

How to Make a Wooden 6" Bench-Vise

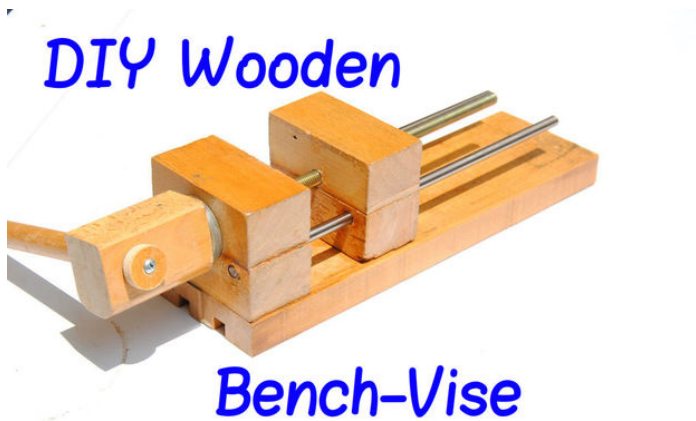
Intro: How to Make a Wooden 6" Bench-Vise

I have a great little vise. I use it a ton (pun not intended)! The only problem with it is that it's tiny-- It opens to a little more than 1.5"

I wanted to buy a bigger vise, but I wanted to make one on my own

As a "maker", I don't think it makes sense to pay \$100 to \$500+ on a vise, when it's basically a big chunk of metal and a bolt. I know that I'm not the only one that thinks that.

I decided to build my own 6" (~16cm), with free reclaimed wood, and less than **\$5 worth of hardware**.



Step 1: The Plan

You can see the pictures above for the plans, along with fully detailed instructions in the next steps.

Let's get started!

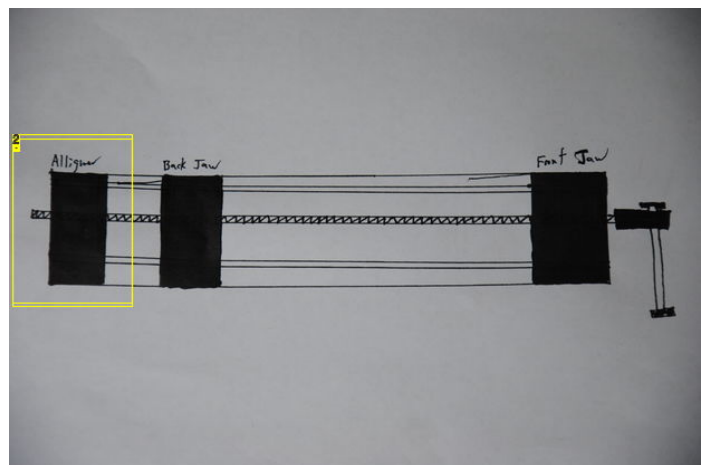
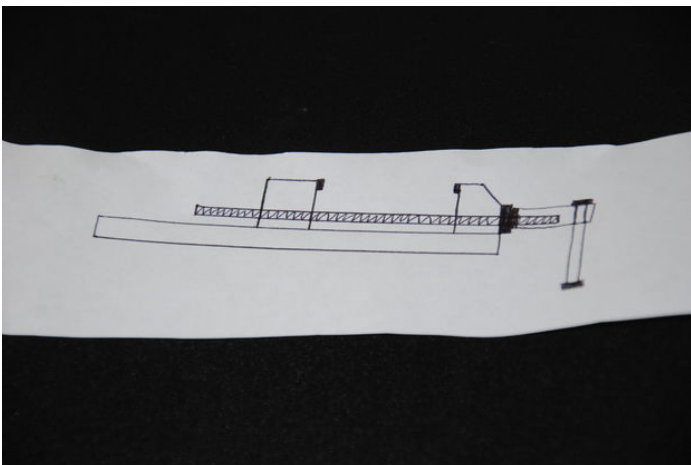


Image Notes

1. I didn't add this in the end. The vise is WAY stronger than what I thought
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Step 2: What You'll Need:

Hardware & Materials:

European Beech Wood (The dimensions are written later in the Instructable)

3/8"X29cm Threaded Rod (I bought it at a hardware store for less than \$5)

2 Pieces of 290X8mm Metal Rod

2 Washers

16mm Beech Dowel

2mm Metal Rod

Plywood

2 Screws

Paper Towels

Chemicals & Adhesives:

CG-90

Wood Glue

Varnish

Alcohol Pad

Tools (+Attachments):

Abrasive Dremel Cutting Bit

Vise (the small one)

Drill-Bits: 1, 2, 8, 9, 10, 19mm Spade Bit, 27mm Holesaw

Hammer

Clamps

Sandpaper: 200 Grit

Steel Wool

Paintbrush

7mm Chisel

Caliper

Tape Measurer

Speed Square

Screwdriver

Electric/Power Tools:

Drill

Drill-Press

Dremel

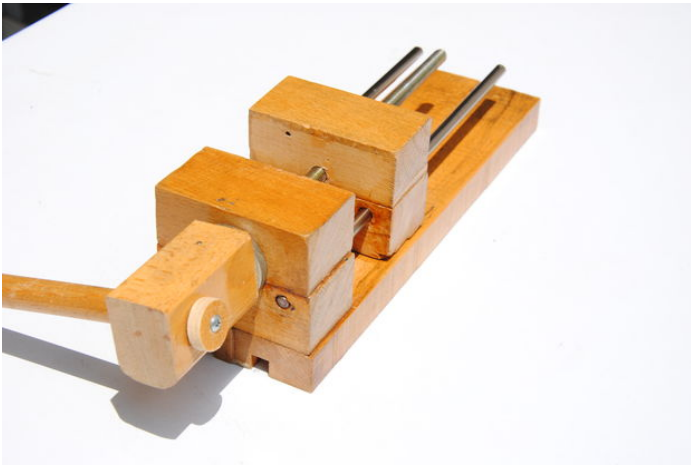
Circular-Saw

Recommended Safety Equipment: Earmuffs, Respirator, Safety Goggles

Cost (for me): <\$5

Difficulty: Fairly Hard

Approximate Time: 5 Hours



Step 3: Cut wood to size (& glue for making the final size)

Since this is made from reclaimed wood, I thought there would be no point in making two different steps, for cutting, and then gluing, to the final size. For example, if this was made from a 2X4, the base wouldn't have been made from two different parts. Makes sense? :)

I started by measuring and marking cutting all of the European Beech Wood parts with my Drill-Powered Circular Saw.

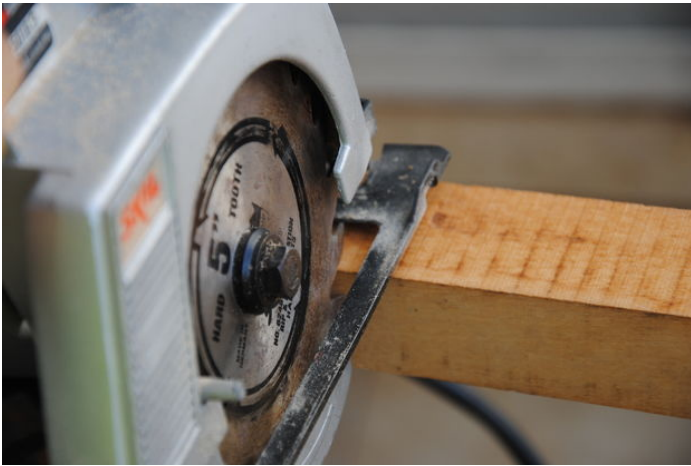
After that, I glued them together with wood glue, and clamped them together while they dried. For the actual build, I had to split this steps into several parts, because I didn't have enough clamps.

Here are the dimensions in centimeters:

3.5 X 4.5 X 7cm of European Beech Wood

2 Pieces of **5 X 9 X 7cm** of European Beech Wood

32.5 X 9 X 2.5 of European Beech Wood

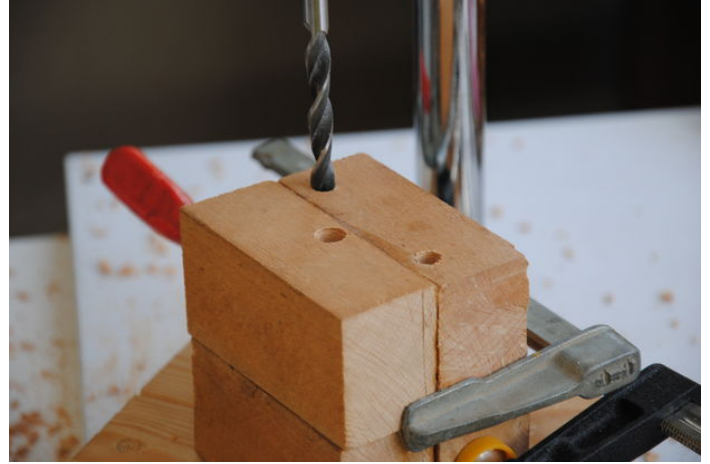


Step 4: Drill holes for the front & back jaws

I aligned and clamped both of the 5 X 9 X 7cm pieces one on top of another. Make sure they are totally aligned before you drill, this is REALLY important!

I drilled a 10mm hole in over the middle part of the first block, and then drilled two 8mm holes for the metal rods.

After I drilled them, I used my Drill-Press, again, to slightly widen the holes so the rods could slide better.

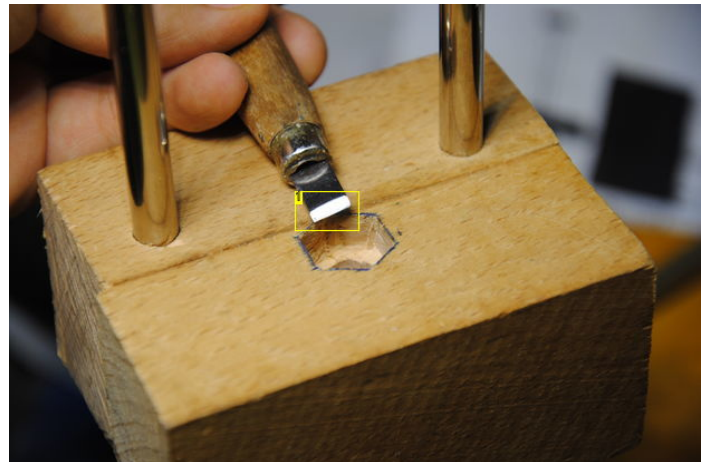


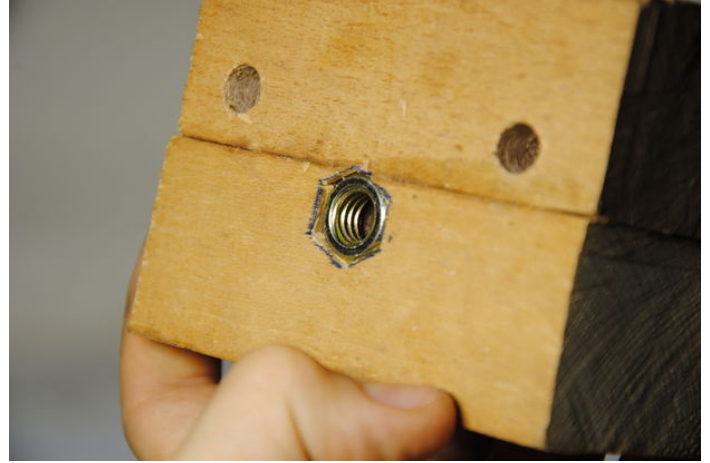
Step 5: Chisel holes for the hex-nut

The nut is going to fit inside the back jaw, like my first homemade vise, I decided to chisel out the holes. This works really well!

I first traced the outline of the nut over the hole, after that, I used a sharp chisel to chisel out the hole, and then hammered it in.

Unlike my first vise, I used one hex-nut, and made it a tighter fit, instead of using Epoxy.

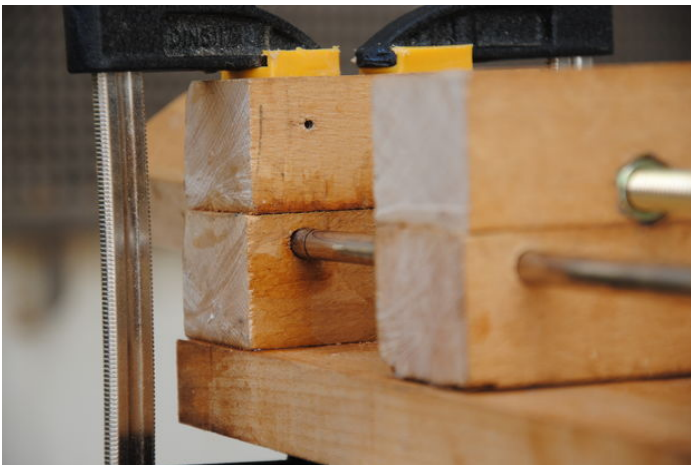




Step 6: Glue the rods

I mixed up some 2 part Epoxy, and glue the rods inside of the holes that were previously drilled in the first jaw.

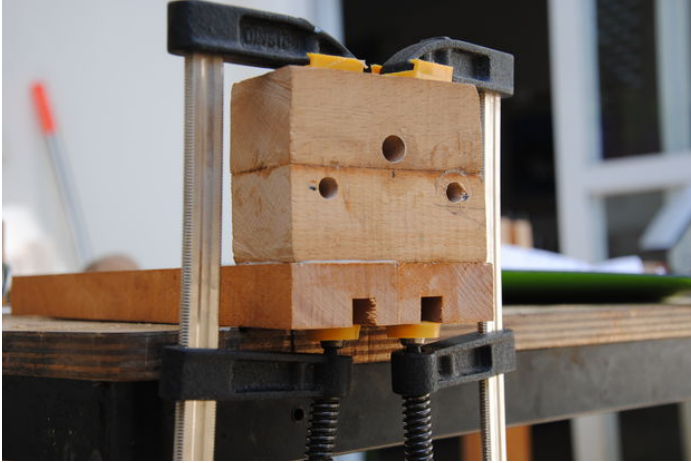
Since this a tight fit, make sure that you apply a lot of Epoxy.



Step 7: Glue the front jaw

Glue the front jaw to the base with some wood glue. If you want to turn this into a Bar-Clamp, you won't need to do this ;)

I clamped the joint until the glue dried.



Step 8: Make the handle

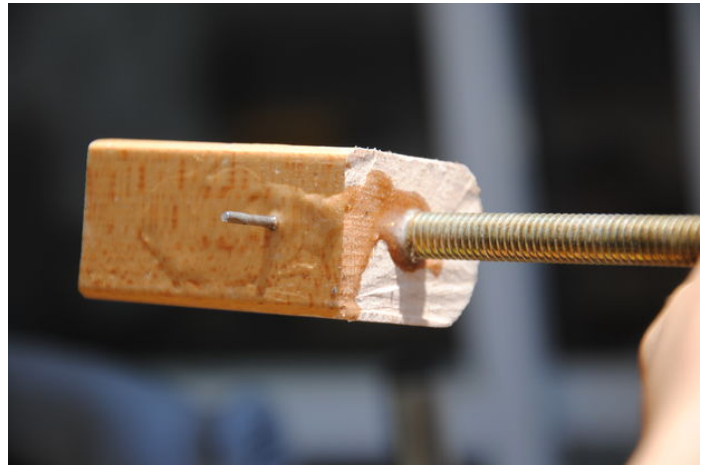
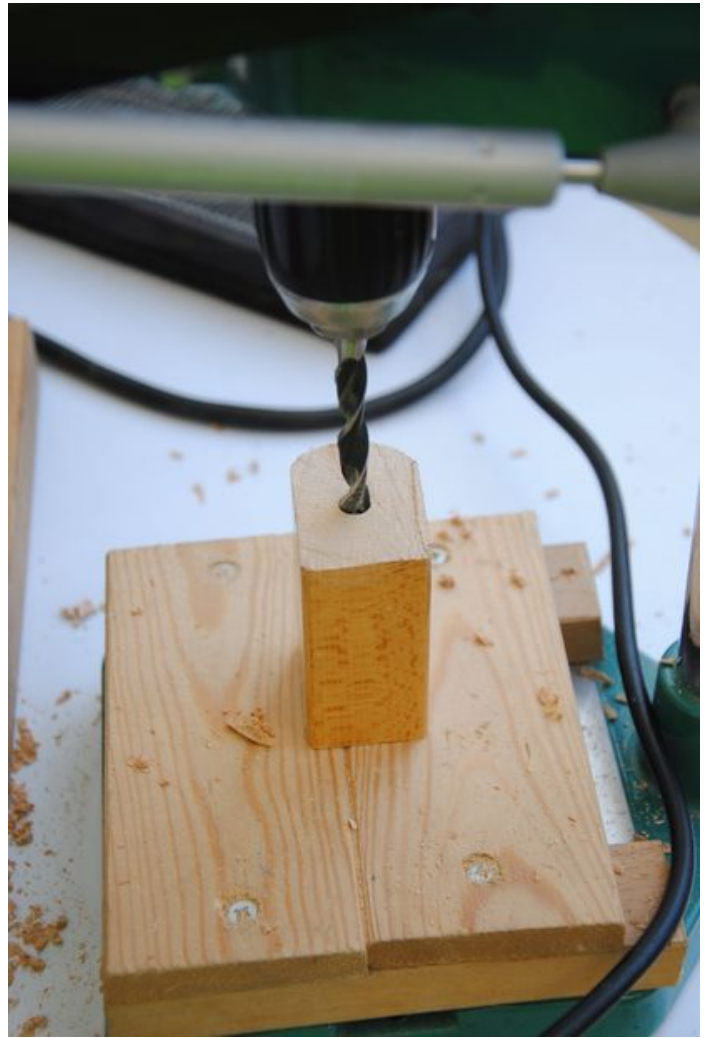
I started by drilling a 9mm hole in the tip of the 3.5 X 4.5 X 7cm piece, and when I made sure that the rod fit snugly inside, I drilled a 2mm hole through the wood and the rod. This will help strengthen the bond.

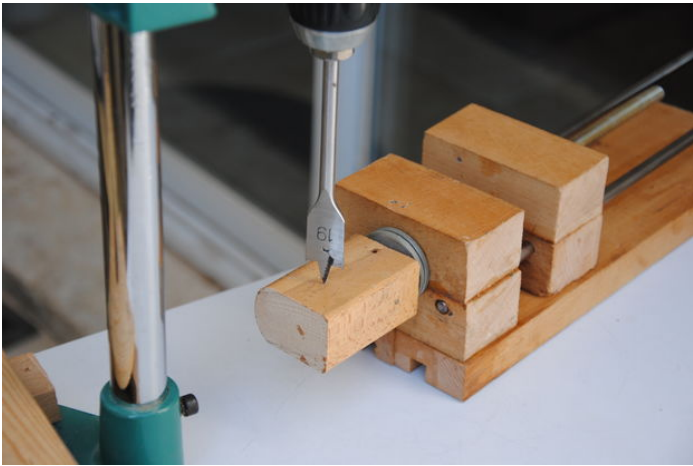
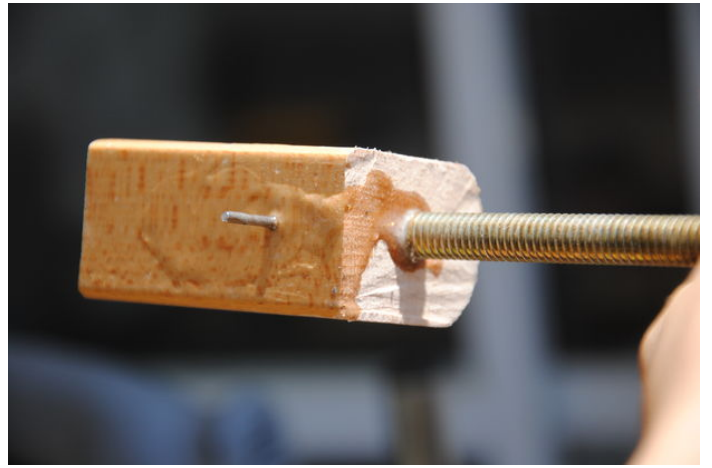
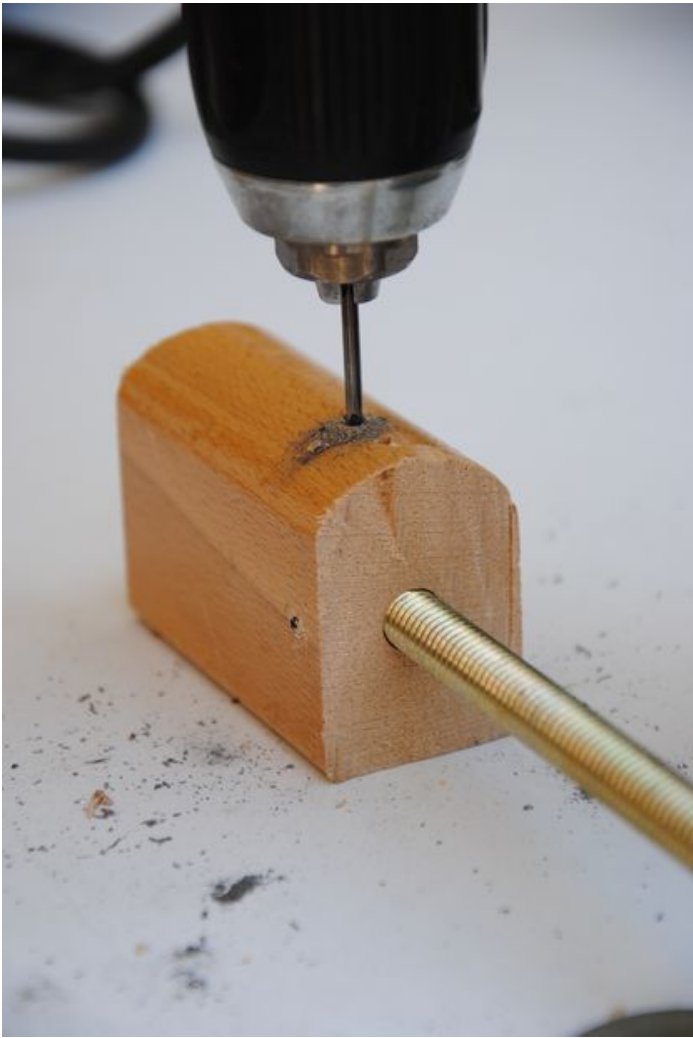
After that, I quickly mixed up some new Epoxy (stronger), and pushed the rod inside. Don't forget to add the 2mm strengthening rod!

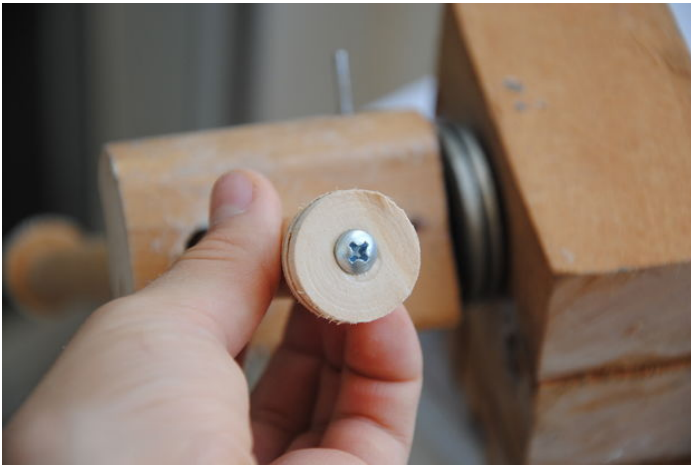
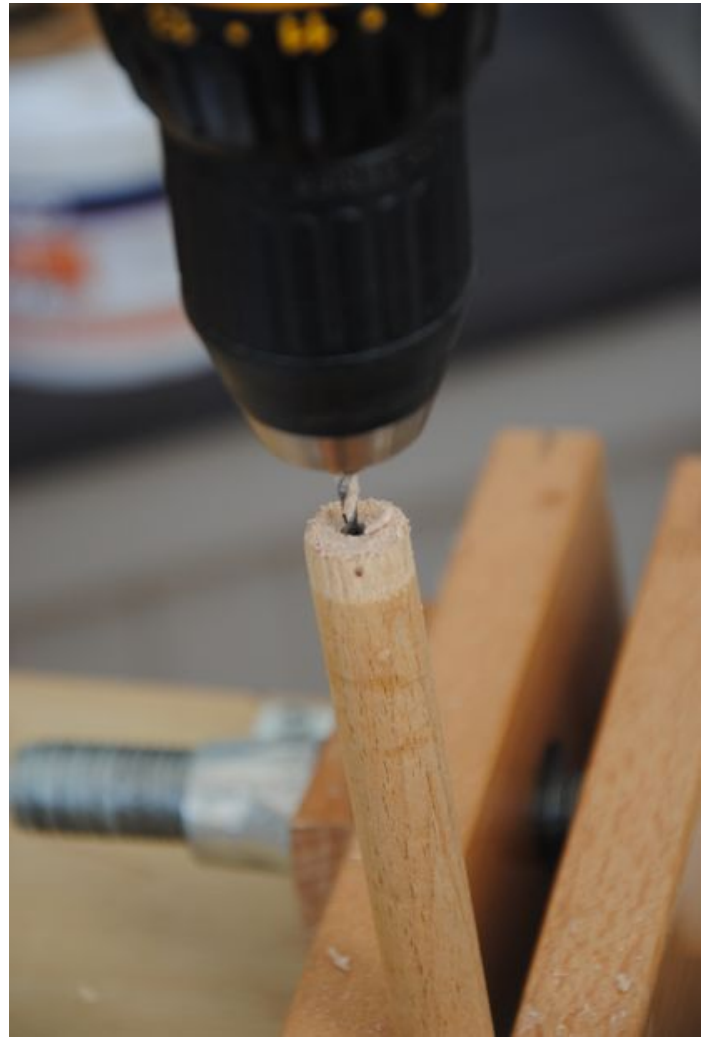
After after about an hour, I came back, and drilled a 19mm hole through the piece of wood for the handle.

To finish it off, I drilled a 27mm hole in some hard plywood, drilled two small holes in each end of the handle, and screwed them in.

I let everything cure for a few hours inside the holes of my Homemade wooden vise







Step 9: Sand everything

Since this is reclaimed wood, a small part was actually sanded and finished, the most, however, was not.

I started by sanding the wood with steel wool, and then finished it with 200 grit sandpaper.

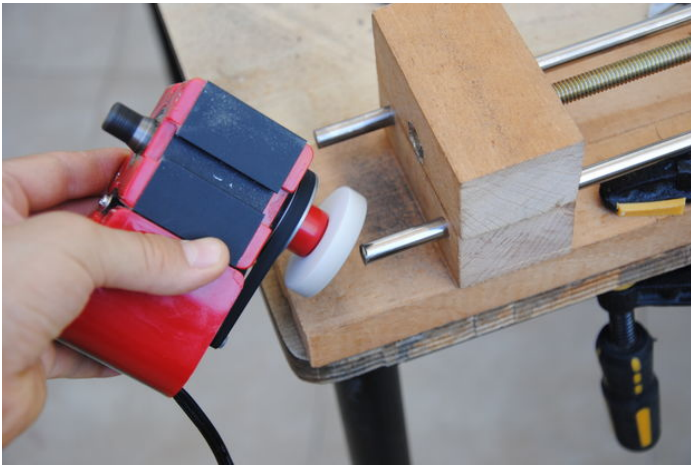


Step 10: Cut & grind off the rods

The rods were a bit longer than I wanted, so I cut part of them off. I'll use the leftover piece for a future vise.

I also used my mini Bench Grinder to remove some of the sharp edges. Handheld this time!





Step 11: Varnish

I applied a coat of varnish.

2 Hours later, I came back. I sanded the whole vise again, and applied another coat of varnish.

I hope this will make it waterproof.



Step 12: Grease the rods

Greasing the rods- I've said it a lot, and I'll say it again.

This lowered the amount of friction probably to a fifth. I suppose I'll have to do this again every once in awhile...



Step 13: Use it!

Congrats! You've built your own Wooden Bench-Vise!

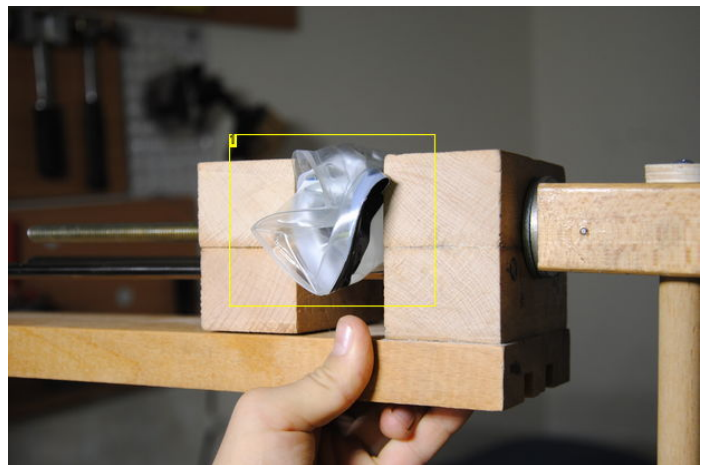


Image Notes

1. Vises are allowed to be hungry