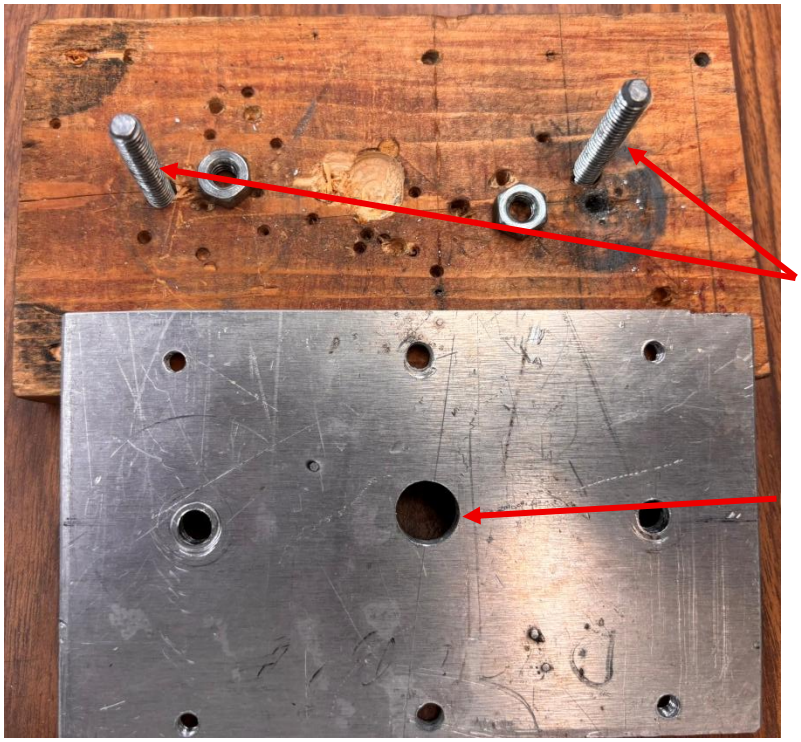
Making Thin Washers, Version 1.0

By R. G. Sparber

I needed to make a bunch of 2” by 2” square washers with a ½” hole in each. The stock is thin aluminum.



My solution was to build a clamping fixture from scrap. The bottom is a piece of ½” thick pine. The top is a well-reused aluminum plate ¼” thick.

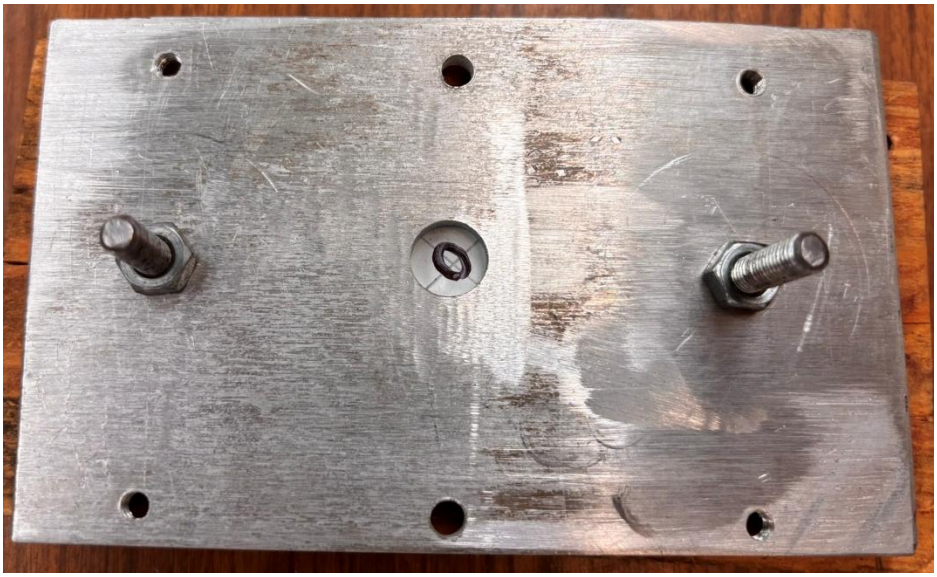
Two ¼-20 bolts hold the fixture together. There are washers under the bolt heads on the underside.

Originally, this center hole was ¼” but after using the fixture, it was enlarged to ½” by the process.

I started by cutting a strip of aluminum 2” wide. Then I snipped off 2” sections to get my squares.

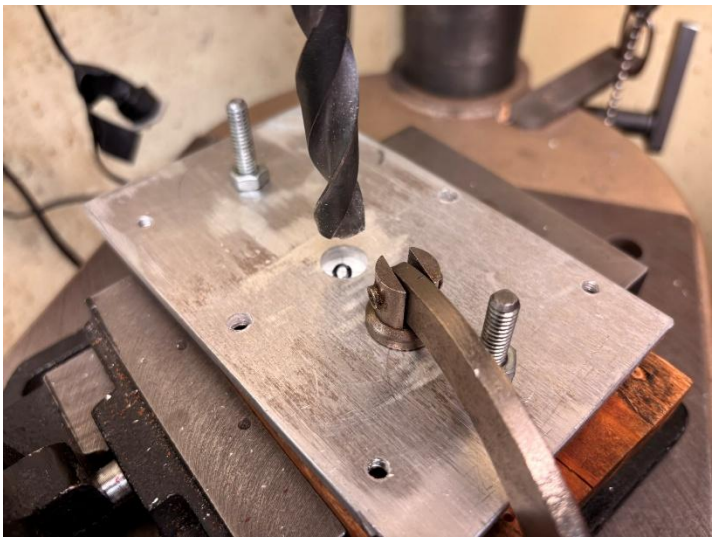
I marked one of them in the center and stacked up 4. The fixture can handle more than 10 at a time. Notice that I did not spend time trying to flatten them.

Sighting through the center hole, I adjusted the stack until I could see the center mark.



Then I spun down the nuts and tightened them with wrenches.

Then, I clamped the fixture onto my drill press after aligning the center hole under my ½” drill bit. Nothing can move, and my hands are far from the action. *Do not attempt to drill one of these washer blanks by holding it in your fingers!*



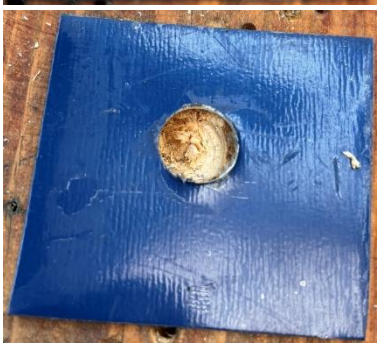
With very little effort, I drilled through the top plate and the stack of sheet metal.

After removing the two nuts and the cover plate, I could see my stack of washers.

I found the bores were smooth and did not require deburring.

My second batch was almost as clean. The bottom piece had some flash. I think it was a combination of not going deep enough and the first pass removing some of the wood supporting the cut.

No matter, the flash came right off with my finger.



There was a little burr on there, but nothing serious.

Conclusion

The drill fixture worked well for safely clamping a stack of thin stock. It should also be useful for holding small pieces that are difficult to secure. Not having to deburr a stack of thin stock was a nice bonus.

If you plan to apply more force, I suggest using ¼” or 3/8” steel for the top plate.

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