Restoration of a Vintage Reed Machinist Vise

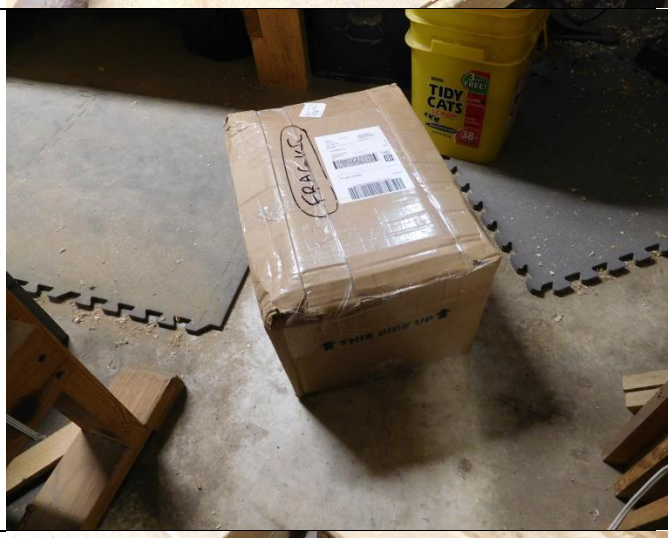
August 2016

During the sweltering days of August, shoptime is replaced with internet browsing. One day I wandered through the ether as cicadas sawed through the afternoon and found myself looking at a Reed vise. Wow! It was a vise with my name on it--literally. My first thought was that I must possess one (or some) of those. A few eBay searches later and I became the proud owner of an authentic vintage Reed Manufacturing Company machinist vise. WooHoo! Let the games begin.

And here it is—a Reed model 1C. It has 3 ½" jaws and weighs a portly 54 pounds. Earlier models had a round ball handle. Those were made from about 1902 and up through the 1920s. The style pictured was made from around 1920 until the mid 1960s, during their so called "golden years" of quality. From the looks of it, I would date this particular vise to the early part of that period and no later than the 1930s. The paint, which seems to be original, reminds me of black asphaltum used on handplanes of the depression era.

The jaws of this vise were cut and hardened and then pressed into the cast iron while it was still cherry red.

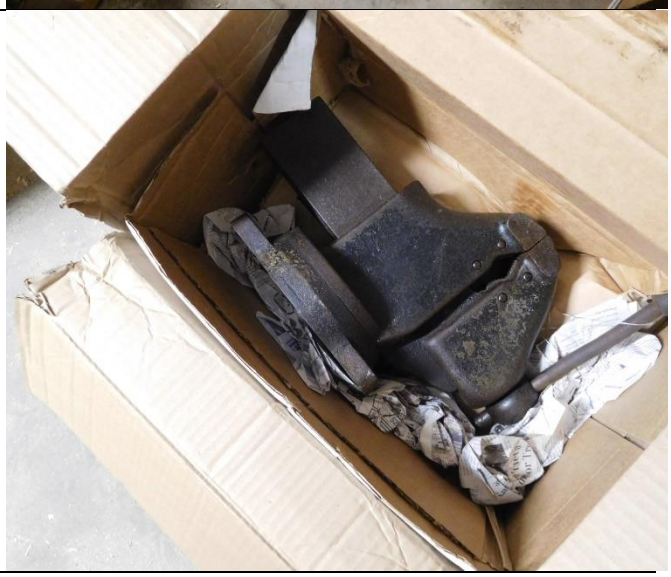
But I am getting ahead of myself. The story really starts one hot afternoon when the FedEx truck stopped on the road in front of my house. I had a good feeling that I knew what was on it. I went outside through the garage to help and sure enough, it was my baby. The FedEx lady was puffing through the heat as she dragged the dolly behind her. I had her ease it off onto the front of the garage floor. She said it was too heavy to lift so she slid it onto the handtruck. I copied her and gently kicked it across the shop floor to a waiting workbench.

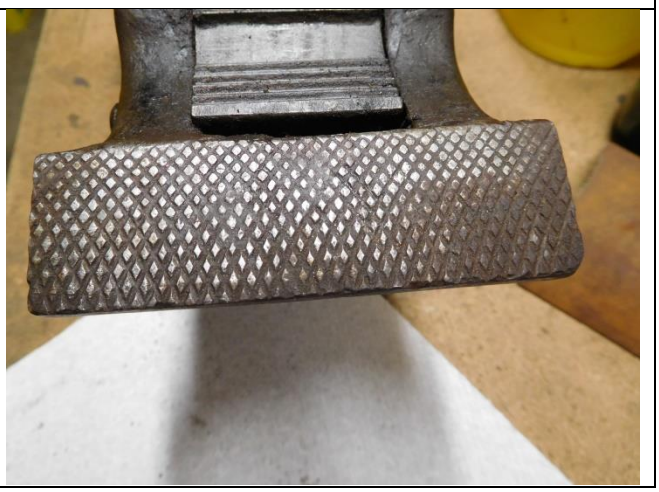


I waited until after dinner to unload the box. It was 97 degrees out that day and I was sure that the vise had roasted in her truck like a Christmas ham. It needed a little time to cool off.

I unwrapped it with a mixture of anticipation and dread. Ebay sellers pack with mixed quality and cast iron is more brittle than most people realize. I have been disappointed enough with shipment cracked handplanes. Why? A fragile tool has lasted intact for over 100 years only to succumb to poor packing. Breaks my heart.

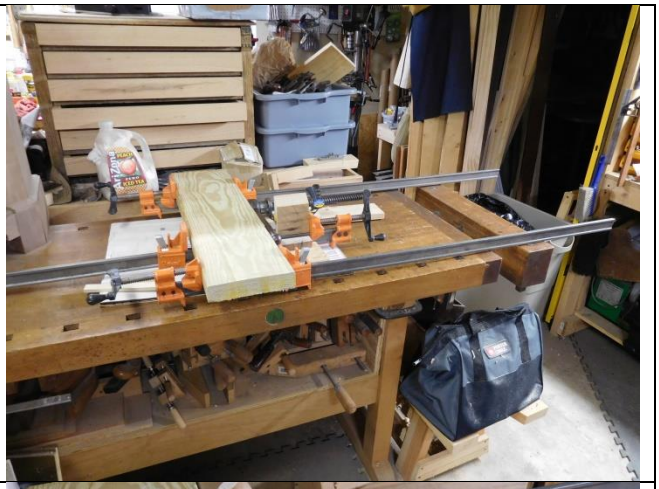
But there will be no broken heart today. The seller used newspaper but packed exceptionally well. He even packed the vise properly on its side.

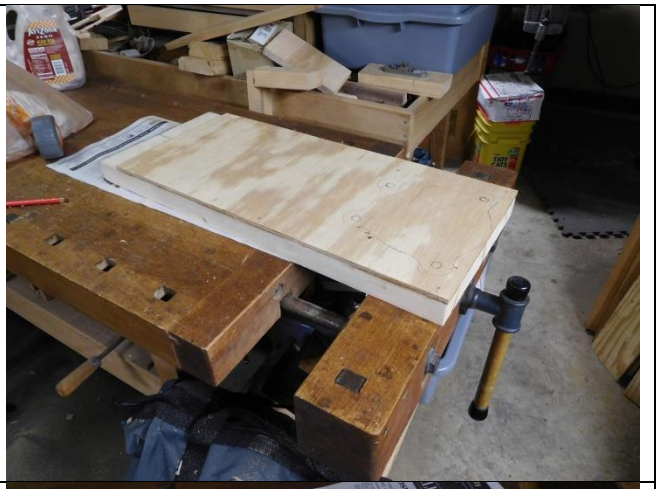
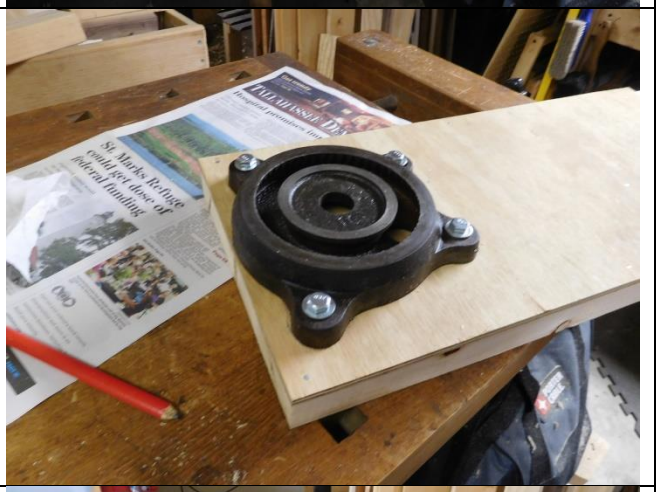


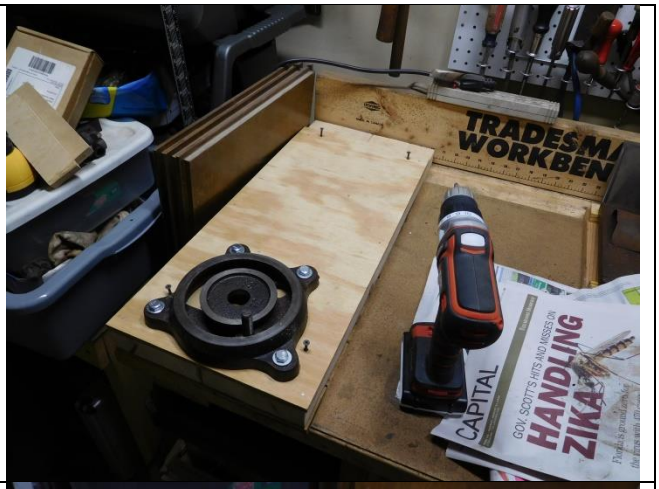
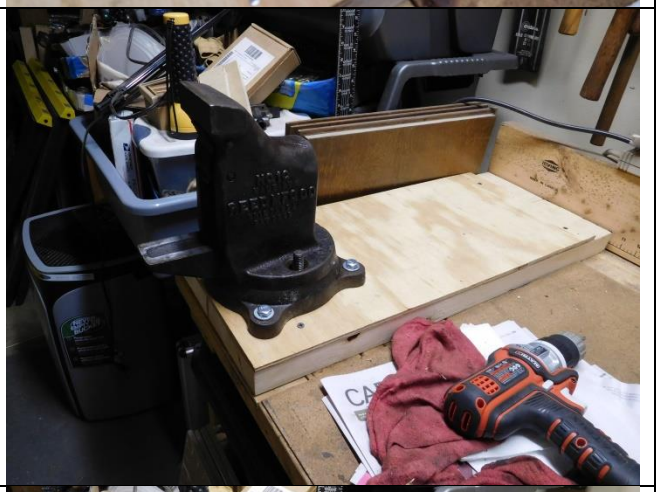
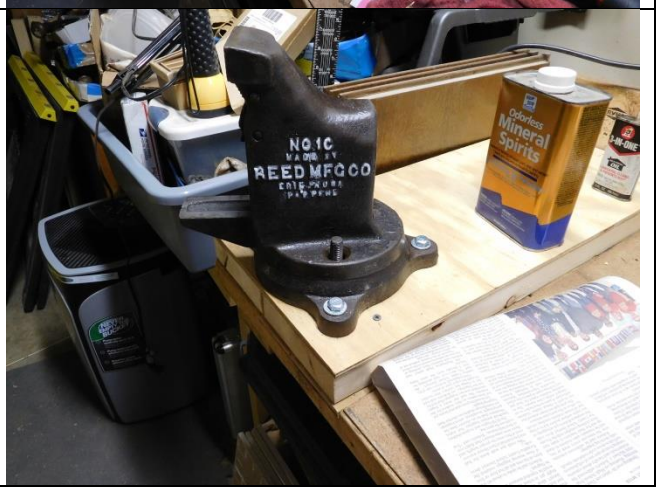
And the vise arrived without a scratch. Even the delicate swivel base was undamaged. I cradled it in my arms and gently lifted it onto the workbench—gentle enough to not aggravate either of my hernias. Remember that this little dude weighs in at 54 pounds! Well, maybe this one was 55 pounds if you include the thick coating of grease and gunk. And where am I going to find a screwdriver large enough for that screw?!?	
It is time to take out the leadscrew and handle. These vises have a unique method of disassembly and it helps to study the side view picture of the vise. On the front of the dynamic jaw you can see an oil hole. It even has the word “OIL” cast above it. (There is another oil hole on the rear of the slide. Look in the same picture just to the right of the cast “Co”. That oil hole is for the acme leadscrew). From the oil hole, at the 8 o’clock position, you can see a wart. The wart in the picture is actually a set screw which holds the clamp for the leadscrew and handle assembly. Begin by fully extending the dynamic jaw and removing the whole assembly. Next you remove the set screw. Remove that setscrew, pull on the handle and you will see four divots equally placed on an outer ring. Put a punch or awl on one of these divots and move it counterclockwise. The ring should move. Keep unscrewing until it comes off. It is a split ring and will come off in two pieces. Once it is removed, you can pull out the handle and leadscrew. The handle has a washer on its end.	
The cleanup revealed both good news and bad news. First, the bad news. This vise was coated in oil and grease and black gunk. It was greasier than a summertime ham. I spent several sweat filled evenings in the hot shop cleaning with paper towels and Simple Green. The good news is that this vise was well protected by said oil, grease, and gunk. Underneath it lay a nice vise with about 90% of its original black paint. It disassembled easily and no screws were frozen. The jaws are a little worn, but are in great shape. The slide and other working parts are in great shape. The only problem is that the handle has a few slight kinks from abuse.	

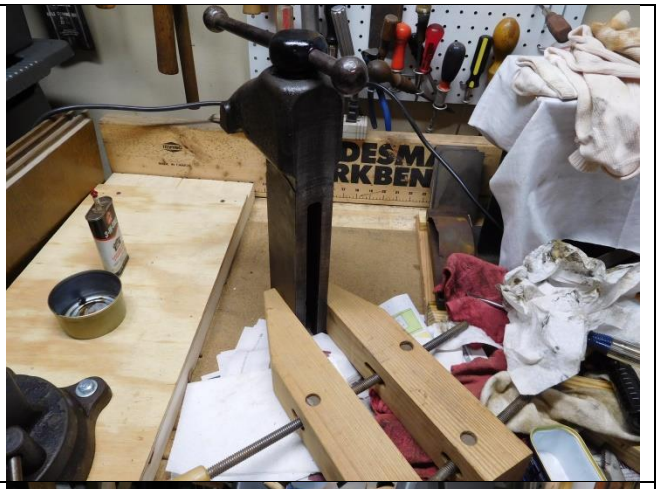
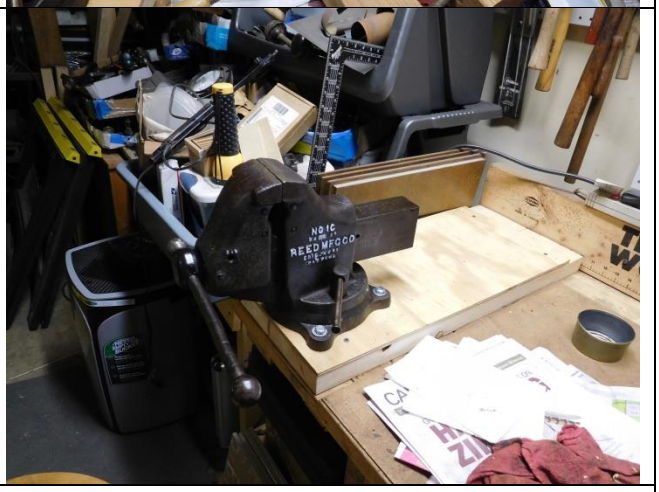
Here is the split retaining ring that secures the leadscrew and handle.	
Here are the two halves. No, it is not broken; it was made that way to fit between two larger pieces.	
Remember the base and that large flat screw? I tried to remove it using my largest screwdriver but had no luck. It was on pretty tight.	
I have made plane blades and cutters for years, using flat ground stock of various thicknesses. I went over to the cutting area and found a scrap on the floor that was the proper thickness for this screw slot. I ground it flat and used my vise grips to improvise a screwdriver. The screw came out fine. It did need coaxing but my makeshift screwdriver did the trick.	

Here is a close up of the screw. It is larger than my flathead screwdrivers. As you can see, it is even larger in diameter than the quarter. The head was boogered up from previous hamfisted attempts to remove it using improper tools. I filed down the offending metal.	
Here is a shot of the clean leadscrew, dynamic, static jaw and the base.	
Here is a picture of the leadscrew nut. It is held in a dovetail slot by a split nut. And by rust, I might add. I have been trying to persuade it out by using a plywood stick and mallet. No dice. It is not going to budge. Since there is no real reason to remove it, I will let it stay in place where it is happy.	
Here are the miscellaneous parts, soaking in a tuna fish can after cleaning. I bathed them in 3 in 1 oil to prevent rust.	

One of the items to address is the double kink in the vise handle. It was abused at some point and the handle is kinked enough to prevent it from sliding properly. Vise handles are soft and can be bent using cold forming techniques. That generally means to use cauls and a shop frame press. I do not have a press but I do have a generous stash of woodworking clamps. Some of these clamps are substantial, like these Jorgensen 48” I-beam clamps. I used them along with a pressure treated lumber scrap to make a redneck press. Here is the setup.	
Here it is in action. The smaller clamps are just keeping things from twisting. I am using a stout piece of walnut end grain as a forcing caul. The ball of the handle is protected by the pressure treated base.	
Here is a picture as the operation continues. One of the kinks is gone and there is one to go.	
It took about twenty minutes of grunting and bending to tame those kinks. Here is the final result. There is still a slight deformity but the handle slides well. I will leave the slight defect as “charm” and as a badge of courage on a tool that has had a long and productive life.	

My shop has moved a few times through the years, so I like to remain flexible. That means that I mount my benchtop vises on stands instead of mounting them directly to the workbench. This technique makes few permanent changes to the benches and also makes it easier to relocate the vise if necessary. For this vise, I glued up two sections of 2x6 construction lumber and added a ¼" piece of plywood to the top.	
I drilled holes for the base and countersunk the washers.	
The base is mounted but can you spot the issue? Look carefully.	
Of course my eagle eyed readers noticed the flaw immediately. In my defense, the workshop is oppressively hot. After all, this is north Florida in August. In my haste, I mounted the base and forgot to insert the swivel bolt. In this picture you can see the hole on the BOTTOM where it is inserted. So I had to remove ALL of the mounting bolts in order to insert the swivel bolt. It was not a big deal except I had to get out the socket wrench set and redo everything. It was just an opportunity to have some more shop fun.	

Here is the base mounted on the workbench. I attached it using four sheetrock screws. This vise will not receive heavy use. The bench attachment needs to be strong but not extra heavy duty. The screws are for shear strength only. I added a C clamp on the rear that firmly holds the vise to the bench.	
Of course, I needed a container for the vise hardware.	
With the vise static jaw firmly mounted, I decided to take an opportunity to smear some paint on the vise. I was first drawn to Reed vises because of the familiar name. Then I found out that they made some of the best vises at the time and of course had to posses one. Early examples have raised lettering cast into the metal. It is easy to highlight the castings with contrasting paint. I used white paint and a makeup sponge.	
Here is the final result.	

All the bits and pieces need to be replaced into the dynamic vise end. A large handscrew clamp is very handy for holding the dynamic steady and in position. I oiled the washer, inserted the leadscrew, replaced the split washer, and fixed it in place with the setscrew. My first trial did not go well because the leadscrew action was too tight. And of course, before that, I tried to put the set screw into the oil hole. They are right beside each other. And it was hot in the shop. With the set screw in its proper place, and with the split nut properly adjusted, the leadscrew action was super.	
Here is the money shot of the Reed 1C vise mounted in place. It had most of its original black japan finish so I kept it in place. I cleaned everything up and oiled what needed to be oiled. Other parts were coated with BLO (75% boiled linseed oil and 25% turpentine). The BLO provides a protective coating to cast iron and works much like the seasoning on grandmother's black skillet. I carefully taped the handle and painted the nose black because it had lost most of its original finish. The new paint blends in well because the nose is a small isolated spot.	
This vise works well and looks like it just came out of grandaddy's workshop. Now it can be put back to work.	