

BUILD A TABLETOP LOOM

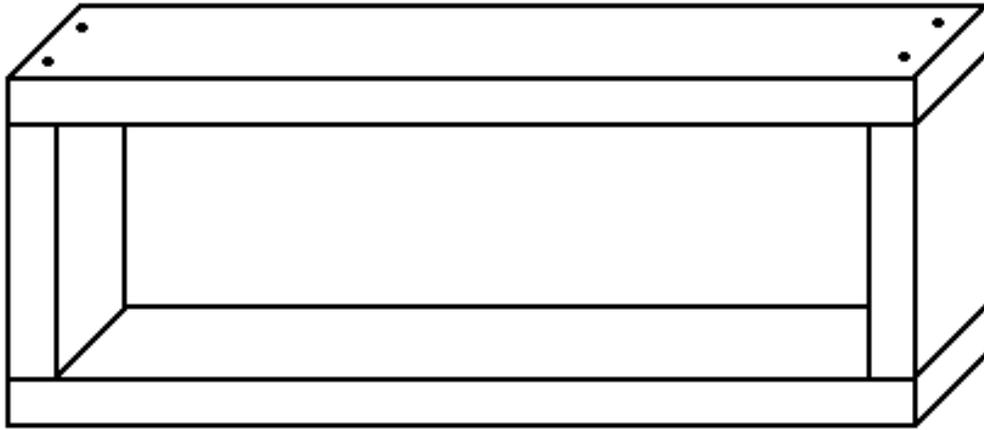


From 1" x 2" stock (actual 3/4" x 1"1/2) cut:

4 pieces 15" long

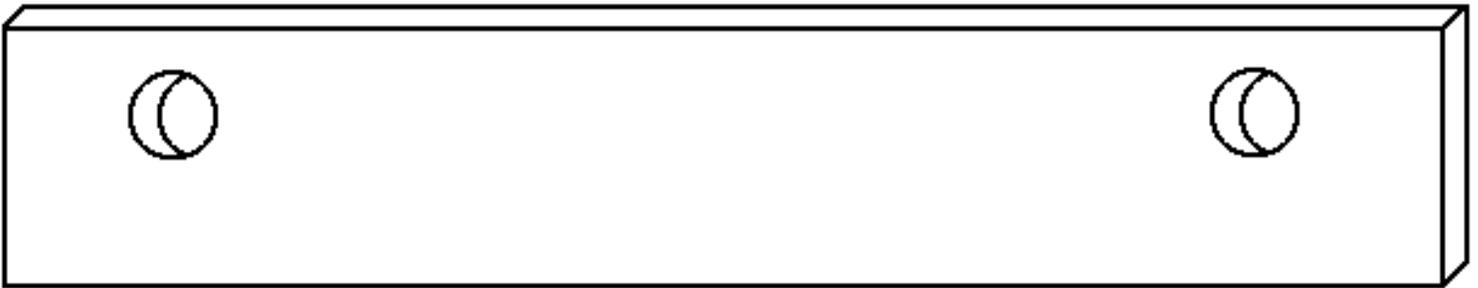
4 pieces 5"1/2 long

Use the above to make 2 frames for the front and back of the loom.



From 1" x 4" stock (actual 3/4" x 3"1/2) cut:

2 pieces 20" long for side rails



In each side rail drill 2 holes that are 1"1/4 in diameter. You may have to enlarge these slightly so that the rollers can turn freely in them. Center the holes 2"1/2 from each end and down 1"1/4 from the top edge.

For the castle:

From 1" x 2" stock cut:

2 pieces 15" long

1 piece 6" long.

This is the handle. You may want to shape the bottom (or the roller) so that it can be attached solidly. Counterbore two holes for mounting screws.

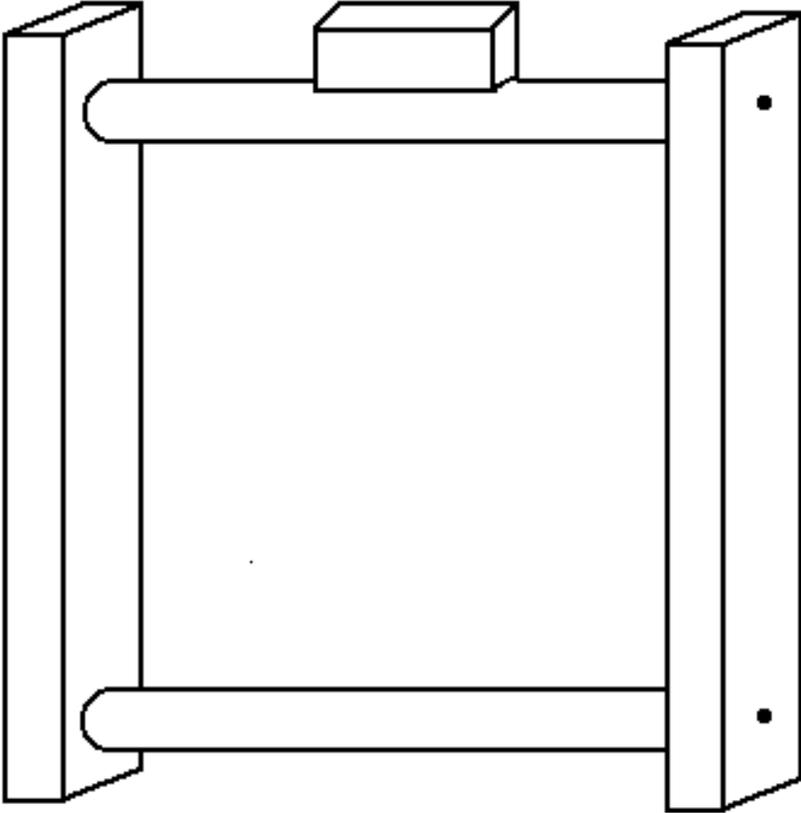
From 1"1/4 closet pole cut:

2 pieces 13"1/2 long.

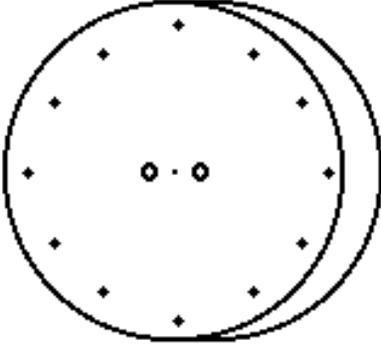
This dimension may have to be adjusted. It assumes that the 1" x 2" side pieces are exactly 3/4" thick. Overall width of the castle is to be 15".

Cut 2 lengths of 1"1/4 closet pole 16"5/8 long for the cloth roller and the warp roller.

Assemble castle as shown. Use 1"1/2 flat head screws. Do not over-tighten top piece as it must be able to rotate.



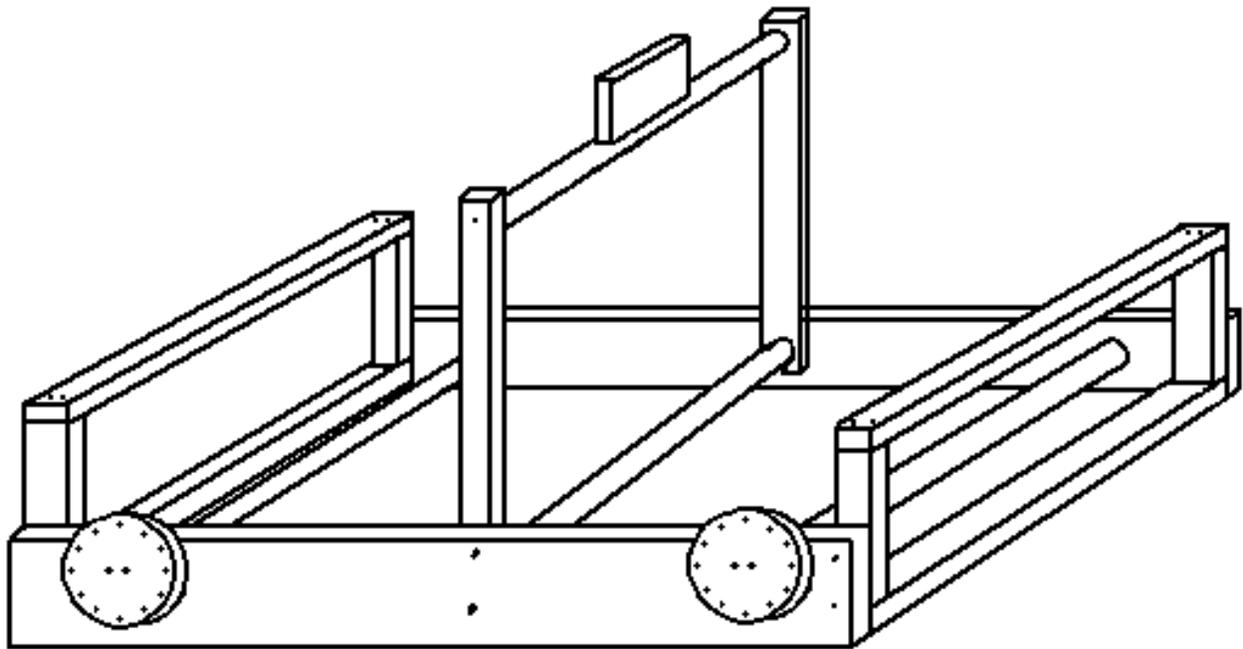
Cut two circular knobs 3" in diameter out of 3/4" stock. (*You may find plywood best for these.*) Drill 12 holes about 1/4" from the outside edge as shown. Holes should be a diameter such that you can insert a nail or piece of coat hanger wire to use as a lock to hold the knob from moving. Fasten each knob to the end of a roller using two screws so that the knob will not rotate on the roller.



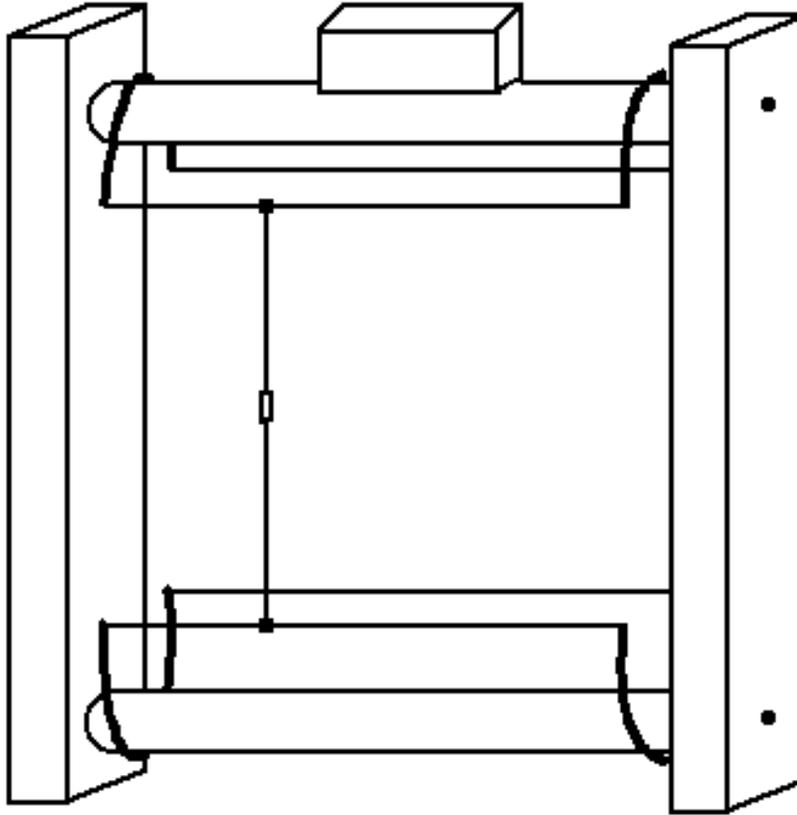
Make 2 washers 2" in diameter with a 1"1/4 hole. Use 1/8" masonite.

Also make 2 retainer disks 2" in diameter using 1/8" masonite.

Assemble the loom as shown in the diagram. Attach the end frames with 1"1/4 flat head screws. Mount the castle so there is a greater distance from the front of the loom than from the back. I suggest that the distance from the front edge of the side rails to the center of the castle be 11". Place a washer on each roller before you slide it into the holes which are bearings. At the end of each roller where there is no knob, attach the retainer discs so the roller can not slide out. Whether you place the knobs at the left or right is a personal decision up to you. After the loom has been assembled, through one hole in each knob, drill a same size hole into the side rail. You can then fashion a pin for locking the knob.



Mount heddles in the castle as shown:

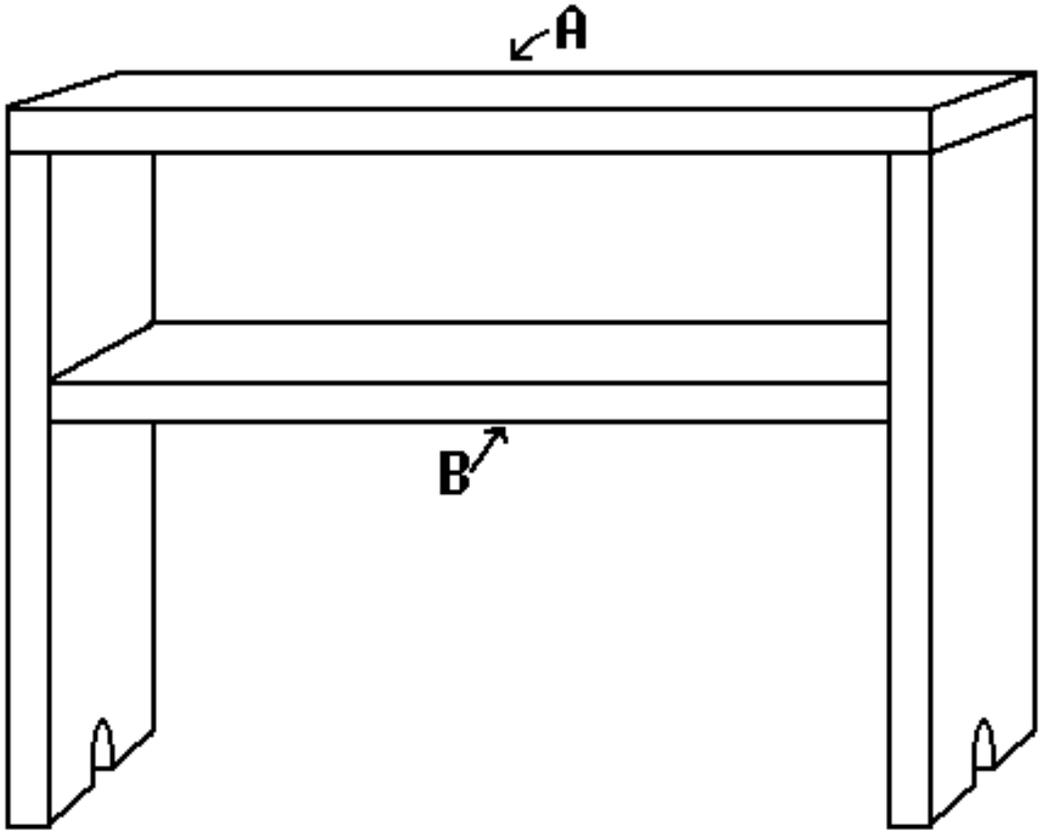


Suspend heddles from round or flat steel bars depending on the type of heddles purchased.

The bars are attached to cords or chains to suspend the heddles between the round pieces. The top cords or chains are fastened to the top piece so that as you rotate it, it lifts the heddles on one side while dropping those on the other side. (This is called a counter balance loom.) *Do not fasten cords at the bottom. They are meant to just slide around the bottom piece. The cords need to be tight enough so that as one side is pulled up, the other side is pulled down.* The length of the cords will depend on the size of the heddles. The heddles should be positioned so that when in the neutral position (back and front heddles aligned), the eyes of the heddles should be at the same height as the front and back beams (top of end frames.)

You must also make a beater, to hold the reed. (The reed may either be a purchased reed or one that you make yourself. Instructions for making a [reed](#) are available on page 7.) The dimensions will depend on the size reed that you get. The overall width should be slightly less than 15" so that it will fit inside the loom and be free to move. On the inside of the side rails, near the bottom, put in some 1"1/2 long round head screws to serve as pivot points for the beater. They should be mounted about halfway between the front of the loom and the castle but you might find it desirable to put in 2 or 3 sets at different locations so that you can move the beater. Cut slots in the bottom of the beater side pieces so that you can slide the beater on to the pivots. The height of the beater should be such that when it is vertical, the center of the reed is at or slightly above the height of the front and back beams.

In order to hold the reed in the beater, the top piece, "A", should either have a groove on its lower side, or you can fasten two narrow strips of wood to form a groove that the reed will fit. Likewise, the lower piece, "B", should have the same treatment on its upper side. The top piece should be fastened to the side pieces with screws so that it is removable for mounting or dismounting the reed. The distance between pieces "A" and "B" is to be determined from the height of the reed that will be used.



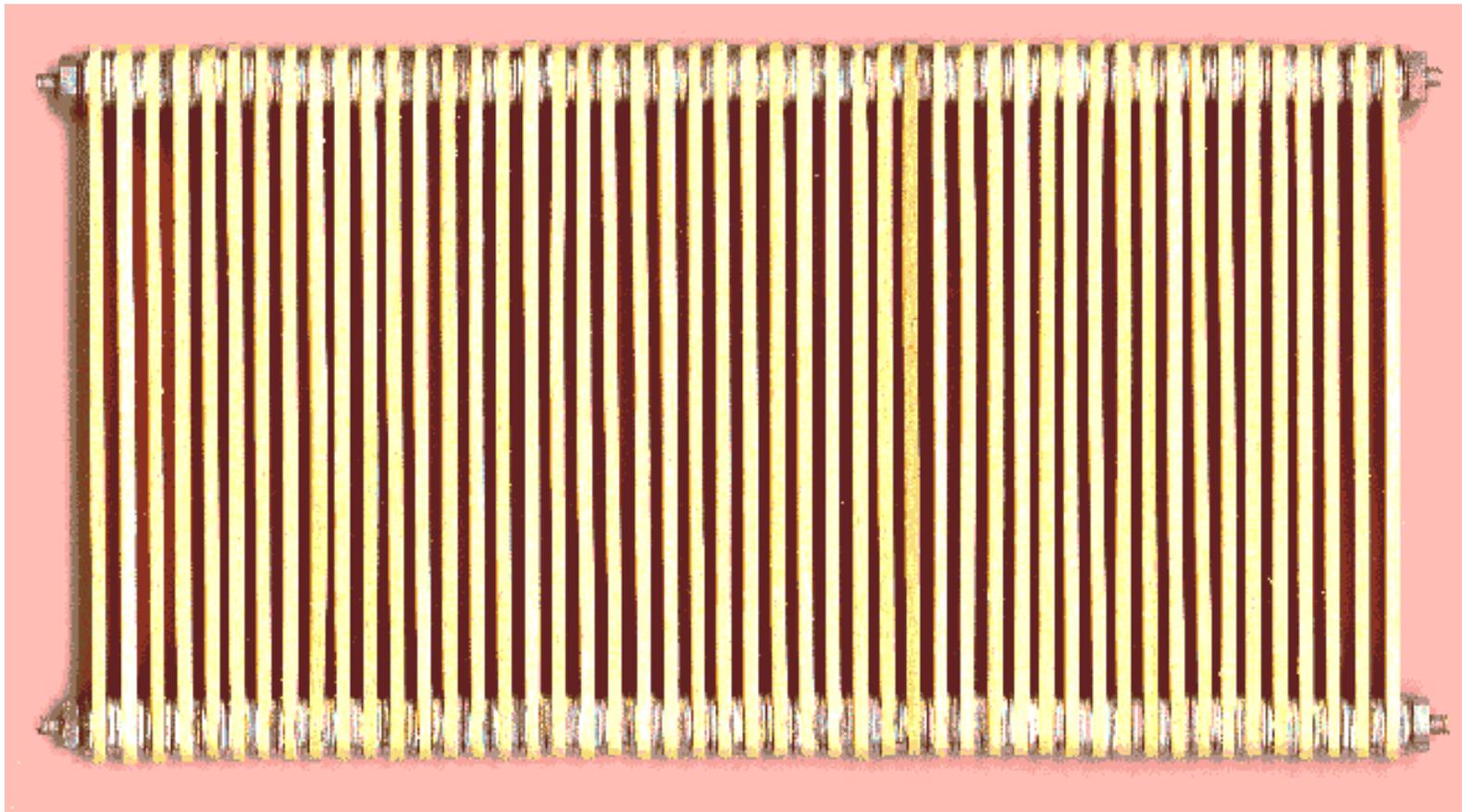
MAKE YOUR OWN REED

After building a loom, there are certain things that you need to buy or make. You need heddles; how to make string [heddles](#) is shown on page 8. You also need a reed to put into your beater.

The **beater** is a device that is used to pack weft threads into the warp. The beater holds a **reed**. A reed consists of vertical members (usually made of metal). These vertical members are separated from each other by spacers to create slots. The warp threads pass through the slots (these slots are called **dents**.) A weft thread is passed through an open shed between the reed and the cloth. The shed is closed and the beater is used to strike the weft thread and force it against the cloth that is being generated.

Reeds may be purchased. They are available in different lengths and with different numbers of dents per inch. A 10 dent reed means that it has 10 dents to the inch. Common spacings of dents are 10, 12, and 15. Normally, only one warp thread is passed through each dent. However, some fabrics require a number of threads per inch which do not match the number of dents per inch of your reed. It is possible and practical to use a threading scheme that involves more than one thread per dent. For example, if you **sleigh** (thread) your reed so that the threading through the dents has a pattern of 1, 2, 1, 2, 1, 2, , in a 15 dent reed, this will give you about 22 threads per inch.

You may not find it convenient to purchase a reed for your loom. Therefore, this page describes how to make a reed. Below is a picture of a reed that has been constructed using the directions that follow.



This reed has been made using craft sticks (popsickle) for the vertical members.

1. Threaded rod in 3 foot lengths can be purchased at a hardware store. In the example, 6-32 threaded rod was used.
2. Cut two pieces of rod to a length that you want your reed to be plus about one-half inch. In the example, the rods are each 8.5 inches in length.
3. You must then determine how many craft sticks will be used. In the example, there are 49.
4. At each end of each craft stick, drill a hole that the rod will pass through. In the example, a 5/32 inch drill bit was used.
5. You are now ready to assemble your reed. Place a flat washer (and optionally a lock washer) and a nut on the end of each rod.
6. Place a craft stick on to both rods, sliding it down against the flat washers.
7. Place a spacer(s) on each rod. In the example, two number 6 washers were used as a spacer. The spacer can be any suitable material such as a piece of craft stick with a hole in it. The thickness of the spacer plus the thickness of the craft stick will determine the dent spacing.
8. Place another craft stick on the rods.
9. Repeat steps 7 and 8 until you have installed all of your craft sticks.
10. Place a flat washer (and optionally a lock washer) and a nut on the end of each rod.
11. Tighten the nuts.

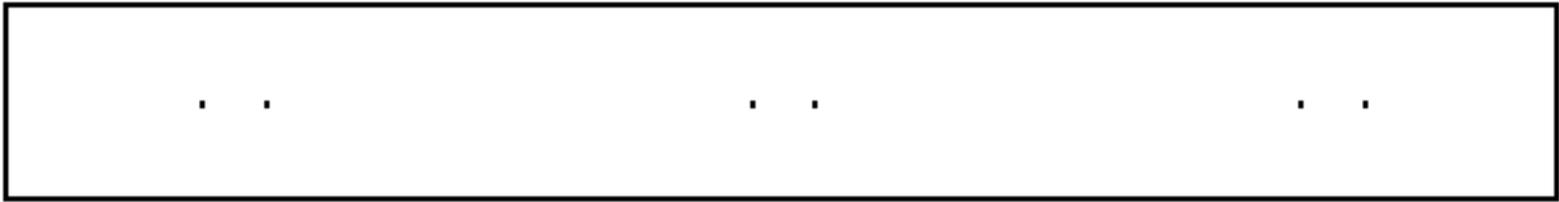
Your reed is now complete. You can now place it in your beater.

The example reed has approximately 6 dents per inch. If you use only one washer in each dent, you will get about an 8 dent reed; however, the open space is very narrow. You may be able to find narrower material to use for the vertical members such as thin and narrow metal strips. The same procedure may be used with other materials, but drilling the holes may be more difficult. In commercially made reeds, the vertical members are thin, narrow strips of metal. At the top and bottom, two strips of wood are placed on either side of the metal strips. Then a heavy cord is wound around the wood and between the metal strips. The cord not only holds the reed together, its thickness determines the dent spacing. By using cords of different thicknesses, different spacing may be achieved.

HOW TO MAKE STRING HEDDLES

You may wish to make your own heddles either to save money, or because you haven't found a suitable source, or you just want to do-it-yourself. Well, here is a description of one way of making heddles. *(If you are unfamiliar with the term "heddles", a heddle is something like a needle. It is a device that is made out of metal or string and contains an "eye" at its center. A single warp thread (a long thread of your fabric) is passed through the eye so that the thread can be lifted or pulled down. The heddle is attached from both the top and bottom to a frame called a harness. When the harness is moved up or down, all threads which pass through heddles on that harness are lifted or pulled down, and this creates a "shed" which is an opening between warp threads. The shed allows the weaver to pass a weft thread (a thread at a right angle to the warp threads) across the warp.*

You must first make a "jig" that will be used for making your heddles. It is a short board containing 6 finishing nails *(brads are suggested.)* Below is an illustration of this:



(Note: The jig is shown in a horizontal position rather than a vertical position.)

The length of your heddles can be any length that you choose. For the 2-harness loom, a heddle length of 9 inches is satisfactory. To make the jig, cut a strip of 1" by 2" (actual 3/4" by 1"1/2) 12 inches in length. Put 6 nails in the board as illustrated. In the example shown, each pair of nails are one-half inch apart. The dimensions may be adjusted for your particular needs. You may want to make the eye smaller, but if it is too small, it will be difficult to thread your yarn through it. The loops at the ends need to be sized so that a bar or rod will fit through the opening. The pairs of nails at each end are for forming loops on the ends of the heddle to be used to attach the heddle to a harness. The pair of nails in the center are for forming the eye of the heddle.

After making the jig, you are ready to start making heddles. You need to use a tightly twisted string such as tapestry yarn. *(You may find other suitable materials by experimenting.)*

1. For each heddle, cut a length of string. For the jig described, you will need a length of approximately one yard.
2. Fold the string in half, and place the fold around the top (leftmost) nail.
3. Tie the two sides of the string into a square knot below the second nail (right of the second nail in the illustration.)

4. Tie a second knot below the third nail.
5. Tie a third knot below the fourth nail.
6. Tie a fourth knot below the fifth nail.
7. Tie a fifth knot below the sixth nail.
8. You may cut off any excess string below the final knot.
9. You can remove your completed heddle by slipping it off of the nails.

Don't be discouraged if you find this tedious. You only need to make the heddles once. If you plan on making a piece of fabric that is 10 inches wide and the threads are spaced at 10 to the inch, you will need 100 heddles. You may need more or less depending on fabric width and number of threads per inch. For a 2-harness loom, normally one-half of the heddles are placed on each harness.

A finished heddle will look something like this:

