it will move freely. The size 8 heddle is used for the thickest yarns. The size 10 is used for medium sized yarns. The size 12 is used for very fine yarns and threads.

Your first warp should be only long enough for one project, such as one scarf. To determine the length of your warp, such as for a scarf, measure a scarf you like. Then add the inches needed for the fringe and then add an extra foot of length. This will be the length of your warp. If you want it 8 inches wide and you are using a size 10 heddle, you will wind 8x10 or 80 warp lengths, called ends. If it is 2 yards long, you will need 160 yds for your warp. You will need almost this much for your weaving yarn, called the *weft yarn*.

The loom frame becomes a warping frame when you turn it up side down.
Note! Remove the brackets.





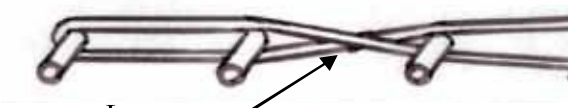
Remove the brackets from the loom and turn it upside down. Put the dowels into the holes in the frame.

This warp started here.

These diagrams show winding a warp for two scarves, about 3 1/2 yards long. Your first warp will probably be shorter than this. The distance across the loom is about 29 inches. The lease cross on the bottom adds about 20 inches. Plan the length of your warp.

Winding your warp

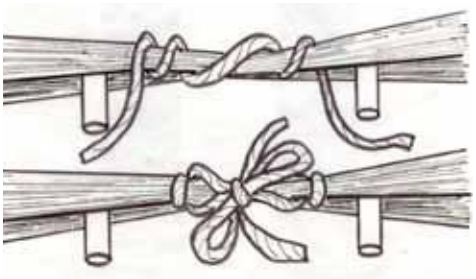
Tie the yarn loosely to the appropriate starting dowel and wind until you get to the lease cross. Do not stretch the yarn, but keep it loose. Press the yarn down at the wooden dowels as you wind. A figure eight *lease cross* is made between the three dowels to keep the order of the threads.



Lease cross

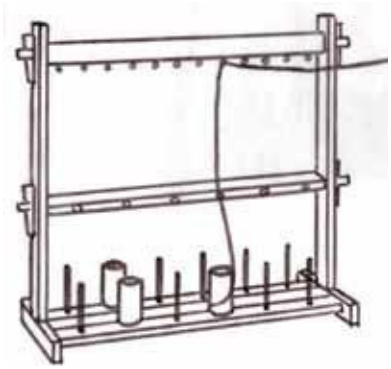
Tying your warp

Count the number of times you have wound the yarn. When you have wound what you need, tie the lease cross as in the diagrams. Also tie a bound the loops at the ends.

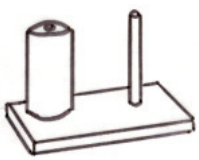


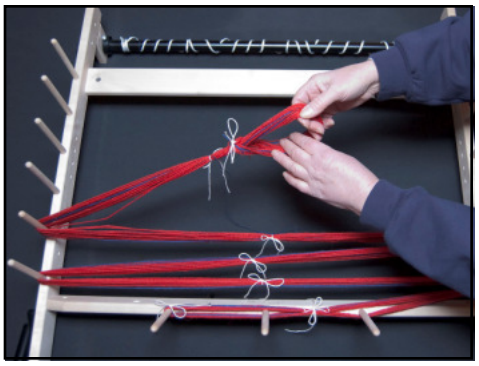
Choke ties

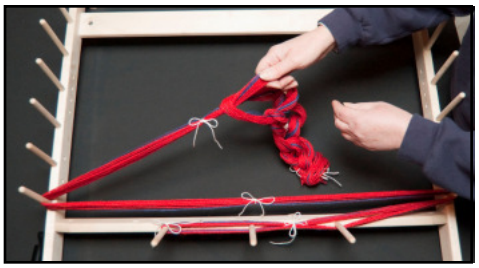
Tie some *choke ties* in the warp, as in the diagram. They are tied about one tie every yard.



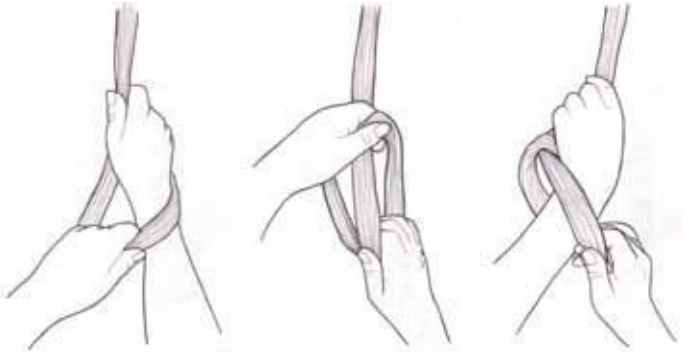
These are two Glimakra spool holders which are helpful for winding warps.





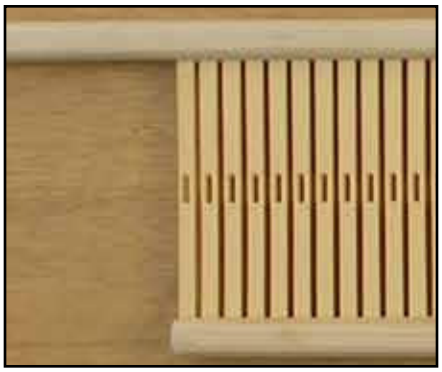


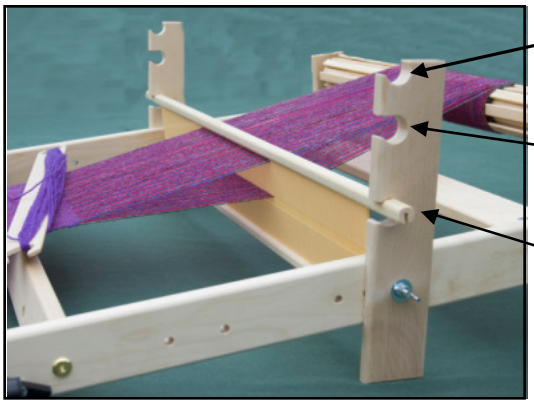
Chain your warp. Remove the pin where you first started to wind the warp and lift the warp off the frame. Put your right hand through the end loop and grab the warp. With your left hand, lift the end loop over your right hand. This makes a new loop to put your left hand through.



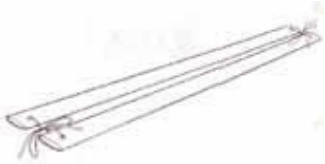
Use a string to tie the last loop to the warp with a bow so that the chain will not unchain.

Turn the frame over. The heddle is supported by a bracket on each side of the loom. Fit the heddle supports to the outside of the frame. Select any of the four holes in the frame.
See page 2 for assembly.
Note! If you plan to use the second heddle bracket and two heddles, use the first and last holes.
The rigid heddle has a row of holes, each making a heddle alternated with a slot.





Bracket positions
The bracket has three positions for holding the heddle. The middle position is used for threading the yarns through the holes.
The top bracket position holds the heddle up. The threads in the slot will slide to the bottom and make one *shed*, or opening for weaving. The bottom position holds the heddle down so the threads can slide to the top to make the other shed.

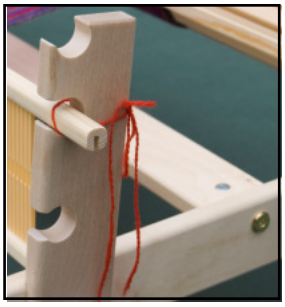


Lease sticks are placed into the lease cross in your warp.

Tie the lease sticks together leaving a small space between the sticks.

Untie the lease cross ties.

Measure your heddle to center your warp
Your warp yarns must be centered in your rigid heddle. Measure to find the center of your heddle. Tie a string around the top of your heddle to mark the center. Measure half of your warp width from the center to the right. Tie a string to mark this spot. Do the same to mark the left side of your warp width.



Tie your heddle in place
Place the rigid heddle in the middle position of the heddle bracket. Tie a string on each side, around the heddle handle and the bracket to hold it in place.

Place the warp at the back of the loom, over the warp beam, with the lease sticks inside the loom. Thread the first loop through the slot of the heddle, starting where you marked your heddle on the right. Continue threading each loop through a slot.

Use either a sley hook or a wire threader.

Sley hook

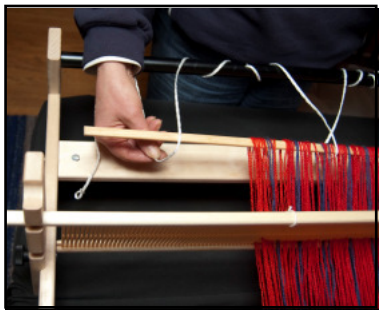
Wire threader

Make sure you keep the yarns in the correct order so that they do not cross each other.

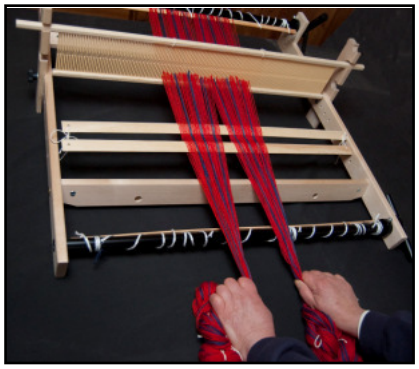
1. When all the loops are threaded through the heddle and the warp is centered, remove the warp and heddle and turn them around so that the loops are at the back of the loom.

2. Set the heddle into the middle position and tie the heddle in place on each side.

3. Pick up the warp threads which are on top of the lease stick. Find those threads on the back of the heddle and insert the tie-on bar.



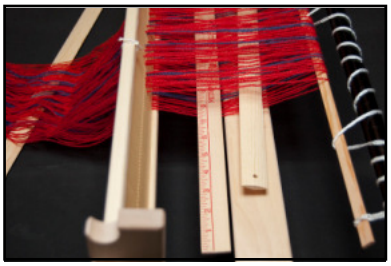
4. Put the Texsolv cord loops on the bar, centering the warp, the bar and the cords. Continue and put the end Texsolv cords on the bar. Stretch the warp tightly to straighten it.



5. Transfer lease sticks to the back. Untie the lease sticks. Turn the lease stick which is nearest to the heddle, up on it's edge, making a shed, which is a space that separates the threads into two layers.

Slip in an extra stick, like a yard stick, into the shed behind the heddle.

Take the turned up lease stick out and slip it into the shed behind the heddle, where the yard stick is. Push it back towards the warp beam.



Put the remaining lease stick up on it's end. Take out the yard stick

Slip the yard stick into this second shed behind the heddle and take the turned up lease stick out.

Place this second lease stick behind the heddle into this same shed where teh yard stick is. Take the yard stick out.

1. Tie the lease sticks together again in the same way as before, with a small space between. Hold the warp tightly. Hold the warp where you have a choke tie and pull on the warp. Straighten the warp loops if necessary.

2. Pull on the warp as you turn the warp beam so that it will wind on tightly. This is called *beaming your warp*. If there are tangles, do not comb, but instead shake and pull on the warp to even out the tangless.

3. Place four or five *beaming sticks* on the warp beam just before the yarn starts to wind on.

4. Hold the warp tight and pull the lease sticks back to the heddle. Make sure that the lease sticks do not move on to the warp beam. After winding the beam around a couple times, place another four or five beaming sticks on the beam. Continue to wind the warp on, using more sticks. Save 4 or 5 beaming sticks for the cloth beam.

5. When the warp is all wound on, tie the lease sticks to the warp beam. Leave them in place so you can see the order of the threads for threading. Cut the end of the warp at the loops.

6. Tie slip knots in front of the heddle.

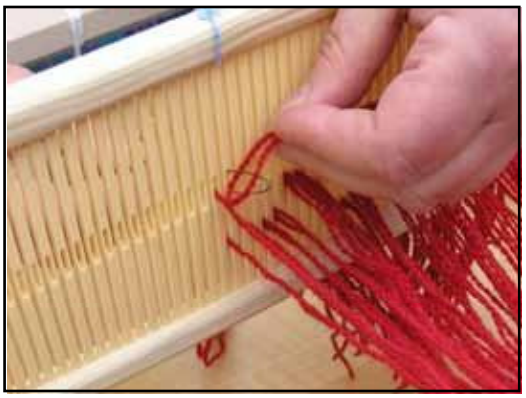
1

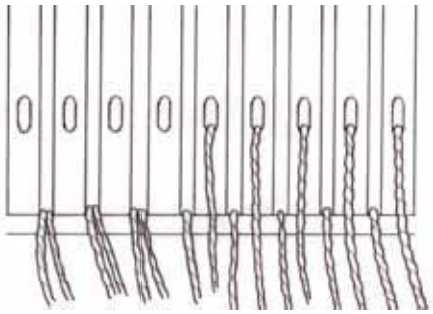
2

3

8.

1. Untie the first slip knot to start *threading* the heddle. Start on the right where you tied the string to your heddle. Take the loops in order according to the lease sticks. Leave one in the slot and thread the other into the hole. As you thread each bundle of warp threads, retie them into slip knots.



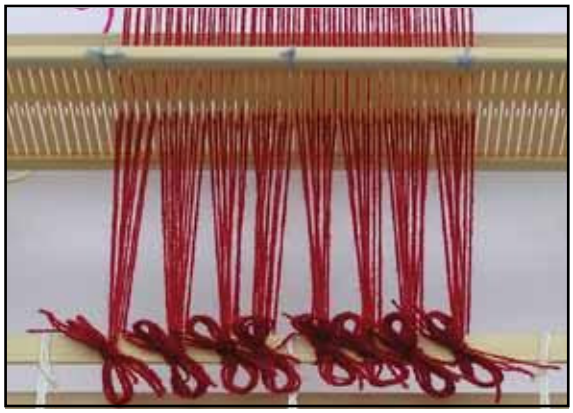


Some threads can simply be poked through the hole.

Glimakra's cord threader makes the best threader for the holes in the size 8 and 10 heddles.

Threader for the size 12 heddle (a 3 inch nylon loop for dental flossing you can find at a drug store)

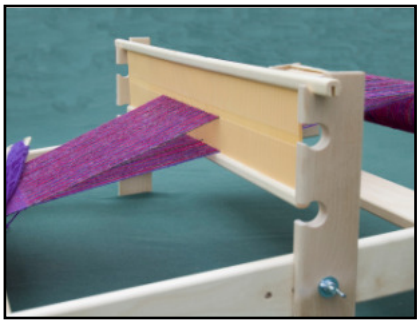
2. Tie the yarn to the tie-on bar. Set the heddle in the top position. Pull the tie-on bar towards the heddle and put the pawls into the ratchets. Select 1 inch of warp ends (8 or 10 yarns) at the center of the heddle. Divide the bundle into two parts, putting the right half under the bar and the left over it. Tie the two halves together, just as you tie your shoe laces, ending with a bow.



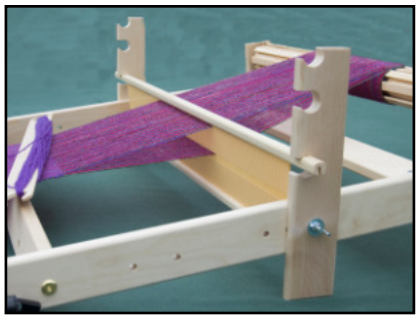
It is not necessary to pull the yarns tight as you tie them. Feel the warp bundles one at a time to check their tension. Loosen those that feel too tight. Make sure the tie-on bar is parallel to the cloth beam.

3. Making the two sheds for weaving Set the heddle in the top position. You will see the opening formed by the heddle. This opening is called a *shed*. Lift the heddle and lower it into the lower position to make the second shed. Tighten the tension of the warp so that the threads are tight, but not too tight to make the sheds.

Heddle is in the top position.



Heddle is in the lower position.



Weaving

Words to know

Advancing the warp moving the weaving along by releasing some warp yarn from the warp beam and winding up the scarf

Balanced weave has the same number of wefts per inch as warps per inch.

Plain weave is the basic weave made by weaving over one yarn and under one yarn.

Selvage is the woven edge of a fabric.

Weft is the yarn which is woven crosswise to the warp to form the woven web.

Position the warp

When you are ready to weave, position the beginning of your weaving project, lets say a scarf, about half way between the cloth beam and the heddle. The ties you made will become your fringe. Tighten your warp, but not too tight.

Flat *shuttle*

Wind your weft yarn onto your shuttle

Wind only until the yarn on the shuttle is about one inch thick. If you wind it thicker than this, it will be hard to get the shuttle through the shed.

Make a shed and weave

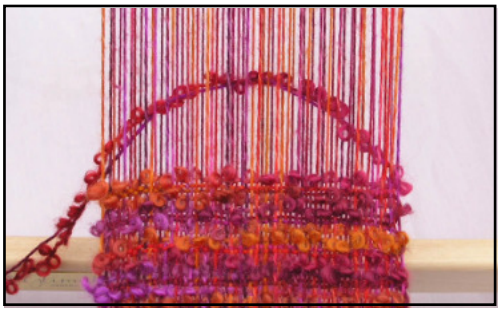
To make a shed for weaving, put the heddle in the top position on the brackets. Pass the shuttle through the shed. If you have a fuzzy yarn, you may have to open the first sheds with your hands. After about the first 1/2 inch of weaving, the sheds should open easily. Set the shuttle down. Curve the yarn up in the middle and then back down, to make a rounded shape. Leave a 2 inch tail. This curved shape is necessary to give the weft enough length so that it will weave across the scarf without getting stretched.

Use the heddle to put the yarn in place

Using both hands, take the heddle off the top position, lower it to close the shed and pull the heddle to the weft. This will make the yarn straight across the scarf. Do not press it against the tie-on bar, instead this first weft should be about one inch from the bar. Place the heddle into the bottom position.

Weave the other shed

Put the 2 inch tail into this second shed. Pass your shuttle through this shed and weave the next weft with an upward curve as before. Lift the heddle and press the weft in.



Wide warps

You may want to use a temple. See page 13.

Checking your Weaving

Counting for a balanced weave

Weave one inch. These two sheds are weaving plain weave. Use your tape measure and count the wefts in one inch, to check your beat. You should aim for a balanced weave, which means that you will have 10 wefts per inch with a 10 dent heddle. Continue to measure and count periodically to achieve a balanced weave. Now you can remove the lease sticks.

Measure your weaving width

Now and then measure the width of your scarf. It should be nearly the same width as the warp yarns in the heddle.

Advancing your warp

When your woven scarf gets close to the heddle, release the pawl from the warp beam ratchet and unwind some warp yarn. Wind your scarf on to the cloth beam and tighten the warp. Do this frequently as you weave.

Help, my scarf is getting too narrow!

To solve this problem, curve your weft upward more when you weave. See photo above. To fix this, return the heddle to the previous position, loosen the weft yarn, curving it higher towards the heddle.

Finishing your Scarf

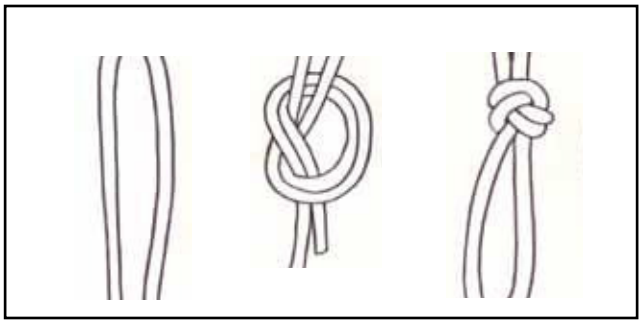
If you run out of yarn
Fill your shuttle again. Overlap the new yarn end 1 inch over the end of the last yarn.

When you finish your scarf
You will soon see the ends of the warp yarns. When you weave the last weft, leave a two inch tail at the selvage and then weave this tail in.

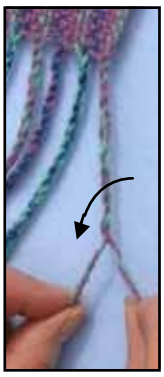
Cutting your scarf from your loom
You will need about 6-8 inches of fringe left on your scarf, so cut the warp yarns back by the tie-on bar. Pull this fringe out of your heddle and unwind your scarf from the cloth beam. Untie the bows you tied at the beginning of your scarf.

Tying your Fringe

Overhand knot
Place your scarf on a table and trim your fringe even and both ends the same length. If you are not going to twist the fringe, tie groups of four or six yarns into an overhand knot, pushing the knot up to the last weft yarn.



Twisting your fringe
If you want to twist your fringe, take four or six yarns and divide them into two parts. Twist both parts in the same direction. Place the two parts together and tie a knot at the end.



The two parts will twist back on themselves to make a plied fringe.

Finishing choices for your Scarf

Wash and press your scarf
Your scarf will soften when washed. Place it in a basin of lukewarm water with a very small amount of hand dish washing soap. Rubbing gently on the twisted fringe will make the yarns cling to each other, making a stable fringe. Gently wash and rinse in lukewarm water. Squeeze the water out, but do not wring. Use a fabric softener, vinegar or hair rinse if you like. Hang to dry. If you don't want to wash it, wrap it in a damp towel and leave it for an hour.

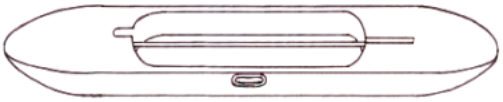
Wool scarves can be pressed
Wool can be softened by pressing with an iron. When nearly dry, cover the scarf with a thin, damp cloth and press lightly.

Brush your scarf to make it soft
Brushing makes a fluffier, softer scarf. Wool scarves are easy to brush using a hair brush or a hand card, used for carding wool. Place your scarf flat on an ironing board or on a table. It is best if wool is still a little damp for brushing. Hold the scarf with one hand and brush with the other. You will very quickly see and feel the difference it makes.

Shuttles

Boat Shuttles
You may want to use a boat shuttle for weaving, as it glides through the shed easily and the yarn is drawn out of the shuttle as needed. A shuttle which is comfortable and easy to use is one which is slender and not too heavy. Shuttles should have an outward curved shape where the thread hole is, for smoother traveling of the yarn.

Shuttles can have a solid or open bottom
The boat shuttle with a *solid bottom* will have a smooth bottom surface for the shuttle to glide across the warp. An open bottom allows you to stop the quill from the bottom with your finger, useful when weaving narrow warps. This shuttle below is heavier and made to travel across a wider warp.



Shuttle with an open bottom

Ski Shuttle for rug weaving

Sizes of boat shuttles
Boat shuttles are usually from 11 to 13 inches long. They are seldom more than one inch tall and two inches wide. A spindle length of 5 inches will hold a quill which is 4 - 4 1/2" long. A shuttle with a longer spindle, holding more yarn is better for thicker yarns. This usually requires the shuttle to be 13-15 inches long.

What boat shuttle is best for wide warps?
A shuttle which is longer, 13-15 inches, will travel better across wide warps. This additional length helps you to aim the shuttle in a straight path. It should not weigh more than 6 or 7 ounces.

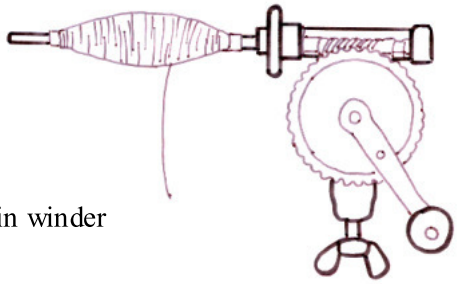
Rollers on the bottom of a shuttle will help the shuttle travel across a wide warp.

Double Ski Shuttle for thick yarns

How to wind a quill
Attach the yarn around the quill using a simple knot that will easily untie when the quill is emptied. Sit with the spindle of the winder facing you, holding the yarn in your left hand. Turn the handle clockwise while your left hand moves back and forth rapidly, holding a slight tension on the yarn.

Note! Wind no closer than 1/4 inch from the ends of the quill. Traverse a shorter and shorter path, making the center the thickest part. Do not overfill.

Quills are made of cardboard and come in many lengths, up to 6 inches long. They can be cut to length with a knife or strong scissors.

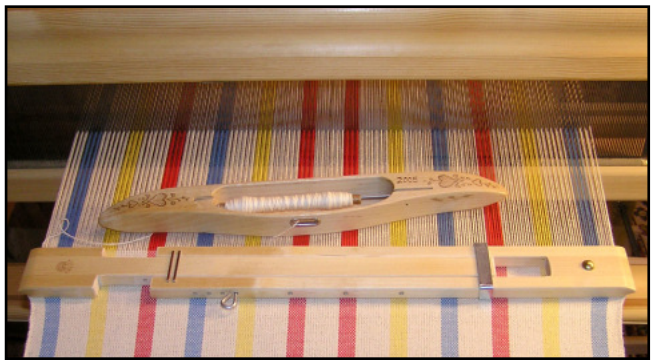


Bobbin winder

Quills

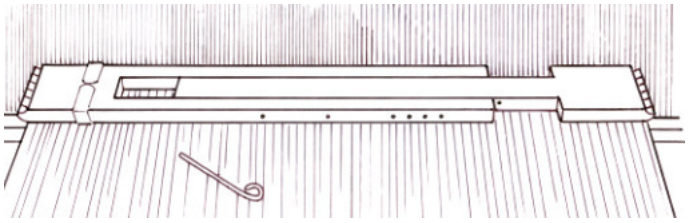
Temples

What does a temple do?
A temple is a traditional weaving tool, with evidence of its use going back many centuries. A temple will improve the quality of your work as well as make the weaving easier. A temple will give you a more even beat, increase your speed, create more rhythmical movements, give you a tighter weave, and make the beating physically easier. As a result, your selvages will also be better.



When should I use a temple?
A temple is necessary to produce good quality weaving. If, after you start to weave, your warp at the fell (where the last wefts were woven) is narrower than in the reed, you need to use a temple.

How do I set the length of the temple?
Take the pin out of the temple and place it up side down on the warp at the reed. Extend the temple so that its length is the same as the width of the warp, with the wooden ends extending just beyond the selvage yarns. Replace the pin where the holes line up.



Check your temple placement
Pull the beater to the fell, with the temple in place. The selvage warp yarns should not be pulled out or in by the reed. Adjust the length if needed. Advance the temple after about an inch of weaving.

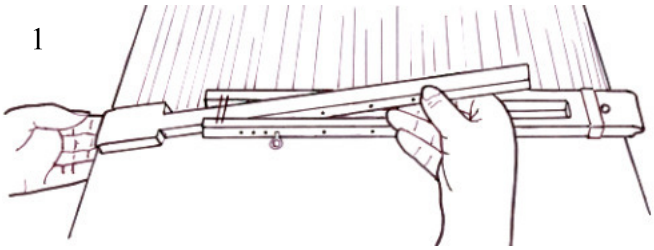
1. A temple holds the woven material
When you weave without a temple, the natural narrowing of the material causes the warp yarns at the selvages to be too close together. This causes the weft to rise at the sides and it is seen clearly when you weave weft stripes.

2. Using a temple keeps selvage yarns from becoming loose
Using a temple will prevent draw-in, so you can make snug, even selvages. There is no need to pull yarn from the shuttle before throwing it.

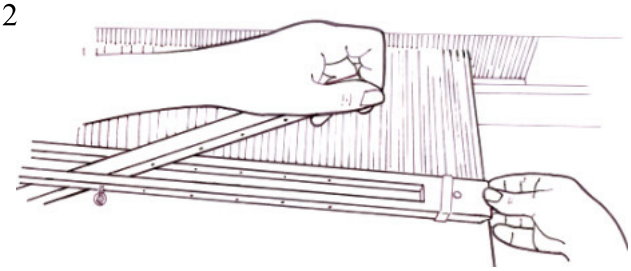
3. Using a temple prevents selvage warp yarns from breaking
If you don't use a temple, draw-in at the selvages and the narrowing of your material will cause the selvage warp yarns to be worn by the beater, fray and eventually break. A temple cannot correct this problem, but it will prevent it.

How do I place the temple on the web?
Place the temple right side up near the fell (last wefts woven) of the weaving. Set the teeth into the last warp yarns of the woven selvages, first on one side, then the other. Push the temple down slowly and slide the metal holder to the center to keep the temple flat. You should be able to see the last few wefts that you wove and the reed should not touch the temple when you beat.

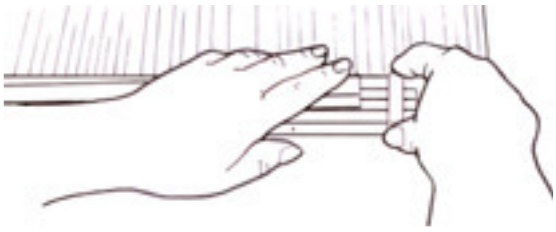
1



2



3



Weaving on the Susanna with two heddles

To warp the loom, use the one heddle to space the warp threads. After beaming the warp, thread the heddle according to your draft, threading the eyes of the heddle and leaving the extra threads in the slots. Place this heddle on the brackets in the back.

To thread the second heddle, place the heddle in the lower position and tie it in place. For some weaves it may be easier to thread if the heddle is placed lower on the table so that the first heddle threading is easily seen. Follow your draft to thread the heddle. Tie up as usual and follow your draft instructions for the weaving.

Wool and cotton Scarf

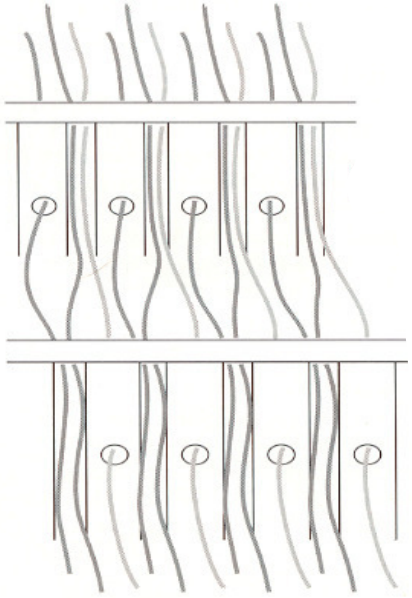
Plain weave with differential shrinkage for Texture
Warp: 2 ¾ ounces total weight, 1 skein Mora 20/2 wool, one tube 20/2 egyptian cotton, both from Sweden.
Wound 246 ends.
Threaded 12 wool, 12 cotton, repeat, ending with wool.
10 dent heddle , 9 ½ inches wide
Thread the first two threads in a hole and slot in the back heddle. Then put them through the corresponding slot in the front heddle. After these two threads, the next two threads travel together through the slot in the back heddle and then are threaded through a hole and slot in the front heddle.

Two heddles shown woven on the Emilia loom

Wool Scarf in Twill

From VÄV magazine article 3/94
Weave: three shaft twill
Warp and weft: Tuna 6/2 wool, from Sweden.
Sett: 10 dent heddle, 15 threads per inch, 1 thread in the hole and two in the slot, as in the diagram. The extra one in the slot is threaded into the hole in the second heddle.
To weave: lift the back heddle, weave 1 shot, lift the front heddle, weave 1 shot, lower both, weave one shot.

Contact us if you want to subscribe to VÄV magazine or to purchase the yarn for these scarves. You can see the color possibilities at:
http://www.glimakrausa.com/yarns.html



Betty Davenport's books, Hands on Rigid Heddle Weaving and Textures and Patterns for the Rigid Heddle Loom will show you how to weave many patterns on your loom.