

Building a Vise For the Gingery Shaper

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The shaper is a lot more useful when I can actually hold parts to be cut. Here you see my new vise holding a block of CRS as I machine a V into it. The C clamp on the left is a horizontal stop. One of my next projects will be to make a nicer stop.



The first step in making the vise is to true up the soft jaws on my mill/drill vise. Note the parallel clamped in the bottom of the vise. This width is about the same as the blocks I will machine.

Why not do this work on my shaper? Simple – it is not accurate enough. Maybe when I learn more about how to set up and run the shaper, I will get similar results to my mill/drill.



First the ends are squared up. This is not essential but looks nice. Note the stop on the left. It insures that both blocks are the same length. Again, not essential but satisfying to see.

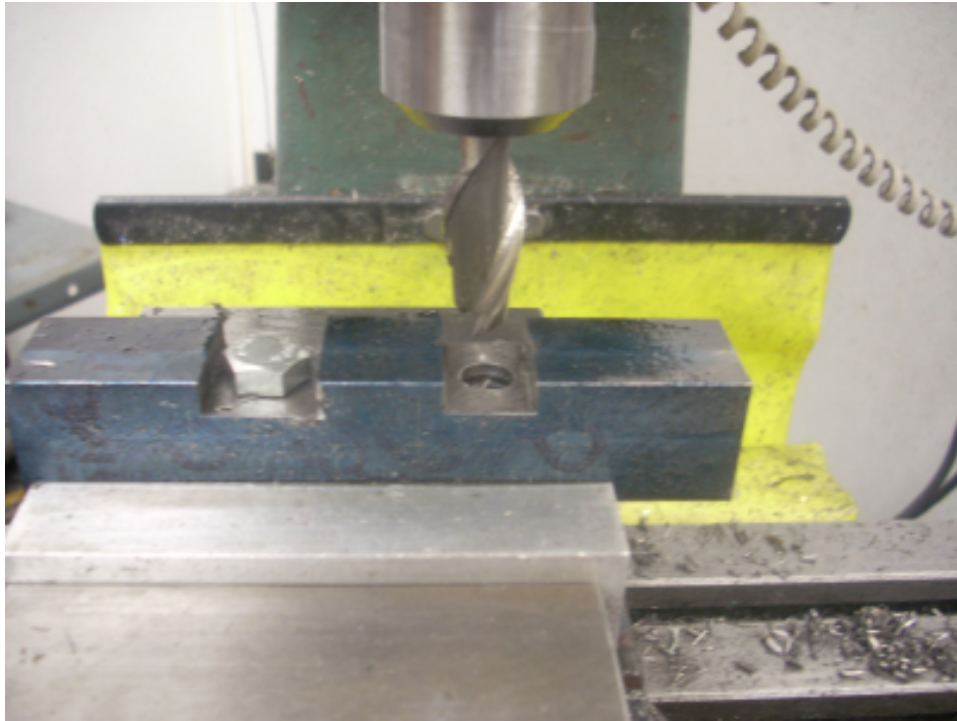
I first cleaned up one end of each block and removed all burrs. Then the stop was set and both second ends were cut.



The top face is cut, deburred, and then rotated so it sits against the fixed jaw of the vise. The cycle repeats until all 4 sides are square. The exact dimensions of the block are not important but it is critical that it be square and that I take the same amount of material from each face to minimize warpage. I took 0.004" from each face.



The horizontal holes are a loose fit to the bolts I have selected. These bolts will engage the T nuts. The holes being tapped use the same size bolts and will clamp the part being machined. I placed the tapped holes so there are 0.5" from the T nut bolt holes. Only later did I realize that the two center tapped holes are too close together. If I try to put a bolt in each hole, the heads hit.



One of my “rules” with the Gingery shaper is that all bolts that are adjustable must use the same socket. That goes for this vise.

I could have counter bored the space for each bolt head but that becomes a place for swarf to collect. Instead I milled a slot which is much easier to clean. There is enough room for the socket to engage the bolt head plus an extra 0.01” on each side.



The T nuts are nothing fancy. In fact, they aren't even Ts. I was able to cut them from 3/8" x 1" CRS bar stock. By making them 1" x 1", there is no chance of sliding them into the T slot wrong.

I chose to use grade 2 bolts because these T nuts are not all that strong. Paying the money for grade 8s would not have made any difference except to my wallet.



The finished vise except for washing off the bluing.



This arrangement did not work very well. The vise jaws would not grab the table. I think this is because the table was cut with the shaper and so has tiny ridges on it which greatly reduce clamping friction. Don't worry, I fixed this later.



Here is a side view. My goal was to raise the block up enough to cut the V. This didn't work well as the block lifted a bit when hit with the cutter. The idea was to have a “Kurt Vise” action from the movable jaw (the tilting red bar).



This time all went well. I'm using a sheet of paper between vise jaws and table. No more slipping jaws. I also did away with the sloping block between screws and block. The block stayed down much better with just a bar parallel to the part being cut.

You can also see the wonders of being able to rotate the table 45 degrees. The vertical front support bar does not rotate and I am able to continue to steady the table.

I've still got a lot to learn about using this shaper but that will come with both time on the machine and asking questions of those generous souls that are far ahead of me on this journey.

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