Rotary table mount for a Sherline Mill

A rotary table can be a very useful addition for a milling machine, particularly one that can be arranged in both a horizontal and a vertical orientation. Sherline has such a table for their mini mill. The also have a bracket that can hold the rotary table so that the face is perpendicular to the mill bed. But the Sherline rotary table is quite large (and expensive) and the bracket is likewise quite large – together they take up a lot of room on the mill table. Things are even worse size-wise if you also use Sherline's right angle tailstock to hold one end of the work.

I came up with a general-purpose bracket that can hold a smaller & less expensive rotary table among other things. Figure 1 shows the bracket with a rotary table installed on my Sherline mill.

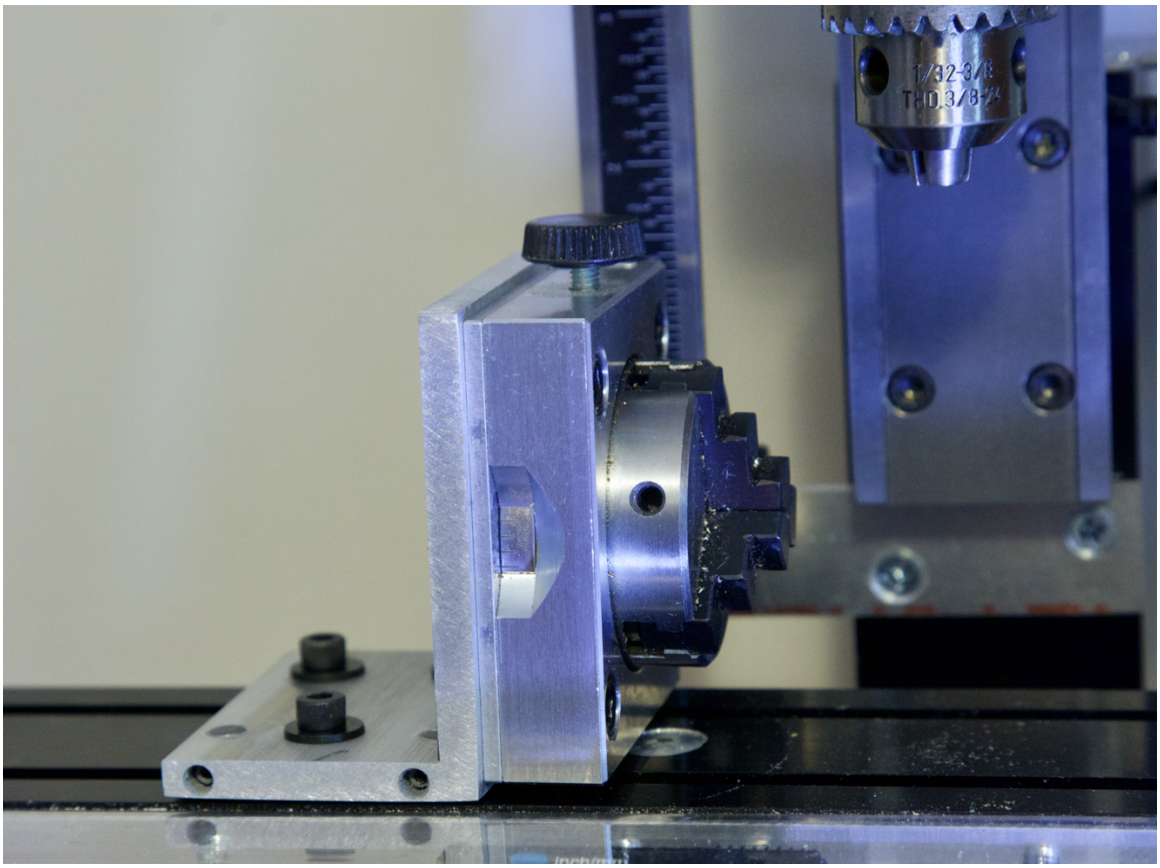

Figure 1: rotary table in place

The rotary table I used is a Proxxon 24264 Dividing Attachment for their mill, it is inexpensive, small (2.5 x 2.75 x 1.75 inches) and comes complete with a 3-jaw chuck, which the Sherline rotary table does not have. The Proxxon Dividing Attachment can be bolted directly to the Sheline mill table, although you can only use two diagonally opposed bolts to do so because the spacing is wrong otherwise. The bracket I made to hold the Proxxon attachment vertical was made from a 2.8 inch long piece of a 2 x 3 x ¼ inch aluminum angle. Figure 2 shows the finished bracket and Figure 3 shows the bracket with the various parts attached.

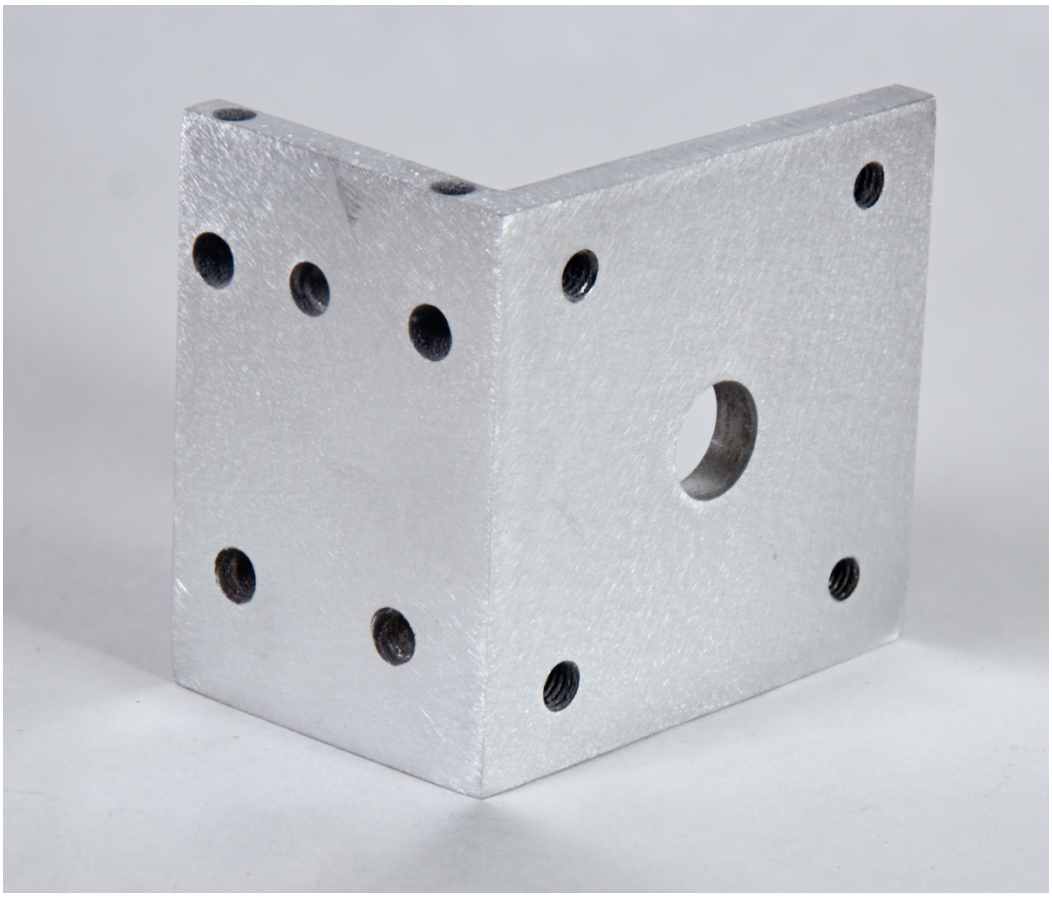

Figure 2 – Bracket with holes drilled

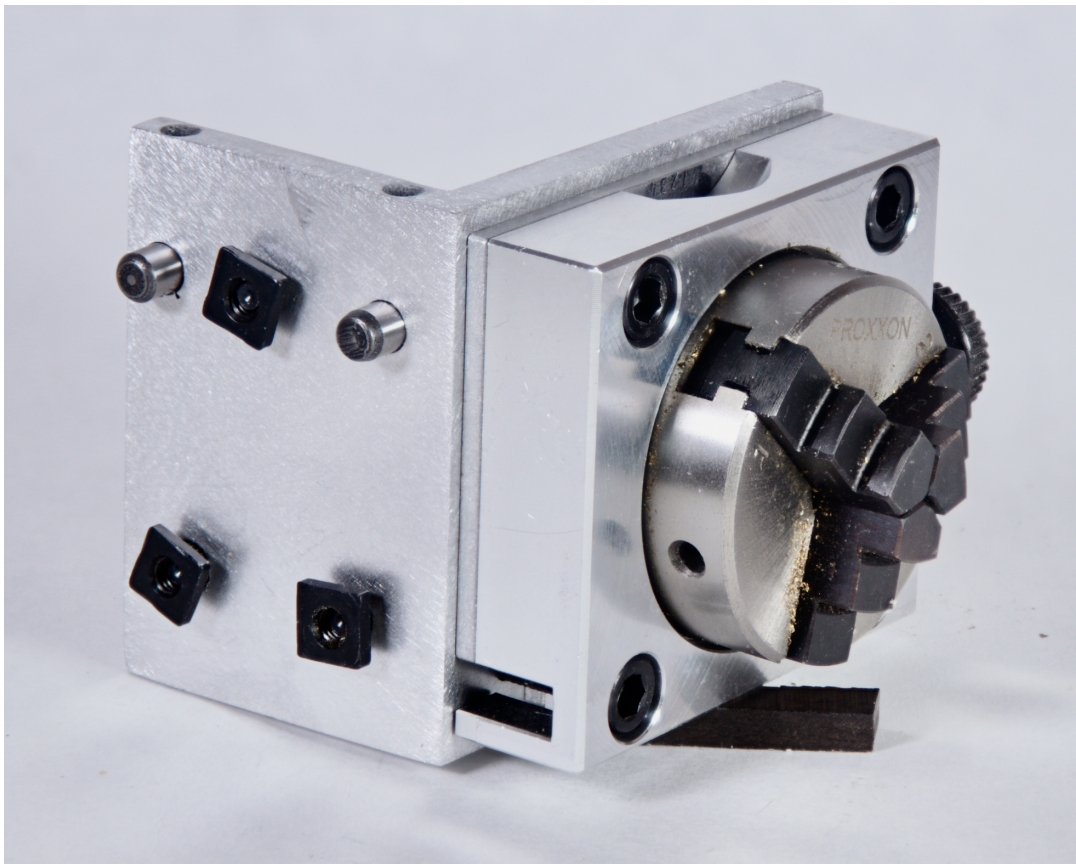

Figure 3 – Bracket with components

The layout of the base of the bracket is shown in Figure 4.

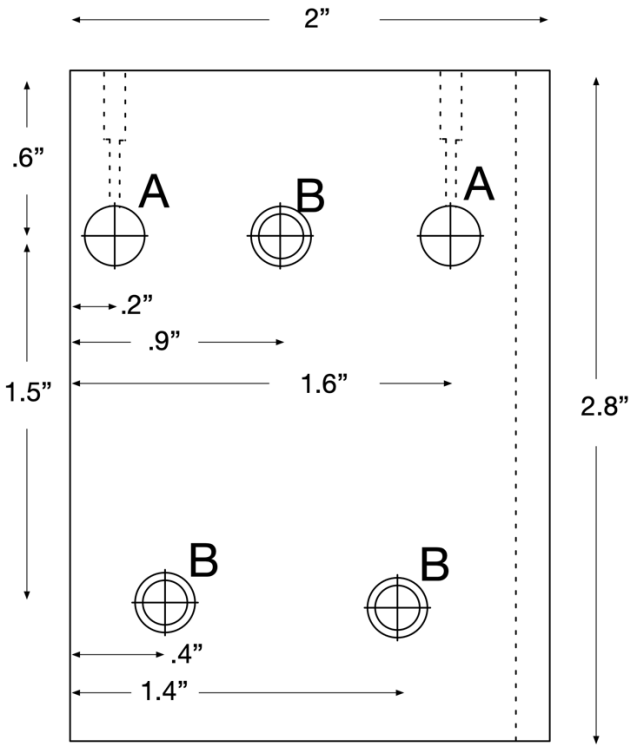

Figure 4 – layout of bracket base.

The “A” holes are ¼” diameter for ¼” x ½” precision ground dowel pins. The pins are held in place by 4-40 set screws. The lower parts of the holes for the set screws are drilled with a #43 drill and tapped for 4-40, the upper portions are drilled such that the body of the tap can fit. Because the slots on the Sherline base are exactly ¼ wide, the dowel pins serve to accurately square the bracket on the mill base, more accurately than the Sherline mounting bracket does.

The “B” holes are drilled through with #11 drill (to clear a 10-32 screw) and drilled to ¼” half way through from the bottom to clear the bodies of the Sherline T-nuts used to hold the bracket to the mill base.

The layout of the side of the bracket for the Proxxon Dividing Attachment is shown in Figure 5.

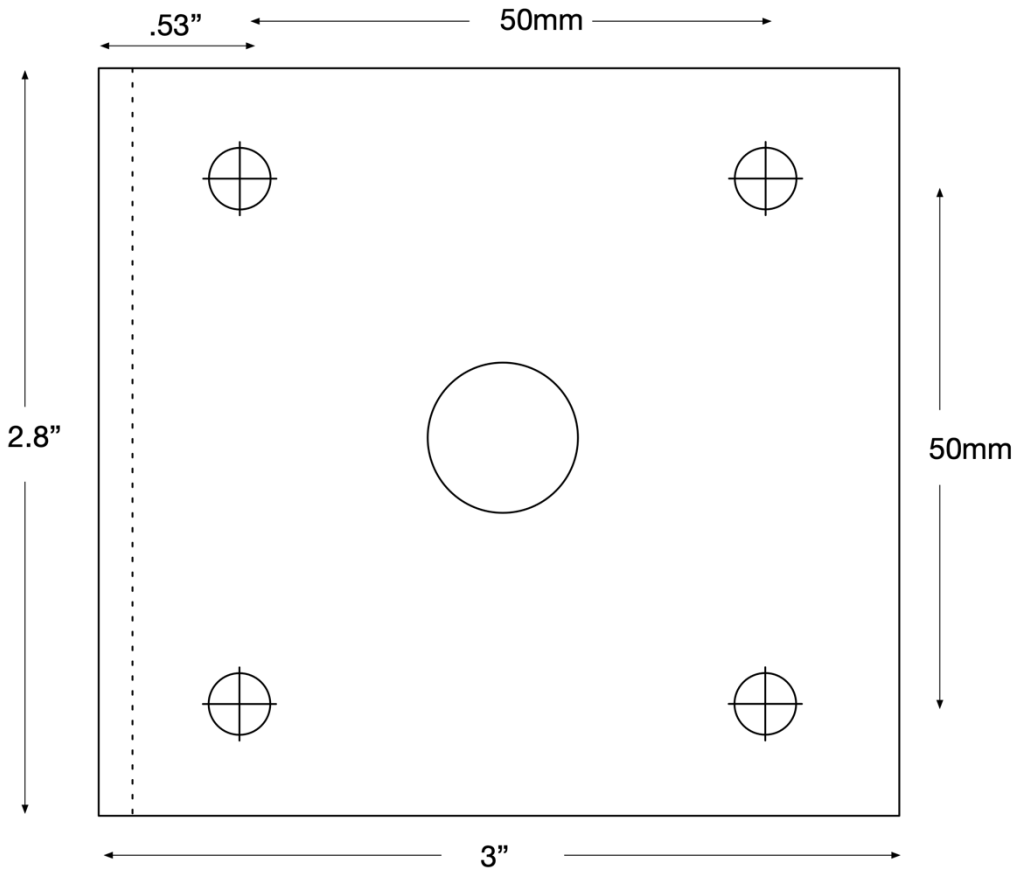

Figure 5 – layout of Proxxon bracket vertical

The mounting screws for the Proxxon Dividing Attachment are 6-1 mm screws arranged in a 50mm square, so the 4 holes in the corners are drilled and tapped 6-1 mm. I also put a 9/16” hole in the center because the Proxxon has a center hole and it is very helpful to be able to work on long stock, for example to drill holes in a yard for jackstays.

I was able to make all the parts for a 1:96 scale windless on the Sherline lathe and the Sherline mill, the latter using the above Proxxon attachments and bracket to make the ratchet in the center of figure 6 and the two rachets 4 parts to each side of it.

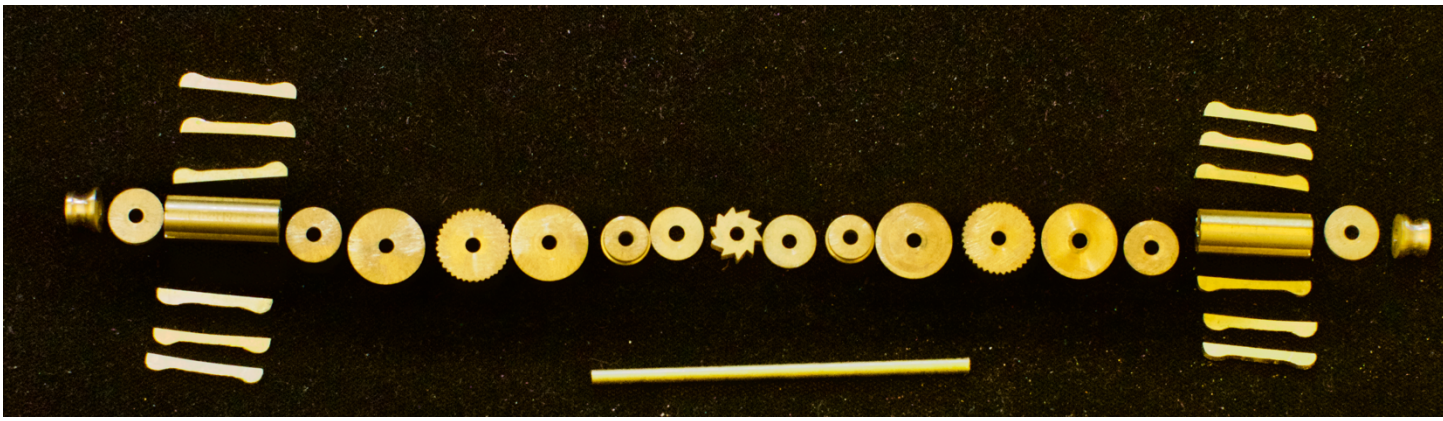

Figure 6 – parts of a windless

Figure 7 shows the assembled windless.

Figure 7 – assembled windless

I used a similar bracket, with an identical base, to mount a vice in a vertical position. Figure 8 shows the vice mounted on the mill.

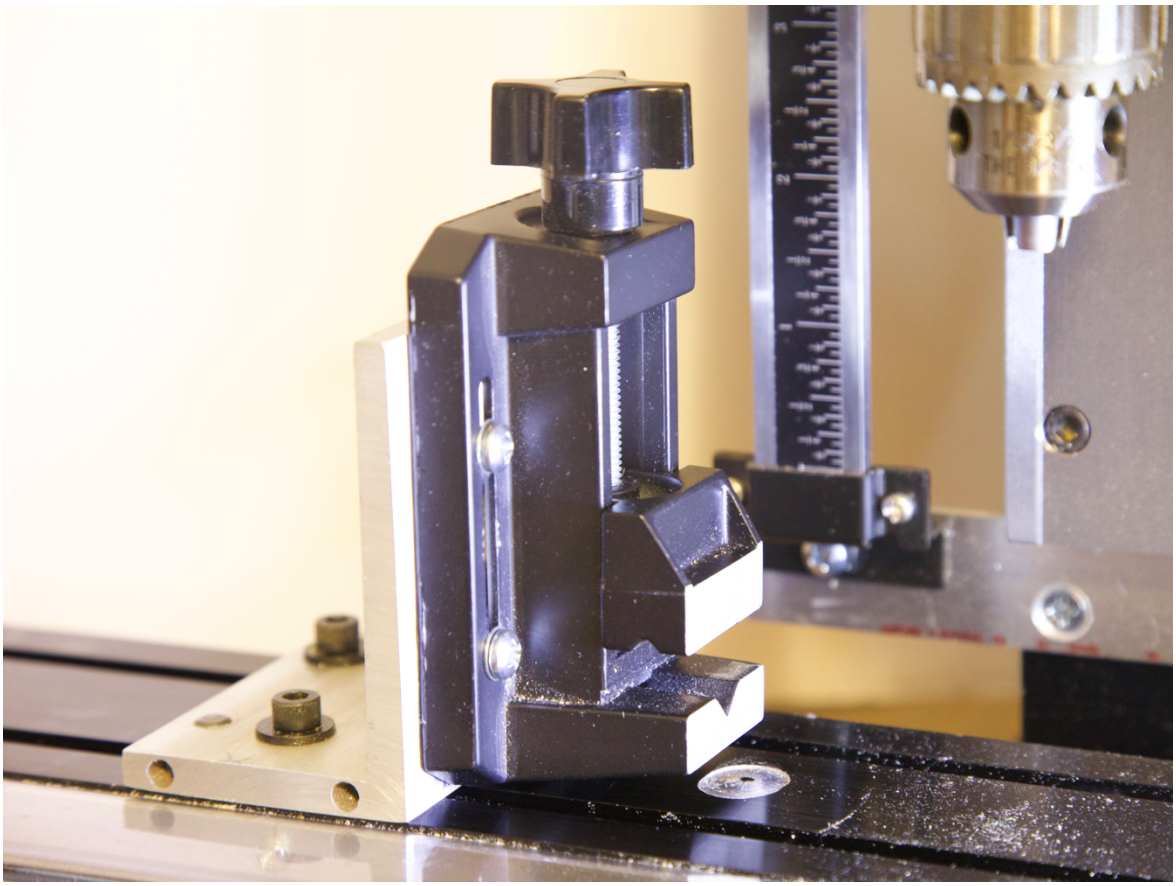

Figure 8 – vertical vice on bracket

The vertical part of the bracket has 4 holes drilled and tapped for whatever mounting screws will fit the vice you use. I used a vice I happened to have lying around.

Finally, I used a similar bracket, again with an identical base, to create a tailstock to steady long work. Figure 8 shows the bracket.

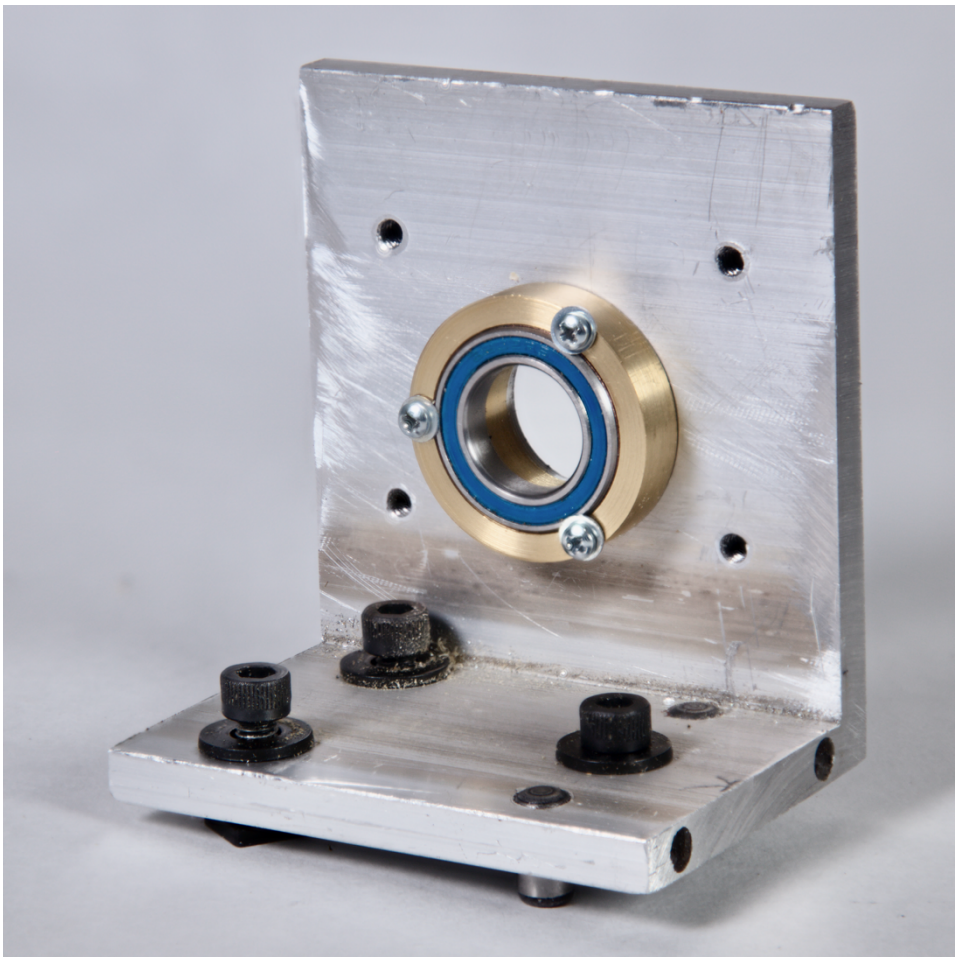

Figure 8 – tailstock bracket

I milled a hole in the center of the vertical part of the bracket, aligned with the center of the Proxxon Dividing Attachment on its bracket. I mounted a large opening ball bearing on a brass holder that I turned on the Sherline lathe in the hole. To use it, I create a throw-away plug out of a dowel such as the one shown in figure 9. I size the center hole based on the size of the work I want to hold.

Figure 9 - plug