

Columbian Woodworking Vise Restoration

August 2016

As the hot days of July scorched north Florida and turned my workshop into a toasty little oven, I found myself browsing old tools online. No, I did not really need any more tools but I really like to see old things that are new to me. That is when I ran into this sad little woodworking vise. It looked like something from the 1940s or 1950s and was the probably pride of some woodworker's bench. He treated it with respect but likely had it mounted on a bench in a garage or shed because it was paintless and rusted.

Vise restoration is a methodical process. Here are the steps:

1. Initial inspection.
2. Initial cleaning and degreasing.
3. Mechanical repair and/or restoration.
4. Casting deburring.
5. Paint prep.
6. Painting.
7. Handle restoration.
8. Jaw restoration.

Here is the face of the vise. It has nice embossed lettering. The pop up dog is a user made replacement. All of the important castings are present and in really good shape. These vises are often found with missing handles and this vise is no exception. Note the four holes on the front. They are chamfered on the front and are made from woodscrews that will hold the wooden faces. There are no faces attached and no signs of the vise having faces.



The whole vise is about a foot long and extends about 7-9 inches. The guide rails are solid and fit well.



The vise face is 6 inches wide, making this a 6 inch vise. These small vises are made for light work and hobby shop benches.



After an initial inspection, restoration begins with disassembly and cleaning. I used gentle wire brushes to remove the surface rust and crud and then gave everything a bath in Simple Green to degrease it. The little vise seemed to smile after its bath and seemed happier at that point. Notice the vestiges of red paint on the rear, or static, jaw. I think we discovered the original color of this vise. The user made bench dog was done well but in haste. I ground the tip square and rounded over the edges.



A detailed inspection is easier once the vise parts are clean. I like to go over the castings and look for defects. Finish quality varies on mass produced items and casting defects are common. I look for sharp seams and sprue marks that are often overlooked by the rushed factory workers. Here is a picture of the dog stop boss. It works fine but looks a little unfinished. The casting marks look bad and are rough to the touch.



A few minutes of file work cleaned up the rough edges. I also filed rough edges of the jaws just enough to make them feel better to the touch.



I ran my finger through the inside of the handle and checked those seams. Ouch! There were some rough seams on each side. No wonder the handle was missing. I am sure it got pretty scratched up over the years. A few minutes of rat tailed file work goes a long way to improving those surfaces. The new handle will have a much better surface to slide on.



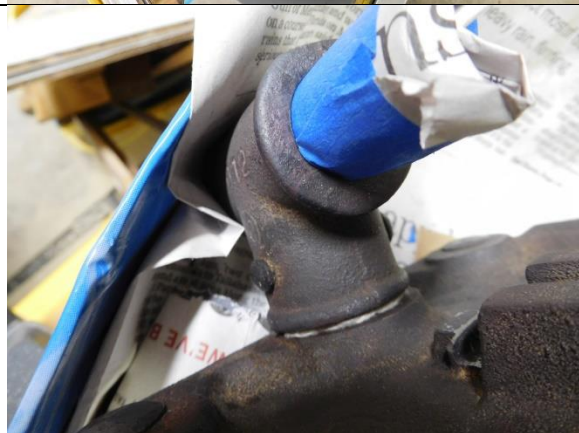
The cast vise handle head is held in place with a rivet. Sometimes it is necessary to remove this head by drilling out the rivet. I avoided that step along with the subsequent repair since there seemed to be no reason to remove the lead screw. Ditto with the guide bars. They were press fitted and were solid and straight. There was no need to risk a casting break by removing them. The last step of cleaning was a bath in mineral spirits, followed by a good wipe down.



Paint prep begins with taping off the lead screw and guide bars. The front casting is very heavy and makes this part hard to manage, so I taped a small handplane body across the end to serve as a counterweight.



Here is my clever tip for the day. Remember when we avoided removing the handle head? Leaving it in place creates a painting issue because paint can leak into the lead screw bearing. Even though this vise head was tightly held to the front casting, I was able to wrap it with butchers twine. After overwrapping, I packed the extra twine tightly by caulking with a flathead screwdriver. It was like caulking a boat seam. Several wraps of twine around the leadscrew should keep paint away from the head and vise front.



A good woodworker has a good scrap bin and I am no exception. I found a long cutoff, sawed it in half, wrapped it in newspaper and used it to both cover the static face bearings and also help mounting. I covered the leadscrew hole with a circular piece of tape. More scraps were used to make a stand for the rear face.



Spray time! Primer comes first.



Here is a picture of my spray booth in action. Late summer heat in north Florida means frequent afternoon showers and painting is restricted to early morning hours. Spray paint does make reasonable mosquito repellent but long sleeves are better. Lucky me--I have a large supply of white dress shirts from my days of working for the man.



Woo Hoo! The first coat is a real success and our little orphan is brightening up.



Looks like we have bright red paint where we need it but no paint in unwanted places.



Here is the front face with its makeup on, no kidding. Get some of those triangular makeup sponges from the drug store and use the flat tip to brush paint just on the tips of the raised cast letters. Pretty snazzy!



Moving on and it is time for some woodwork. I purchased a 3/4 inch maple dowel and a bag of 1 1/4" maple balls for the handle. I wanted a wider jaw and did a mock up of the front jaw using some scrap.



Here is the nice hickory stock that I am using for the jaw inserts. The first order of business to to joint the edge and make it smooth and flat. This operation is easier to do before the jaws are cut to length.



Here is a close up shot of the Lie Nielsen low angle plane in action. Check out those thin shavings.



The brass screws I found really look snazzy on the front of the vise. The matching back jaw is unattached. It will be mounted to the new workbench.

I also cut an 11 inch piece of dowel for the handle.



The handle needs two balls and they need to be drilled so they can be secured to the end. One will be glued and the other will be removable. I made two jaw adaptors so the round balls would fit securely in the crossfeed vise. Here is the setup in action.



Here is a picture of the forstner bit and the hole it made in the ball. Note the vise jaw adaptors made from scrap.



Remember that ball #2 needs a pilot hole for the screw. To center it perfectly, I kept the setup exactly as it was and just changed the drill bit. Note the sacrificial wooden bottom scrap. It is necessary to keep the drill bit from bottoming out on the metal vise.



The ball will be attached using a wood screw to allow removal of the handle. Mounting, moving and shipping of the vise are much easier if the handle is removed.



This ball has had two operations so far but it needs one more. The first operation was to drill a large $\frac{3}{4}$ inch hole for the handle. The second was to drill a $\frac{1}{8}$ " hole for the screw. The final operation is to drill a countersink for the screw head. The outside of the handle ball needs to be smooth and a proud screw would hurt the operator's hand. I use my trusty brace for the countersink.

All it takes is a few cranks of the brace and countersink bit to give us a nice divot. The countersink bit is easy to use because it centers automatically on the pilot hole. All the operator needs to do is apply a little pressure and turn.



I find that the weight of the brace and bit provides the exact amount of pressure needed to make a perfect countersink. In use, I remove the bit and blow out the sawdust after a few spins in order to check my progress. It is pretty easy to eyeball and get correct. My caution is to not start rocking out to shop tunes and spin away without regard. The countersink bit cuts quickly. It is easy to go too far and a countersink that is too deep is almost as bad as no countersink at all.

Here is the money shot of our Columbian CD-6 woodworking vise. Some TLC and paint has restored it to new condition and has given it a new lease on life. Now it is ready to find a woodworking bench and go to work again.

