



How to Make a Dulcimer Without Power Tools

by [theskashow](#) on August 31, 2014

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Intro: How to Make a Dulcimer Without Power Tools

This handmade dulcimer is a tribute to mountain-dwelling bluegrass musicians everywhere. It also doesn't require any power tools to build, which makes it a perfect project for anyone who is both bored and experiencing a power outage of indefinite duration. Relatively simple to make (for a stringed instrument, that is) and easy to play, this dulcimer is a great way to get started in instrument making.

Materials:

2'x4' sheet of ¼" maple plywood

3' length of 2"x2" hardwood for the neck

3 laths (or 1 ½" wide strips of the same plywood, I just had laths lying around)

4 tuners with hardware

4 small screws

Fret wire

Set of 4 dulcimer strings (or banjo strings)

Sandpaper

Tools:

Hand saw

Coping saw

Brace or Yankee screwdriver and drill bit

Screwdriver

Hammer

Files

Accurate ruler

Trisquare

Chisel

Clamps



Step 1: Step 1: Plywood layout and cutting pieces for body

You will want to cut two identical pieces from the ¼ inch plywood to be the top and bottom of your dulcimer body. The easiest way to do this is to trace them on the wood according to the attached diagram.

Because the plywood is so thin, you risk splintering and tearing along your saw cuts. It helps to put masking tape over the lines before you saw them. Use a good hand saw to cut these pieces.

You will then need to cut your laths in the following lengths:

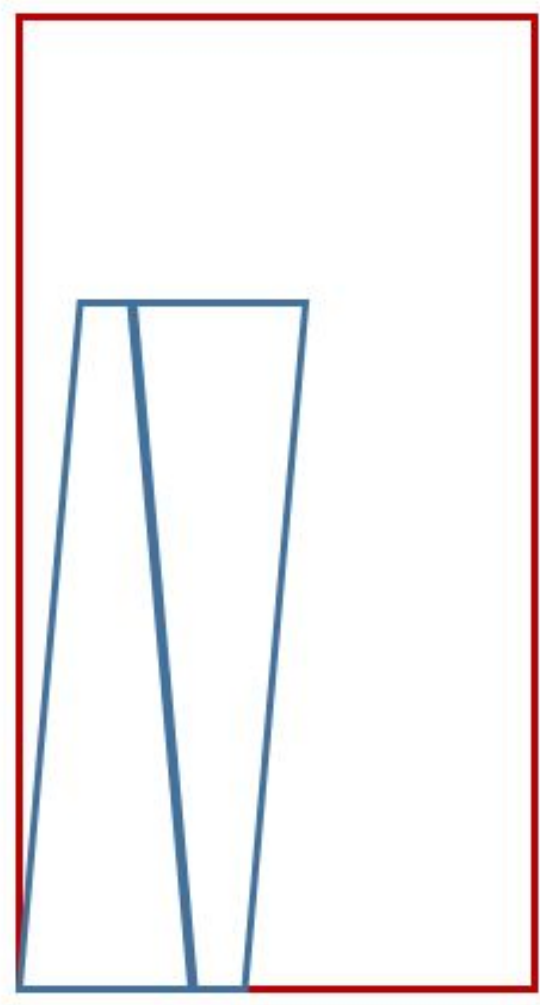
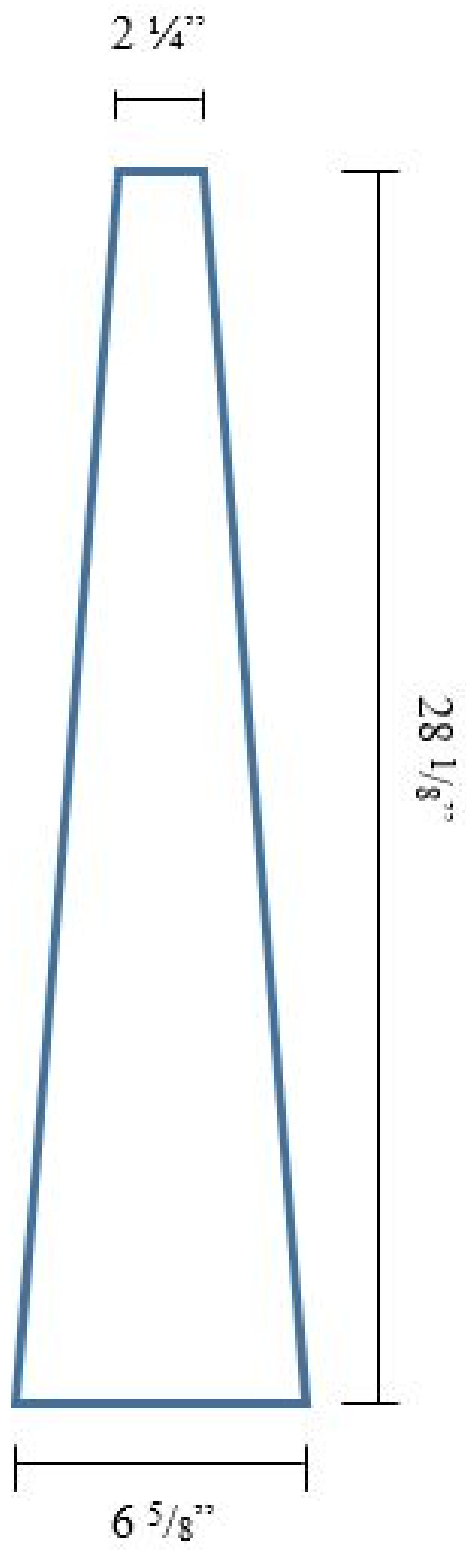
29 ¼ inches (side pieces; you will need two of these)

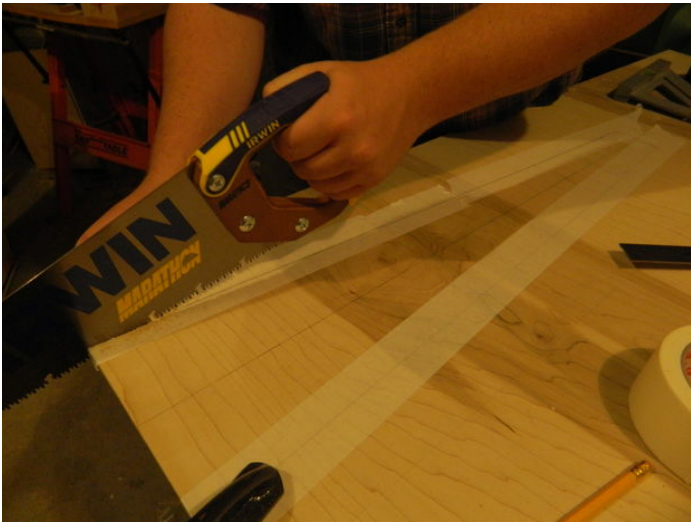
2 ¼ inch (small end piece)

6 5/8 inch (large end piece)

5 inches (brace)

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Step 2: Step 2: Glue bottom section of body together

Once you have all the pieces of your dulcimer body cut out you will want to glue the bottom and the sides together so they can dry while you work on the top piece. Put wood glue along the outside edges of the bottom piece and attach the lath sides to it. File the sides of the brace piece until they match the angle of the bottom board so it will fit snugly against the sides when lying down. Slide the brace up from the bottom edge until it is tight against the sides and glue it in place. Use whatever clamps you have available to hold the pieces in place until the glue is dry.



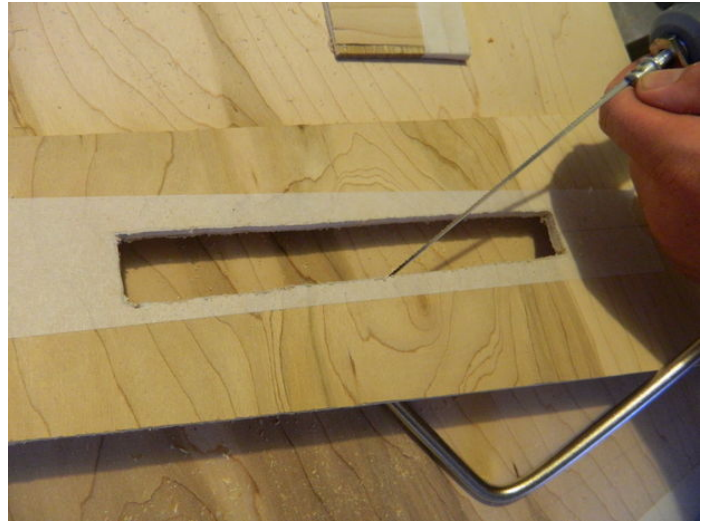
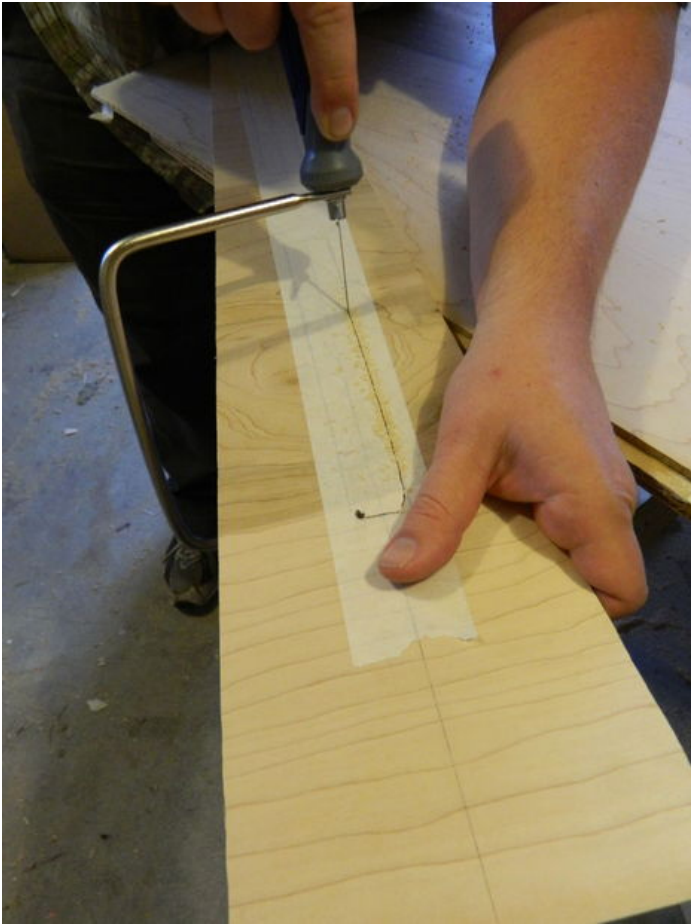
Step 3: Step 3: Cut out sound holes and finish gluing body

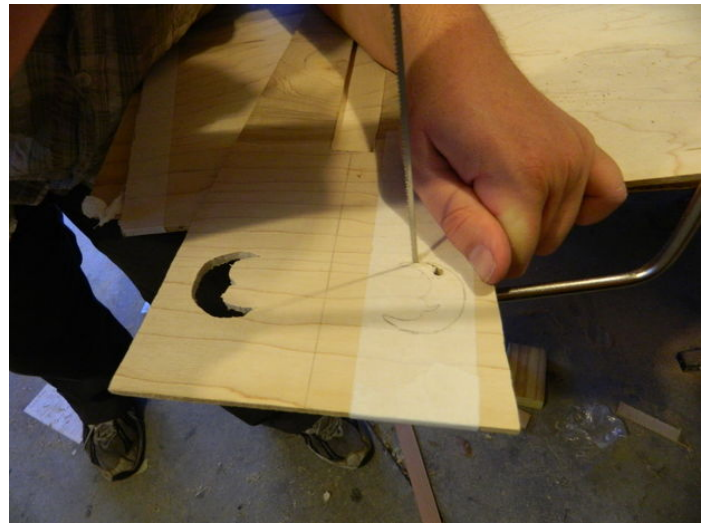
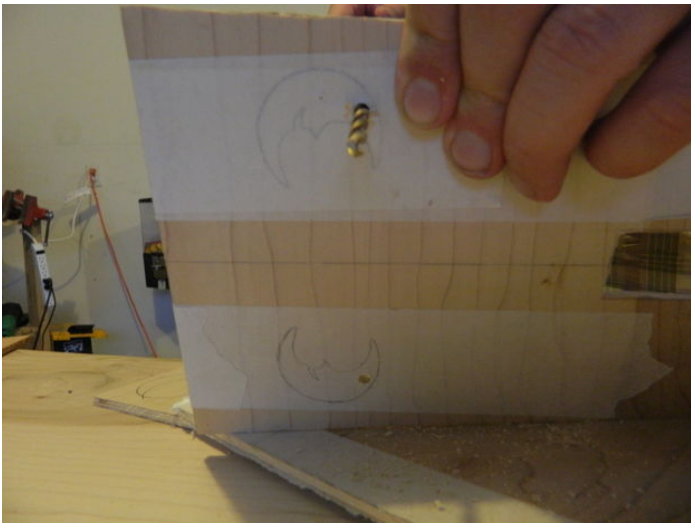
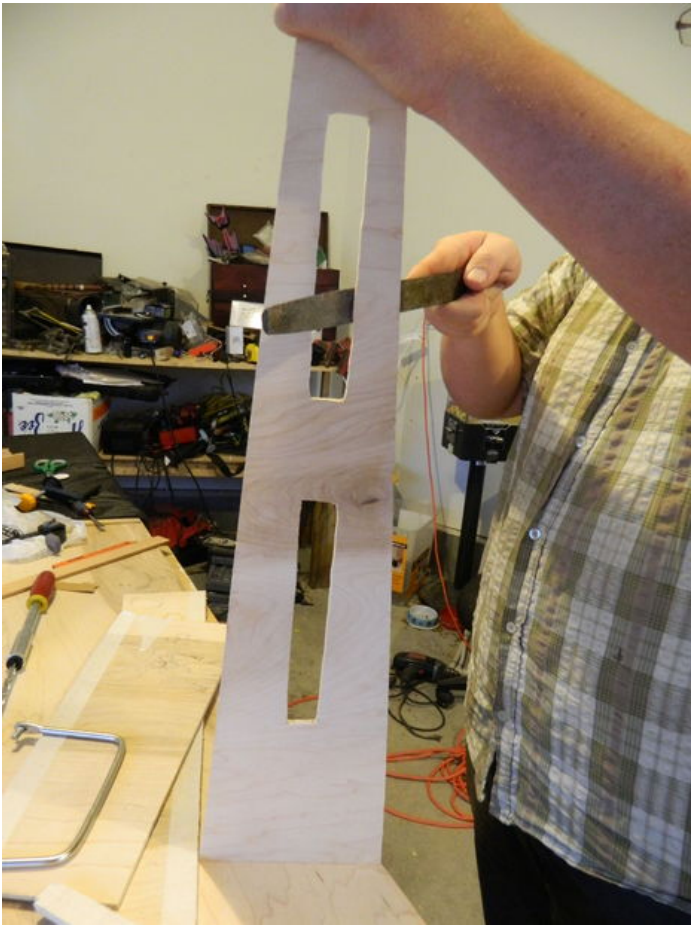
You will have to cut several holes in the top body piece for sake of sound quality. Measure four inches down from the top of the piece and trace a 1" x 7" rectangle in the center of the board. Three inches below the first rectangle, draw a 1" x 8" rectangle (see diagram). These holes will go under the finger board. Use a Yankee screwdriver or brace to drill a pilot hole in each rectangle, then cut them out using a coping saw. Sure, a drill press and scroll saw would be a much easier and faster way to go about this, but remember that they are both out of commission due to the lightning strike/natural disaster/downed power line that led to your power going out in the first place. It is ok to stare longingly at them and cry a little while changing out a broken coping saw blade.

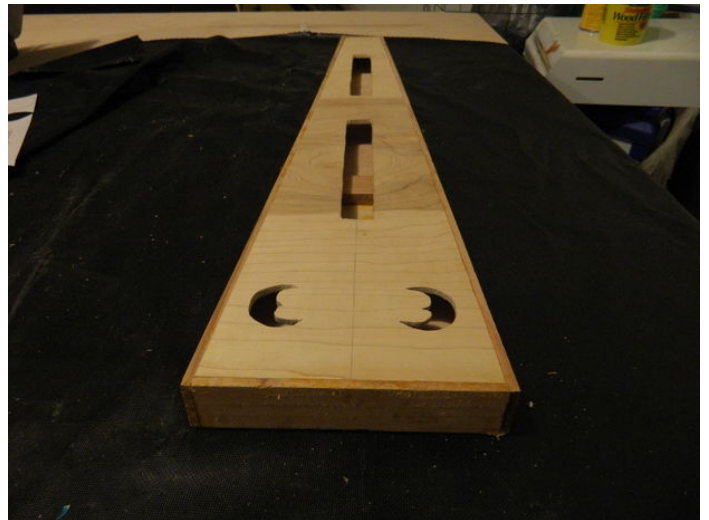
You can use a file or sandpaper to make your edges neater after you finish sawing, only to remember no one will see them anyway.

Cut sound holes into the top piece of the body near the base in order to actually hear what you are playing. You can make these any shape you would like, but keep in mind that the more intricate the shape, the more likely you are to smash the top piece in frustration while trying to cut out the holes. I chose a basic man in the moon shape that ended up losing its mouth in an unfortunate saw slip.

With all your sound holes cut, you are ready to glue this piece to the rest of the dulcimer body and let it dry while you work on the fingerboard. If the top doesn't fit, you can sand the edges down until it does. Remember, you want it to be snug.







Step 4: Shape fingerboard and add tuners, nuts and frets

You will need to drill a groove on the underside of the fingerboard that will go over the holes you cut in the top piece of the body. Measure $6\frac{3}{4}$ inches down from the top and draw a 1" x 18" rectangle. This groove should end up being $\frac{1}{2}$ inch deep. The easiest way to do this is to drill holes using your brace and a 1" drill bit to drill overlapping holes down the length of the rectangle and then use a chisel to remove the extra wood. You can make the depth of the holes consistent by marking $\frac{1}{2}$ " on your drill bit with masking tape.

You can design the fingerboard however you would like, as long as there is a depression for strumming, a place for tuners to go, and a space for nuts. I went with a basic scroll design and a rounded bottom.

Drill holes through the top of the neck for your tuners. Make sure they all fit and have room to turn before you commit and drill the holes.

Cut a groove for each of the two nuts; one $\frac{3}{8}$ " up from the bottom of the fingerboard and the other $28\frac{1}{4}$ " up from the first groove. Each groove should be about $\frac{1}{4}$ " deep and only wide enough that a piece of lath can be firmly wedged in. Cut pieces of lath the width of the fingerboard and about $\frac{1}{2}$ " tall. Wedge the nuts into the groove. No need to glue these since the strings will hold them in place. Set the fingerboard on top of the body for a moment to remember that you really will have an instrument at the end of this.

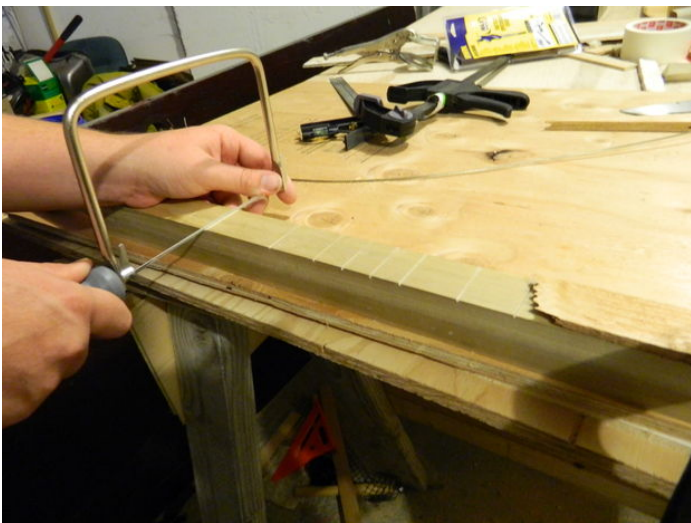
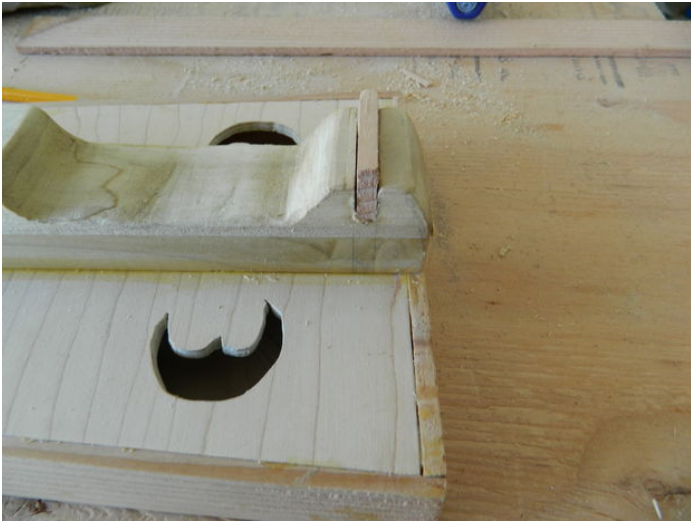
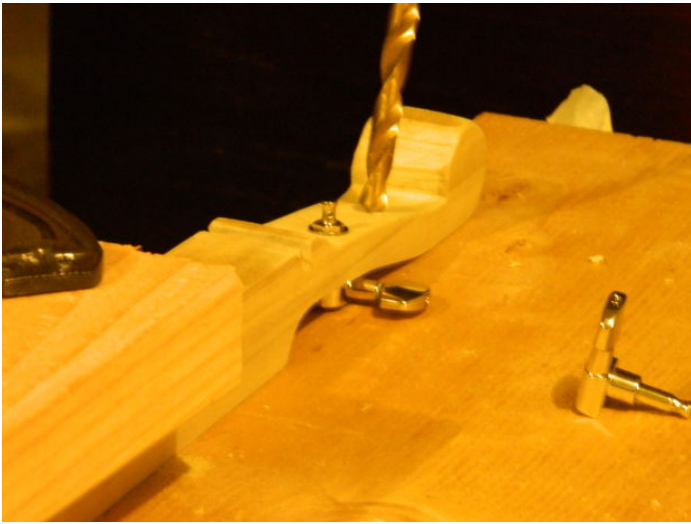
Cutting the grooves for your frets requires more precision than anything you do on your dulcimer, because if your measurements are off your instrument will not play in

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tune. Make sure your ruler is accurate and measure very carefully. You can go to www.stewmac.com/fretcalculator to get the precise measurements for your frets. Select dulcimer and type in the number of frets you want and the distance between the nuts. I used sixteen frets. Once you have measured and marked your frets, make shallow saw cuts, cut your frets to the width of the neck and pound them into place. Use a block of wood as you hammer so you can pound across multiple frets. File off any sharp corners on the edges of the frets.







Step 5: Step 5: Attach fingerboard to body

Make sure the fingerboard is centered on the dulcimer body and glue it in place. Apply clamps and walk away.



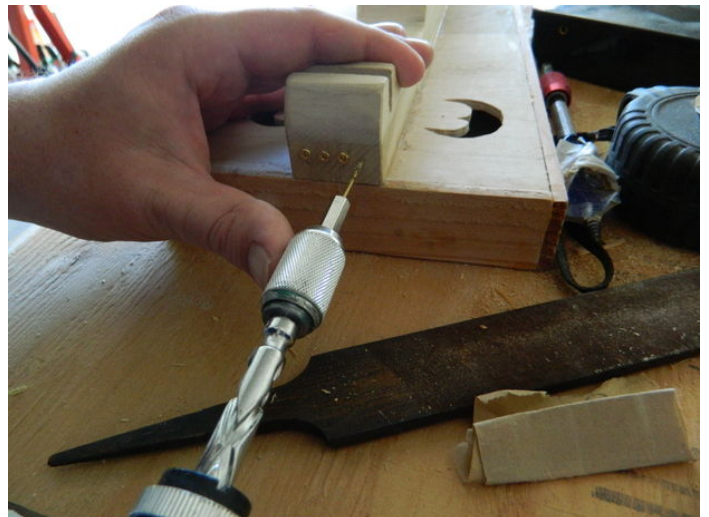
Step 6: Step 6: Strings and finish work

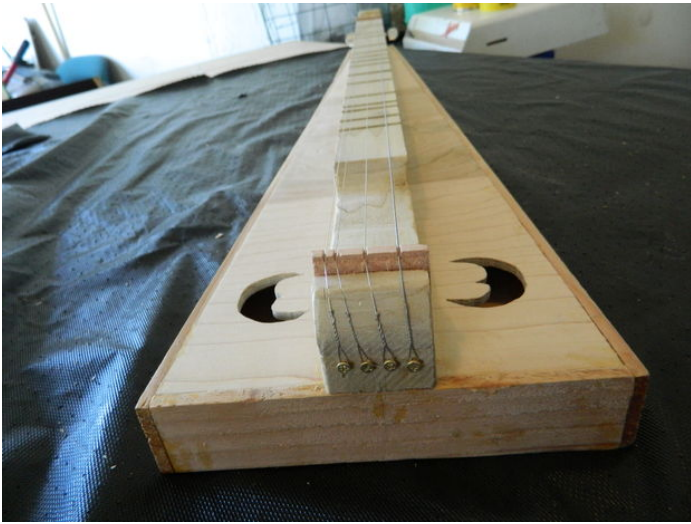
Once the glue is dry you are ready to do some finishing touches and put strings on. Now would be a good time to stain your dulcimer if you would like. I just put some polishing wax on the fingerboard for now.

You will need to put four small screws into the base of the neck to hold your strings in place at the lower end of your dulcimer.

Tap your chisel into the top of each nut to create small grooves to keep the strings in place. The two strings closest to you (left side when looking up from the base) are very close together, since they are played simultaneously. The other two strings are spread further apart and act as the drone notes.

Once you get your strings attached to screws and tuners you are ready to tune your dulcimer, settle back on your front porch and play folk music to your heart's content.





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MsSweetSatisfaction says:
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