TO MAKE ONE LOOM
Travis J. Meinolf
Berlin, 2010

RPS Press
Oakland

TO MAKE ONE LOOM

by Travis J. Meinolf

This series will lead you through building and use of a collapsible counter-balance floor loom that I designed in Berlin in early 2010. You can find video instructions, information about other projects and weaving tools on my website, actionweaver.com

TO MAKE ONE LOOM
YOU WILL NEED

Lots of enthusiasm, and patience. But also all of this stuff... If you can't find metric hardware, or the exact size lumber listed, you can approximate, just be consistent.

Framing Timbers = 24 x 48 mm
6 @ 115 cm
6 @ 1m
8 @ 85 cm
2 @ 75 cm
2 @ 60 cm
9 @ 10 cm
2 @ 5 cm

Pedals= 16 x 34 mm
6 @ 75 cm

Lams= 10 x 18 mm
6 @ 85 cm

Dowels= 35 mm
1 @ 95
2@ 75

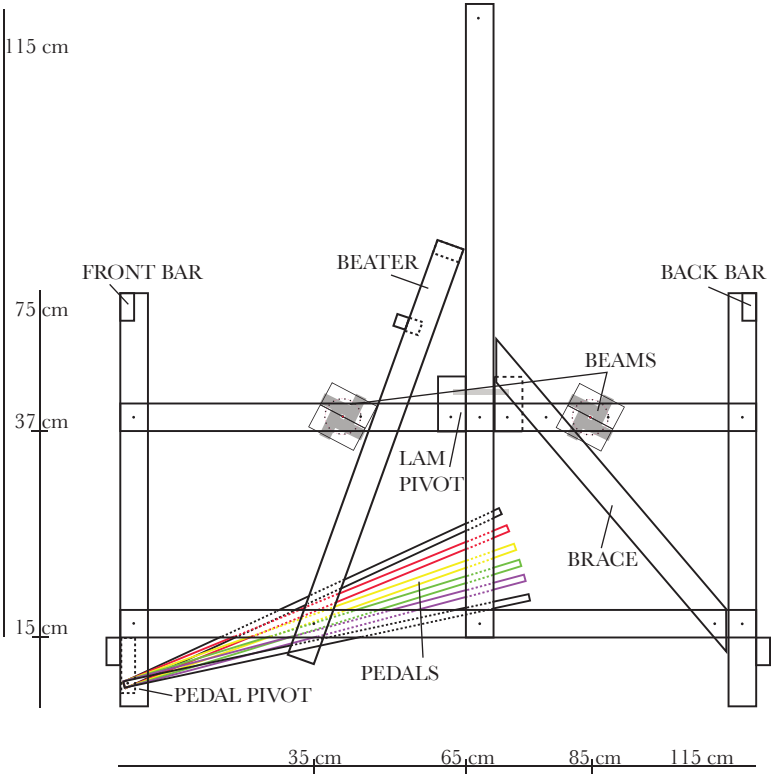
Dowels= 10 mm
10 @ 90cm

HARDWARE
nut/bolts
30 @ 6,0 x 60 mm
2 @ 6,0 x 90 mm

50 6,0 washers
12 6,0 nuts
2 6,0 wingnuts
20 4,0 x 40 mm screws
2 4,0 x 80 mm screws
12 clip hooks
4 small S-hooks

6,0 threaded rod
2 @ 95 cm
1 @ 85 cm
1 @ 10 cm
1 m wide loom reed
lots of strong twine
5 m cotton webbing
15 cm velcro
wood glue
sandpaper

TOOLS
drill
3, 4, 6 and 10mm drill bits
10 mm crescent wrench
saw
screwdriver



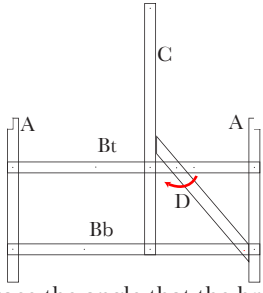
SIDE VIEW

After you have sanded the wood to your satisfaction, you need to build the frame of the loom. Begin by building the sides. I recommend stacking pieces and drilling them all together, for uniformity and time-saving!

THE SIDES

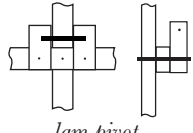
For the two sides of the loom, pick out six 115cm, and four 75cm pieces. Cut notches at the top of the 75cm corner pieces (A) to fit the front and back bars. Stack and drill 6mm holes through all four at 15 and 37 cm from the bottom. Stack four of the115cm pieces (Bt/Bb) and drill at 3, 35, 65, and 112 cm. Set aside two as bottom pieces (Bb) and drill the remaining two (Bt) at 75 and 85 cm. These will be on top. Stack and drill the last two side pieces (C) at 3, 25, and 112 cm. All holes are with your 6mm drill bit, or the correct size to fit your bolts. Bolt together all the pieces you have now, using washers and tightening the bolt flush with the wood. The horizontal pieces (Bt/Bb) should be 'inside' of the vertical ones.

To complete the sides you must add the brace (D), which will pivot into place and keep the loom stable while you weave. Set one of the sides on the floor so that the verticals (A/C) are parallel, and place one of the 60cm pieces on a diagonal, as shown in the illustration, crossing Bt at the 75cm hole.



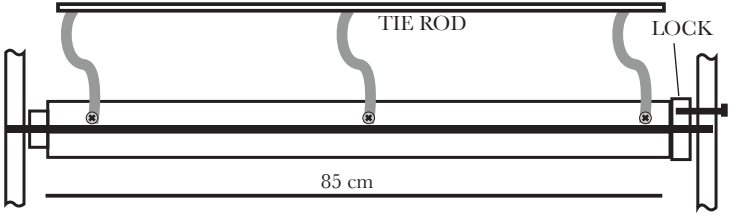
Trace the angle that the brace (D) meets the verticals (C/A) and saw the ends off both of the 60cm pieces so that they'll fit nice and snug. With the brace in place, drill through the 75 cm hole in Bt and bolt the brace on. Now drill through both D and Bb so it holds tight against the back vertical A, slip a bolt in and use on of the wingnuts to hold it in place.

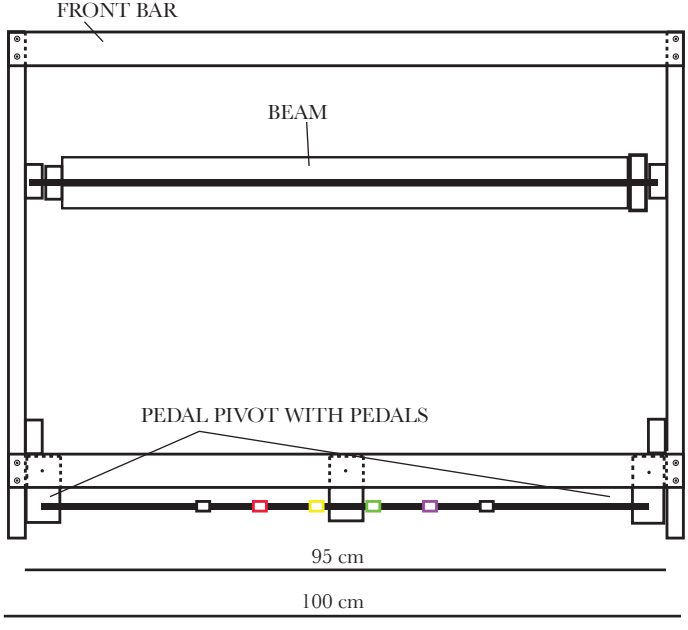
The left side of the loom needs one more piece, which will hold the '*lams*'. Drill holes into the sides of two 10cm pieces and feed the 10cm threaded rod between them. Use the 90mm bolts to affix the lam pivot at the center intersection of pieces C and Bt.



lam pivot

BEAMS (TWO)





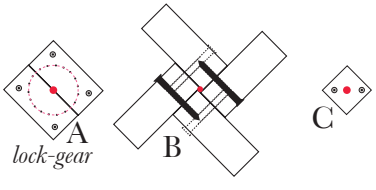
FRONT VIEW

THE FRAME AND THE BEAMS

To complete the frame get four 1m pieces and pre-drill two 3mm holes at each edge. Affix the front and back bars in the notches in the corner pieces, holding the frame upright. Then screw on the lower back bar, 10cm from the base.

The lower front bar will hold the Pedals much like the lam pivot, using the 85 cm threaded rod and three 10cm pieces. Simply use the 6mm bit to drill into the sides of two, and all the way through a third 10 cm piece. Stack the Pedals and drill at 70, 72, and 74cm from the base. Then drill through the sides of the six pedals near the base, and slide them onto the rod as shown. Bolt the 10cm pieces to the front bar and screw it into place.

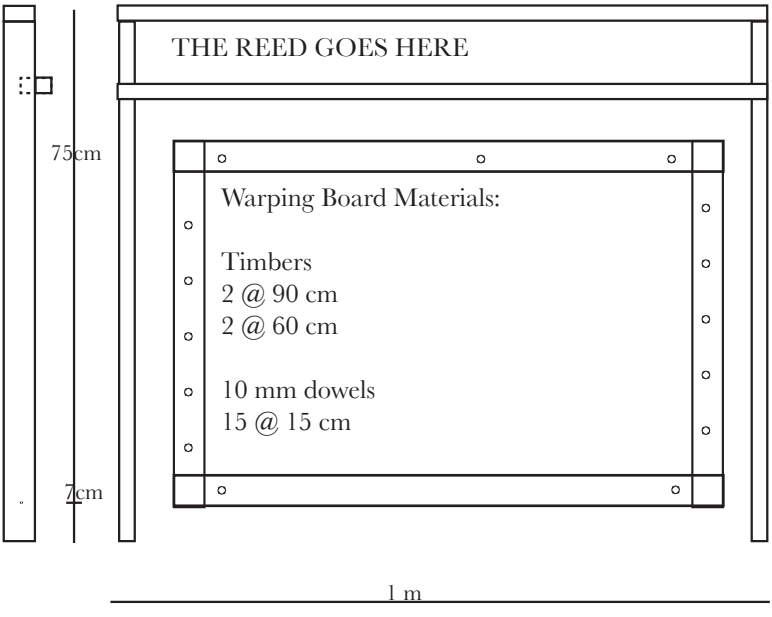
To make the beams, take the eight 85cm pieces and glue and screw them toghether as shown below (B), leaving space between them for the remaing 6mm threaded rods.



Use the four remaining 10cm pieces to make the *lock-gear* (A). First glue pairs securely sides-to-side to make two squares, then, once the glue dries, drill a hole in the center, stick a bolt through to find the rod-space in the beam (B) and screw it down tight. Drill a hole in the center of your two 5cm pieces (C), slide one on the end of each beam and screw them down too. Center the beams on the threaded rod and secure them with 6mm bolts. Then open up the frame enough to slide the beams into place at the 35 and 85cm holes on the top horizontal (Bt). Attach one 90cm thin dowel to each beam, using three 120cm length of cotton webbing, folded and stiched to hold the dowel, and screwed into the beams using the same screws that hold it together, as pictured.

Once the beams are in place you can make the gear, by drilling a 4mm hole through the frame a few cm from the pivot hole, turning the beam a few degrees and drilling again with the 3mm bit. By putting a nail through the holes you should be able to lock the beam in place.

BEATER AND WARPING BOARD (AND LAMS)



Relax, complete the loom frame and make a needed accessory, the warping board, for measuring your threads. This section also requires the only piece we can't build ourselves, the reed, which you'll install in your beater. A precise metal 'comb' for organizing your threads, you can find one through a weaving or thrift shop, or on-line.

THE BEATER

To make the beater, pre-drill, screw and glue one of the remaining 1m pieces to the top of the two 75cm side pieces. Saw a notch in the last 1m piece so that you can screw it to the sides, below the reed (exactly where depends on reed size.) Drill 3mm holes and tie the reed tightly to the front of the beater.

Hold the beater vertically so that the bottom of the reed lines up with the top of the front and back bars. You can stretch a string between them so that you can be more precise, mark and drill 6mm holes in the side pieces (about 5-7 cm from the bottom) and bolt the beater in place, to the 35cm hole in the bottom horizontal (Bb). Put 7 washers between the beater and the frame to make space for the front beam's locking nail.

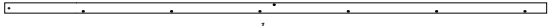
THE WARPING BOARD

Lay the 90 and 60cm pieces in a rectangle, glue and screw them together, and drill 10mm holes as shown in the illustration. Apply glue and insert the dowels into the holes so that they are flush with the back of the frame.

LAMS

The *lams* are the intermediaries between the pedals and the *harnesses*, which will be the next (and last) pieces of the loom. All you have to do for now is stack the six thin pieces and drill a 6mm hole near the end, where they will be mounted on the lam pivot Then drill one 3mm hole towards the top, at 47cm.

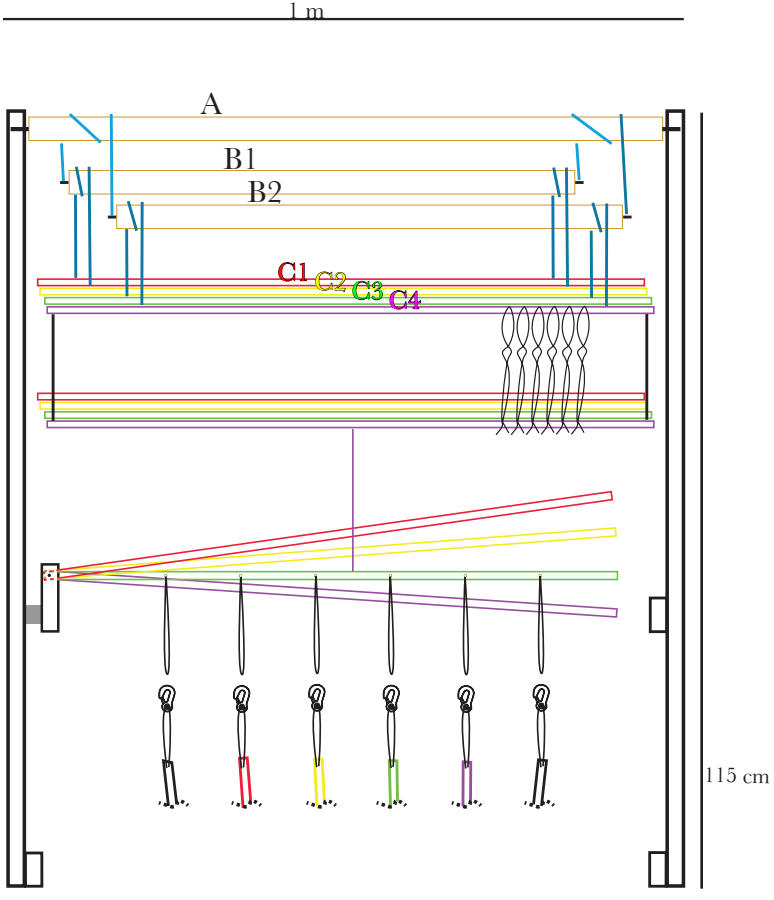
Drill 6 holes across the bottom edge of the lams, at 18, 31, 43, 56, 69, and 82cm, (as shown below), and mount the lams on the lam pivot.



lam

Each lower hole should lie directly above one of the pedals, and the single hole near the top should be at the center of the loom.

Use three cut-off pieces of the lam wood to make wooden *spacers*, by drilling 6mm holes into the center of short squarish chunks. Put one of these in between each lam as you slide them on. You can also try nuts or washers between the lams if you like.



PULLEYS, HARNESSES, AND *HEDDLES*

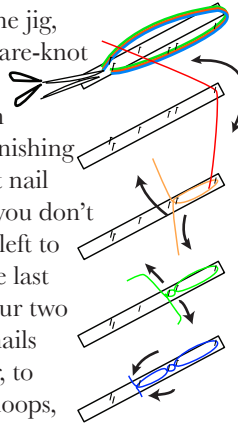
The brains of the machine. And you though that part was you!? Well, could be... it sure ain't *me*!

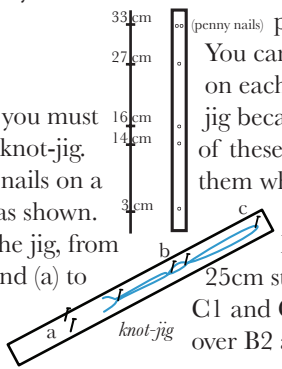
BRAINS

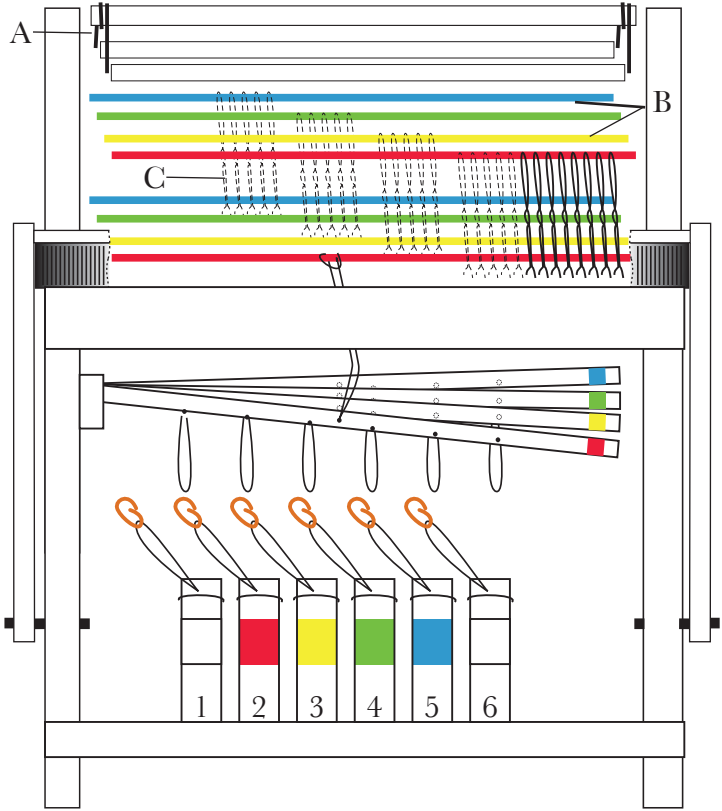
The dowels that you have left, along with *lots* of string, will become the 'brains' of the loom. Start by mounting the longer thick dowel (A) to the top of the loom with the 80mm screws. Prepare the two shorter dowels (B1/B2) by mounting a screw (with washer) into the center of each end and hanging an 'S'-hook from each screw. Cut two pieces of string approx. 30cm each, and hang the two shorter dowels from the long one, balanced as shown in the illustration (string goes from hooks on B1, around A to B2). This is why it is called a 'counter-balance' loom. The four *harnesses* (C1-4) which you will make next, will hang from B1 and B2 in the same way. But first you have to make string heddles.

HEDDLES

To make the heddles you must make one last tool, a knot-jig. Put six small-headed nails on a piece of scrap wood as shown. Wrap twine around the jig, from the two nails at one end (a) to the single nail at the other (c). Once you have 10 loops around the nails, cut between the two nails (a) to make 10 separate strands. Tie each strand onto the jig, making a square-knot below the first nail, then the second, finishing below the last nail as shown. If you don't have enough left to tie around the last nail, make your two 'measuring' nails a little farther, to make bigger loops, and try again. You will get really good at this after a few hundred. After your first 10 slip them off the the jig and onto the small dowels that will become the harnesses, as pictured at left (C1-C4). You can start with 100 heddles on each harness, but keep the jig because you'll want more of these! You could also buy them where you get your reed, maybe. But it's so fun! Next, using four approx. 25cm strings, balance harnesses C1 and C2 over B1, and C3/C4 over B2 as pictured at left.







CONTROL

Tie the lams to the harnesses, and hook up the pedals to the lams to gain control of the loom! This is the last step to complete your fully functional collapsible counter-balance floor loom!

CONTROL YOUR LOOM

Now that you have your four harnesses (B), hanging, full of heddles(C), check that the 'eye' of the heddle, the middle loop (*b* in the *knot jig* illus.), is aligned with the reed and front/back bars. Adjust the length of the pulley string (A) to move the 'eyes' into place.

COLOR CODING

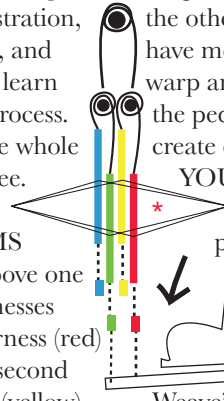
At this point, if you want, you can paint your loom with indicating colors as shown in the illustration, marking the harness, lams, and pedals to make it easier to learn and explain the weaving process. You don't have to paint the whole harness, it's just easier to see.

ATTACHING THE LAMS

Each harness should sit above one of the lams. With the harnesses held even, tie the front harness (red) to the front lam (red), the second (yellow) to the second lam (yellow), and so on, holding the harnesses even, and the lams together parallel with the floor. The string should go from around the bottom dowel of each harness to the center, top hole of its lam. Now get out your hooks!

HOOKING UP

Using the table at left, hang 12 loops (approx. 10cm) through the holes in the bottom of the lams, two above each pedal. Attach 15cm strings to your 12 clips and tie two onto each pedal. Adjust the length so that when your pedals are clipped to the lams, they hang at an angle, and you can step on a pedal pulling down the corresponding harnesses, causing the other two to rise! Once you have measured out your first warp and threaded the loom, the pedals will allow you to create different patterns!



YOUR LOOM IS DONE!

If I haven't made the pamphlet on using your loom yet, there are many other resources: I suggest the book "Learning to Weave" by Deborah Chandler. Thank you for your investment, and your patience, thanks to RPS, and please look for supplementary video, photo slideshows, and more at actionweaver.com.

PEACE