

# Kromski Harp

## Rigid Heddle Loom

Assembly Instructions

You are about to embark on a type of weaving that has been practiced for thousands of years - weaving with a rigid heddle loom. With the Kromski Harp, you will be able to create interesting and varied projects that will spark your continued interest in the art of weaving. If this is your first loom you will find your efforts quickly rewarded; if you are an experienced weaver, you will find that your Harp can take you to a new horizon of weaving. Have fun. *Color pictures and instructions are on-line at: [www.newvoyager.com/rigiduse.html](http://www.newvoyager.com/rigiduse.html)*



**Assembly** - putting your loom together is easy. Some parts have been assembled already; others just require a screwdriver. We ask you to refer to the parts drawing to identify the various parts and see where they are positioned on the loom. Proceed with the following steps and also refer to the process on the New Voyager video that comes with your loom; it will be a great help.

1. Place the two side frames on a work surface. You identify the rear of each side by looking at the hinge; the hinge swings from the rear section of each side; the hinges will be on the outside of the loom.
2. Locate the two plastic pawls and two pan head screws in the parts bag. Important: blunt the sharp front edge of the pawl on a file/sandpaper or use some other tool to remove this edge just a bit. With the screw through the hole in the pawl, attach the pawls, front and rear, to the right frame. You will be using the holes on the right frame that are closest to both ends. The pawl has a head that looks like Woody Woodpecker; make sure the beak points to the ends of the frame (this will engage the ratchet on the beams). The pawls should be snug and in use you will move them with a finger, not by gravity.
3. Place the front and rear beams into the large holes at the front and back of each side frame with the plastic ratchet to the right. These beams look alike but they are different. Examine the plastic ratchet on each beam. The teeth have an angle; the front beam's teeth must point towards the back, the back beam's teeth must point towards the front. Test by making sure the plastic pawls securely engage the ratchet on each beam. Do not attach any further parts to the beams at this time.
4. Place the two cross supports between the side frames, leg side down. You will find a number on both ends of each support; match these numbers to corresponding numbers you will find on the inside of each side frame. Attach the cross supports to the side frame using the wood screws (8) in your parts bag. Get all eight screws started before you tighten all of them. (Numbers on the loom may not correspond with the locations as shown on the parts picture; match numbers as they are on the loom pieces)
5. Attach the 4 handles to the ends of the front and rear beams using the screw that is already located in each handle. Line up the screw hole in the handle with the marked hole on the end of the beams. Tighten firmly.
6. Mount a heddle holder on the inside of each side frame using a bolt, washer and wing nut, making sure the small wooded peg on the outside of the holder lines up with a hole that is drilled on the side frame. The bolt should be inserted from the inside and the washer and wing nut should be on the outside

of the frame. There are two mounting positions for heddle holders on each side frame; use the forward position when you mount your holders.

*Optional* - the Harp can accommodate two sets of heddle holders; holes for the second set are already positioned on the side frame. Make sure if you are using just one set to position the holders in the front position.

7. Using beam dowels - to secure your warp to the front and rear beams you will be using the two supplied beam dowels (there are various methods for warping a loom; if you are more comfortable with some alternative methods, feel free to use them; or experiment). Proceed as follows:

Rear beam - your loom includes a number of braided strings. Gather all of these strings. Begin by learning and practicing with one string how to join the ends of these strings into a loop. It is not difficult and will result in your loom being easy to warp.

Light a candle. Holding an end in each hand, bring the ends into the flame for a short period so that the ends begin to melt (should an end catch on fire just shake to extinguish). While the two ends are melted, line them up and butt them together in a manner that causes a small bubble to “bulge up” where the two ends have been pushed together. CAUTION - this joint will be hot. Hold for several seconds, allowing the joint to begin to cool. You can test the strength of the joint by trying to pull it apart (after it cools). It should be difficult to break.

Now trim each string so that all strings are exactly the same length. Repeat the process above that you have learned so that you have all the strings made into loops

Thread half the loop of strings through the holes that are located along the length of the rear beam. Do them all the same way. Thread the end of the string loop through the front of the loop as it protrudes through the hole in the beam. All the loops should be positioned identically along the beam. See section on warping your loom with the Warp Helper for further instructions.

Front beam - repeat the above instructions for the front beam. When you get to the point of tying the warp to the front you will create an overhand loop with each string and slide the dowel through each along the length of the dowel (this will be identical to the rear beam).

**You Kromski Harp is now ready for your first weaving project.**

**If you have any difficulty in putting your loom together, contact your retailer or call New Voyager Trading (the N.A. distributor) at: 252-398-4396**







# Kromski Harp Rigid Heddle Loom

## Your First Weaving Project

Weaving with a rigid heddle loom is pretty easy, but to cover the subject completely there have been books written on the subject. While we can not write a book, we think these instructions and the companion information on our video (included with your loom), will get you off to a quick start. If you would like to have a comprehensive presentation of rigid heddle weaving, we suggest the following book: *Hands On Rigid Heddle Weaving* by Betty Davenport; or the video *Rigid Heddle Weaving, Level I* by Betty Davenport. Both titles are available from most weaving stores.

### Developing your project and basic calculations

For your first project we suggest using inexpensive materials for your warp and weft. Use this project to learn, experiment and master the techniques.

How wide do you want your project to be? Your Harp comes with a 10-dent heddle. This means there are 5 slots and 5 holes per inch. Depending on the width of the loom you have purchased, you have a minimum of 160 slots and holes or as many as 320. Let us suggest a project that is about 12" in width. This will mean you will need 120 ends (single strands of warp/yarn) between your rear and front beams. Your warp can be constructed with several colors and you will want to calculate their location. Perhaps a narrow white stripe located an inch in from both edges. So your warp calculations would be:

10 color warp ends  
6 white warp ends  
88 color ends  
6 white warp ends  
10 color warp ends

*Color pictures and text of these instructions are on-line as a pdf file : [www.newvoyager.com/rigiduse.html](http://www.newvoyager.com/rigiduse.html)*

This is the order you will follow in building your entire warp (adjust to suit your ideas).

### Creating the warp

There are any number of methods of warping a rigid heddle loom; we will present two here.

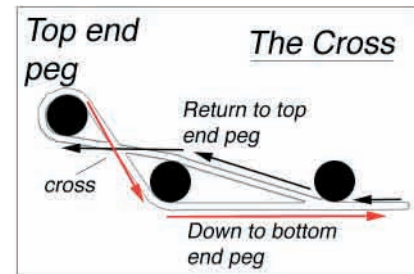
#### 1. Warping board method

Your Kromski Harp is large enough to accept warps that might exceed five or six yards (depending on your warp material and loom size). If you are creating a large warp, then using a warping board is a good way to organize your warp (and keep it organized). The Harp is designed so that the back side can be set up as a warping board. Your loom includes a number of pegs that you insert in the holes drilled in the back side of the loom frame. Use as many pegs as needed to create a warp of the length you need for your project. You determine the length of the warp. If the above project is for placemats, you will want

to make the length of the warp long enough to make a good number of mats. You will also have some warp waste. A three-yard warp might give you 6 mats. The longer the warp, the fewer times you have to warp the loom (for your first project, don't attempt a real long warp).

Make sure the hinges on the loom are locked, then turn your loom over. Loosen the wing nuts and rotate the heddle holders so they are mostly out of the way. Place pegs in appropriate holes similar to the picture (page 5). The pegs will fit tight so don't insert them in any manner that will cause damage to the loom. If you like, take a tape measure and measure the serpentine route your warp will take to determine the total length. A little extra is always better.

The route the warp takes on the board is important. It must be repeated, faithfully, over and over again on the board. You might want to prop the frame against a wall or table or rig a hanger over a door to achieve a good position to do this work. Begin by tying your warp to the bottom end peg. Route your warp around the pegs in a way similar to that shown in the picture (page 5), all the way to the top end peg. Loop around this end peg and proceed as directed in the next section.



The Cross - As you come around the top end peg you will be making "the cross," an important feature in making a proper warp. This involves a different route around the last 2 pegs as you begin the return route back to the bottom. Refer to the picture to see how this is done. Just follow the arrows. In the end, you will note that, by creating the cross, you have developed an organized, layering pattern, with every other end crossing at the same angle between the last two pegs. This cross will help you keep the warp organized and allow you to properly thread the heddle.



As you complete your first cross and return to the bottom end peg, you have successfully made two warp ends (up to the top is one, back to the bottom is two). Since your project calls for 120 ends you must repeat the above process 59 more times. Just continue around the bottom end peg and start your next cycle. Make sure you always make the cross correctly with each cycle. Attempt to tension the warp evenly as you work on the warping board.



Changing colors on the warp - Remember you are making white stripes on the project. After your first 5 complete cycles on the board (up and back up 5 times equals 10 ends or 1 inch) and you are back at the bottom end peg, break your warp thread and tie on the new white warp. Now make 3 complete cycles on the board. Back at the bottom end peg again, break the warp and tie back with the original color warp. You have to keep track of how many complete cycles you are making so you know when to again bring in the white color. Stop and count ends or put markers on the warp so you know how far you have progressed. When complete, tie off at the bottom end peg.

Securing the warp on the board - getting a small warp off the board and to the loom is easy, but you must properly secure the warp prior to moving to the loom. We suggest you follow these suggestions for all warps, regardless of size.

Starting at the bottom end peg, take a scrap piece of yarn and slip it through the loop at this peg and make a slip knot. Approximately every 12" to 16", again use a piece of scrap yarn, tie the warp together with a snug slip knot.

At the cross you will need to add additional ties to preserve the shape of the cross. Tie the cross in the middle and on all four legs.

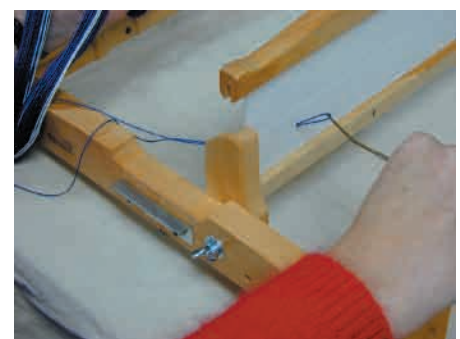
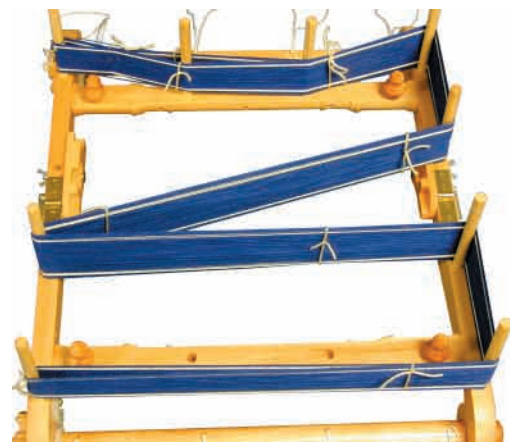
When all ties are in place, you can remove the warp from the pegs and then remove the pegs from the loom frame.

**Threading the heddle** - place the heddle in the middle position on the heddle holders (the Kromski logo should face forward). To maintain the organization of your warp we suggest that you place a number of markers on the wood frame of your heddle. Either directly on the wood, or on tape that is placed on the wood, measure and mark the middle position. A mark every inch along the length of the heddle, working from the middle out, is also helpful. We also suggest marks on the heddle frame that correspond with the location of the holes on the rear beam (the holes that now have the extension strings). Place these marks on the front, or back, or both.

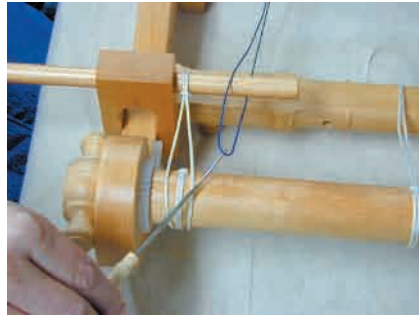
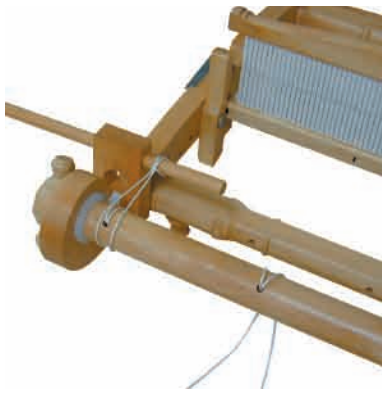
You will want your warp centered on the heddle with half the ends to the left of center, half to the right. You will be threading the heddle from one end to the other but it makes no difference which end you start from.

**Holding the warp cross** - why did you make the cross? Now you will see. In order to warp without mistakes you will be holding the warp at the cross as you see in the picture. Get your thumb and fingers up into the cross and attempt to pull it snugly around your hand. Keep the ties in place as you do this in case your are interrupted. Once you have the warp "in hand," cut the ties from around the cross and further down the warp for no more than 18"-24". You are now ready to thread the heddle.

Begin at one end of the heddle, at the mark that indicates 6" from the center of the heddle (your project is 12" wide, so beginning 6" to one side of the middle means your project will be centered). With the heddle hook handy, find the warp that lays on top of your cross; in fact it will be a loop as you pick it up, so two ends. Bring this first loop up to the heddle and to a slot (not a hole) on the heddle that is 6" from center. From the back side of the heddle, insert the hook through the slot, latch on to the loop and pull it through.



**Warp Helper** - now you get to use the Warp Helper. Position the Warp Helper on the



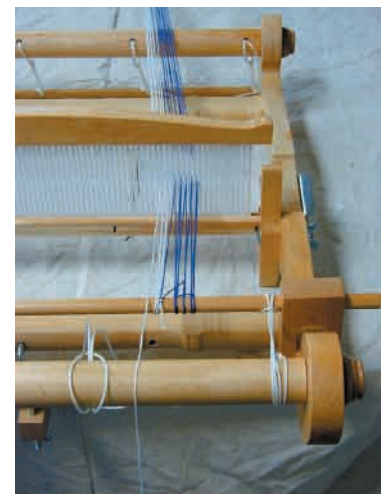
side of the loom that you have started warping from. Slide the dowel through the hole from the outside in. Extend it to a length that puts it behind the area of your first threaded slot, plus maybe 4" more. As you slide the dowel in, slip on the first extension string in the manner shown in the picture (if you have a 24" or 32" loom you will need to slide on 2 or more strings at this point). Now slip your first warp loop on the dowel.

Continue by locating the next loop from the cross, bring it through the next slot, never a hole, and place on the dowel. Work your way across the heddle. If you have placed marks on the heddle that line up with the extension strings from the back beam, you will know when to slip the next extension string on the dowel. The extension strings must be slipped on the dowel as you come to each of these marks or you will have problems. Push more of the dowel in as you need it.

Work your way to the other end of the heddle, concluding with the last extension string(s). Now all of your ends are located in slots, two ends per slot.

## 2. Warping with the Warp Peg

Here is an alternative method for warping your loom that uses the warping peg (not the warping board) that is included with your loom. We suggest this method for shorter warps unless you have the space to stretch out your warp. This method works best if you have a long work surface to support the warp.



Clamp your loom at one end of a table with the back beam at the edge. Clamp the warp peg at the other end of the table so that it is centered on the loom. Place your warp yarn on the floor below the rear beam of the loom. Set the Warp Helper on the side of the loom frame at the back and extend the dowel in so that a good length is behind that portion of the heddle that will be warped first. Slide on one or more of the extension strings on the dowel as it is pushed in from the side

(see method pictured above). Take the end of the warp and tie it to the dowel so that it is in line with the slot at the 6" mark on the heddle. Make a loop of the warp and pull it to the heddle; at the 6" mark from the center of the heddle, pull the warp through a slot. Take the loop end and pull it to the warp peg; drop it over the peg. You now have two warp ends extending from the dowel through one slot to the peg. Back at the dowel, take the warp and make a wrap around the dowel (down and around) and pull the looped end up to the heddle. Thread through the slot (not the hole) adjacent to your first threaded slot. Pull the loop up to the peg and drop it over the peg. You now have four warp ends in place. Repeat this process back at the dowel. Work in any different colors as your pattern calls for it. Make sure to slip on the back beam extension strings as you come to your marks on the heddle that is your warning to do so.



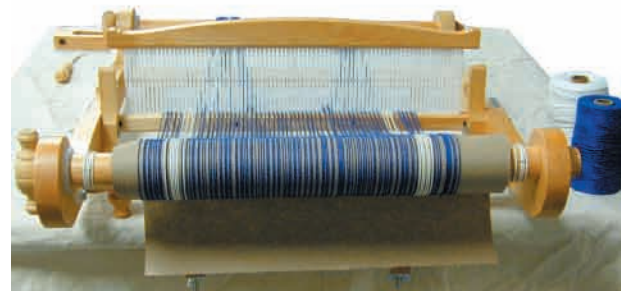
Push more of the dowel in as you need it. Progress across the width of the dowel and heddle until you reach the 6" mark on the heddle. Tie off the end of the warp to the dowel stick. You now have your complete warp stretched out in front of you. At the warp peg, place a loop of waste yarn through the end loop of all the ends and tie.

**Beaming the warp** - applies to both warping board and warp peg method

Now you are ready to wind the warp on the rear beam. This can be done by yourself but we suggest a helper as you attempt your first warp. Begin by securing the loom to your work surface with one or both clamps. You want to clamp at the back of the loom. The warp will extend beyond the front of the loom. For the moment, keep the remaining ties in place if you warped with the board.

Remove the Warp Helper dowel from its holder, making sure the end strings stay on the dowel (slip a small rubber band over the ends of the dowel if this helps). Prepare some heavy brown paper (or other heavy paper) that is 2-3" wider than the width of the warp. With one person at the rear of the loom and the other at the front, you are ready to go.

The front person will cut several of the warp ties nearest the heddle so that 3-5' of warp is between him/her and the heddle. Divide the warp at the middle, holding half in one hand, half in the other. (If you warped with the peg, presumably you have a shorter warp and just one tie at the end; cut this tie and divide the warp in half.) Shake or otherwise open the warp in each hand so that you can apply even tension to all ends in each hand and the same overall tension for both

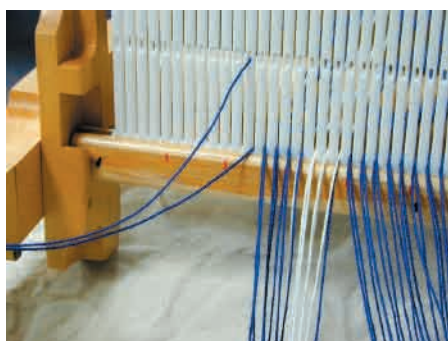


hands. Never comb the ends with your fingers; shaking is best. With tension applied evenly, the person at the rear of the loom begins to wind the warp on the back beam. Make sure the plastic “paw” is engaging the ratchet on this beam. Make sure the warp ends on the dowel are evenly spaced and line up with the appropriate slots on the heddle. Make sure the dowel rests flat on the beam. Wind on the warp until you make one complete turn of warp. Now you must insert the paper (the paper allows the warp to build evenly and prevents the ends of the warp from collapsing on the beam). The paper need not be long; you can use a number of sections, one following the first and so on. If you need to take your hands off the loom, be sure the “paw” is in place. Continue to wind on. As the front person moves in closer to the heddle, he/she can release tension, cut more ties, open up the warp and again apply tension. Continue to wind on, adding paper as needed. You are finished when the front person is able to hold the warp at its end and the end is over the front beam.



### **Final threading of the warp**

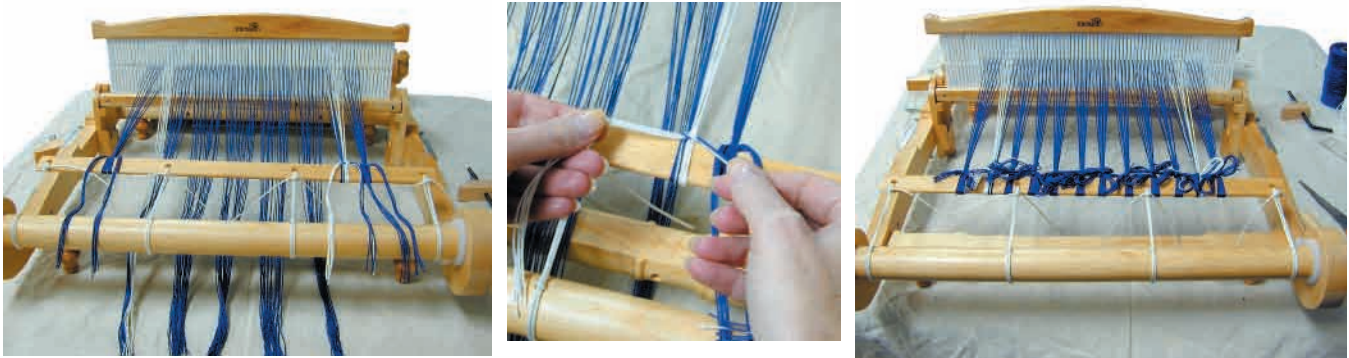
You now need to cut the warp at the front of the loom. Lay out the front ends evenly along the beam. Working from one end of the heddle (you choose), take the first set of ends in the first slot and pull one (only one) end back through the slot; the other end remains in place. Using the threading hook, insert the hook through the hole next to the first slot and grab on to the end that you have just removed from the slot. Pull this end through the hole and then pull this pair of ends (one is in a slot, the other is in the adjoining hole) off to the side and out of your way. Locate the next pair of ends in the next slot and repeat the above; this continues until you have



worked your way across the heddle to the other side making sure never to miss a hole or slot.

### **Tying on to the front beam**

Keep with us; you are nearly done with the warping process. This last step is important to ensure an evenly tensioned warp. You will be tying the front of the warp to the front beam dowel in a manner that is consistent with nearly all types of looms. Learn it here and you will have mastered it for other looms in your future.



*Note: pictures show a flat beam stick, not your dowel. We have improved the process with the dowel stick but the manner of tying on is the same. Position your beam dowel at the front beam using overhand loops spaced evenly along the length of the dowel in the same manner you employed at the rear beam. You will be working with 1" segments of the warp at a time. You will start on one side of the loom and then switch to the other side, then back and forth, side to side. Here is what you do: First, put the heddle in the up position on the blocks (you may have to make several ties before it will stand by itself). Take the first 10 ends on one side of the loom and divide them into sets of 5. Attempt to get even tension on both sets. Bring them to and over the beam dowel, then under the dowel back towards the heddle. Bring five of the ends up on one side of the same warp threads, the other five on the other side. Tie together with one overhand knot, making a snug knot, pulling on the warp to achieve tension. Now go to the other end of the beam and repeat the above with 10 ends. Work your way to the center with the other sets of ten ends; you will finish with 12 ties of 10 ends each. Slide your knots along the dowel so that the warp ends form nearly a straight line from heddle to dowel.*

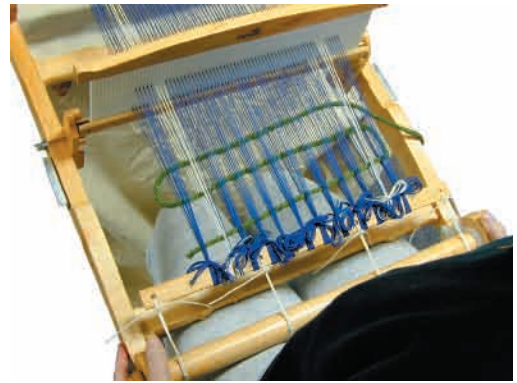
All ends are secured to the beam dowel but now you must adjust the tension of each of the twelve sets by "feel." You may want to adjust the overall tension of the warp first, by rotating the front or back beam. With a finger or two, push down on each of the twelve sets; some will feel tight, others loose. What you want to do is tighten the loose sets so that they equal the tight sets. This will take some time and you may end up adjusting the same set several times. Work from the middle to the edges. The actual adjustment is made by taking the two ends of a set and pulling and wiggling the ends so that the tension increases incrementally (don't untie that overhand knot). Back and forth you will go until all twelve sets feel the same. When you are satisfied that you have achieved equal tension, finish off each knot with a typical bow tie (you may also want to trim off excessive length from the tie). Any time you re-tension your loom - ie when you advance the warp - be sure to manually push down on the two pawls to ensure than they are fully engaged with the ratchets. Congratulations. You are ready to weave.



# Weaving

## Holding the loom for weaving

The typical position for a rigid heddle loom like The Harp is to place the front beam on your lap and the back pushed up against a table or counter. You will use the legs on the rear cross support to “lock” the loom in place; move yourself in closer until the loom feels secure.



## Weaving a header

Because you have tied the warp ends together to the beam dowel, there will be a slight deflection of the ends near the stick. If you started weaving now, you would notice unevenness. So what you want to do is weave 3, 6, maybe 9 throws with scrap yarn to straighten out this end of the project. With the heddle in the up shed position, make three throws without beating after each throw. Now beat all three throws together, then move the heddle to the down position.

Most likely you will need to do another set of three throws, maybe two sets. When the warp ends are in line as best as they can be, from heddle to beam dowel, you are ready to weave.

## Beating

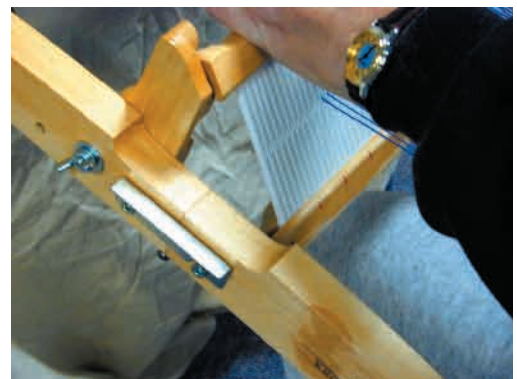
Beating your weaving will take place after each pass of your stick shuttle through the opening (shed) as your heddle rests in the up or down position. You will want to practice this operation so that you can do it with little effort. Here are some suggestions:

It is called beating but with a rigid heddle loom it is more akin to pushing. Remove the heddle from the blocks with both hands, one hand towards each end of the heddle. Bring the heddle forward. You want to compress the throw you have just made into the project. Depending on the project, this may require a hard effort on your part (for a tight weave) or a gentle touch (for a weave that will be more open). You want to ensure that the heddle, as you beat your weft, is parallel with the beam. This is important. Also, how hard you compress the weaving must be the same throughout the length of the warp.



Returning the heddle to the heddle holder and into position will take some practice. You must have enough tension on your warp ends so that when you are in the up position, the heddle will stand by itself. The amount of tension may change from project to project. We suggest you use a hinge method for positioning the heddle on the holders. It works a little differently for each position, as described below.

Up position - as you return the heddle after beating, lead with the bottom edge of the heddle and lift to raise the warp. Bring the bottom wood rail of the heddle up to the top of the holder so that it slips into position. With the bottom of the heddle now on the top position of the holders, simply pivot the top of the heddle up until the heddle is vertical on top of the holders.



It should stand by itself.

Down position - as you return the heddle back from beating, lead with the top edge of the heddle and push the warp down. Place the top wood rail of the heddle in the top notch of the holders then pivot in the bottom rail until the heddle is vertical. The top rail is now in the top notch, the bottom rail in the bottom notch. The middle position is only used in setup or when the loom is “at rest.”



### Loading your stick shuttle

Your Harp includes two stick shuttles. You may have the same weft on both shuttles or you may be working with different colors or materials, so having two (or more shuttles) does the trick. Do a figure-8 around one end of the shuttle to secure your weft and then wrap the weft from end to end. Not too tight; keep your hand under the weft yarn so that you build in a little slackness as you add more yarn. The filled shuttle must pass through the open shed on the loom so don't put too much yarn on the shuttle. You will learn as you go along how much is too much.

### Your first real throw

With the heddle in either the up or down position, pass the stick shuttle through the shed. With this throw you want to do two things: leave about one inch of weft hanging from the side you start from, and have the weft that goes across the shed at an angle (see picture). The extra length on the weft that results from this angle will be used up when you beat this throw; instead of a straight piece of weft, it will become an over, under, over, under piece of weft and that route requires extra length. If you put no angle on the throw, you will see an immediate pulling in on the edges of the project. A slight pull-in is acceptable and normal.



Remove the heddle from the holders and beat your first throw, returning the heddle to the opposite position.

Before your next throw, take that short tail you left hanging from the first edge and tuck it into the warp threads. Do this by hand.



For your next, and all subsequent throws, follow these tips:

Pass the shuttle back through the shed, making an angle of the weft. From throw to throw, keep this angle consistent. Remove slack from the turning edge side but do not pull it tight at the turn. You want a bit of weft at this location so that when you beat this throw, your edge does not distort. You will have to practice and experiment to determine what is just right. Bring the heddle forward and beat, then return it to the holders.

### Changing weft color/material

If your weft material for this project doesn't change, just continue the above steps back and forth. How-

ever, if your project calls for switching out the color or material, here is how you do it (also follow these instructions when the shuttle empties out).

Never end a piece of weft right at the edge. You want to be sure there is an inch or two that can be tucked into the weaving. So to change colors or material, break the weft at one side, leaving an inch plus of length. Take the alternative shuttle and throw to the other side, leaving a tail at the beginning side. Beat. Now tuck in the two tails. Continue to weave normally.

If you are working on a wide project, it is permissible to have a weft end terminate in the middle of the warp somewhere. Depending on the material, you can overlap the two ends slightly or butt them together. You might even pull out a short tail and leave it hanging in the middle, to be trimmed off when finishing.

Continue with this project and learn. The front of this work may contain a number of errors or problems, but as you continue and learn, you may find that the woven material at the other end looks pretty good. You started out with a project for placemats. We hope that you are able to produce some usable pieces. If not, look to improve your technique as you continue.

There is more to rigid heddle weaving than what we have described here. We urge you to learn more by reading on the subject, reviewing a video and by joining a weaving guild in your area. You will find there are many active weavers across the country, many near you.