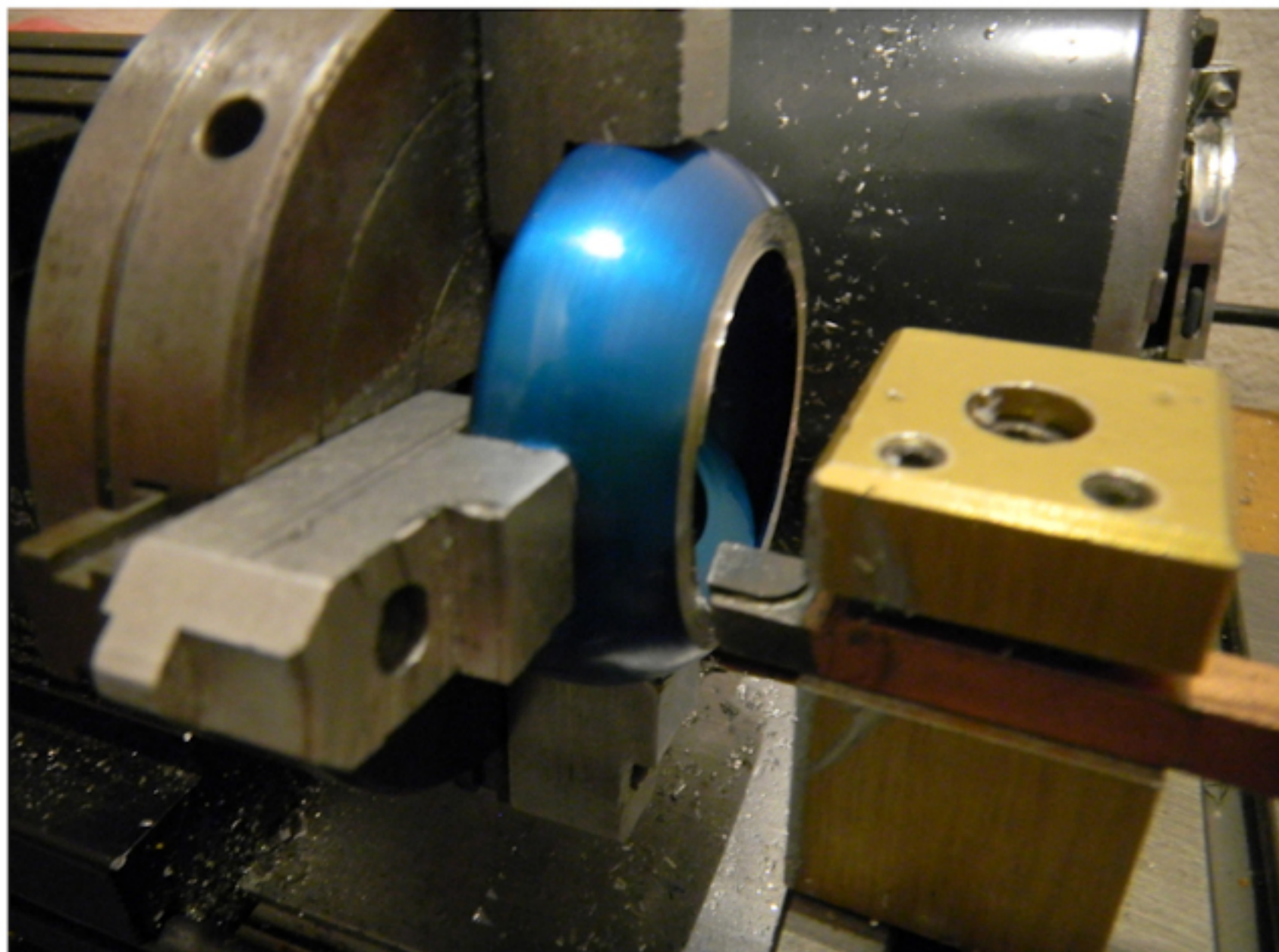


The SkyWalker had a pretty severe wobble to begin with, so the first step was to steal a new hub from another yoyo.

I chose the DNS because it has a solid bearing seat and response setup, a color I thought would go well with the nickel plated Skywalker, and well, I made them. :)



The hub was removed in a slightly different manner than usual. Normally I punch through the yoyo from the front, but I wasn't sure how large of a hub section I would need.

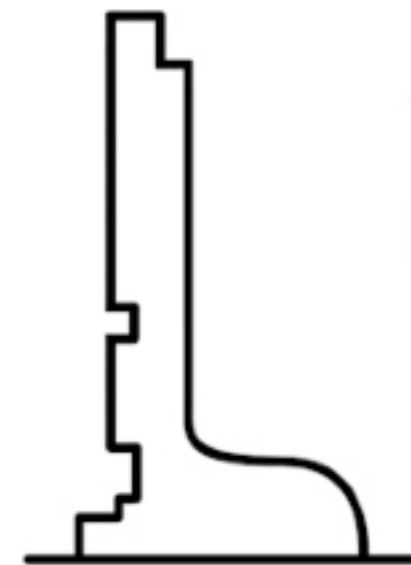
By simply taking a right-handed cut from outside of the yoyo, across the face, I was able to remove the entire hub section.

Since this is a yoyo I made, I looked at the original CAD file and found the thinnest area to cut.





The cut out hub, cleaned up and ready for a step to be cut. This diameter was ultimately reduced to make a smaller hub.



This is a rough sketch of the final shape of the hub.



The two removed hubs. You can see the flat surface of the shell where I removed material to release the hub section.

I chose the area where the cross-section of the shell curve was thinnest.





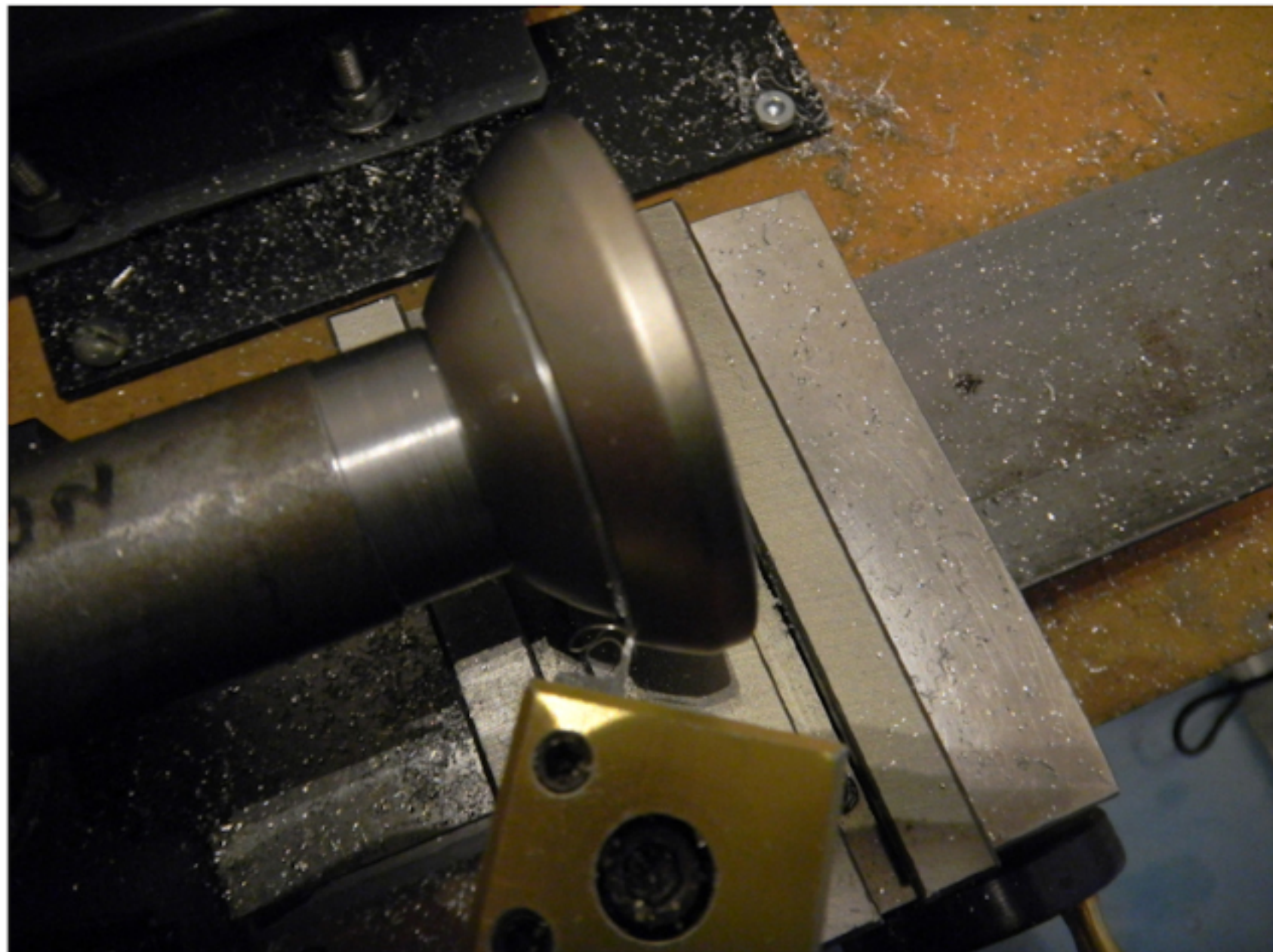
The hub pressed into the Skywalker body.

The hub was cut from the Skywalker by cutting from the front of the yoyo. A reversed step was cut into the hole where the hub was removed so that it would hold the DNS hub.

The surface was then machined smooth to hide the connection.



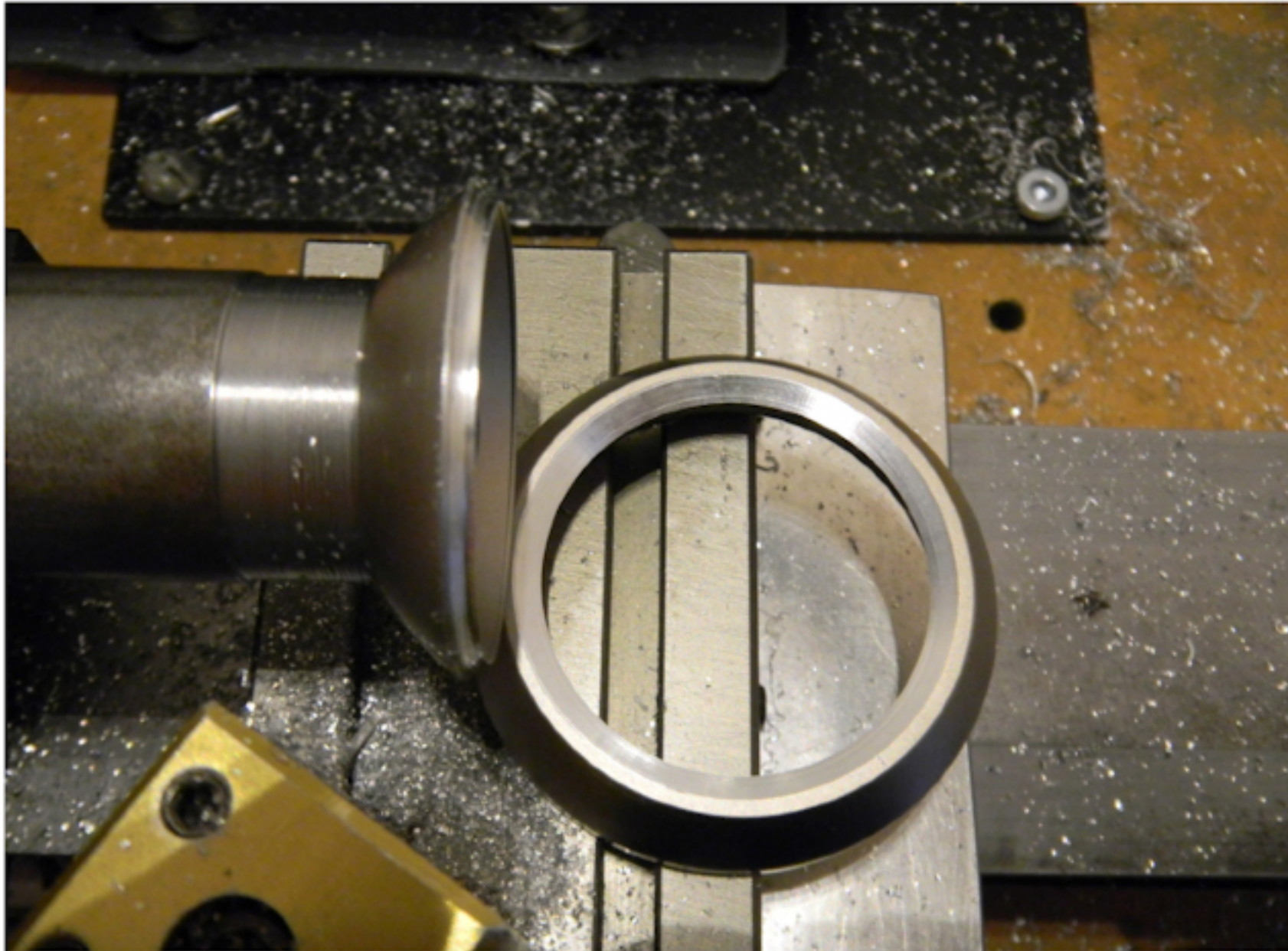
This is a rough sketch of the step cut into the shell.



The rim of the Skywalker was removed at an angle to make the cut as short as possible.

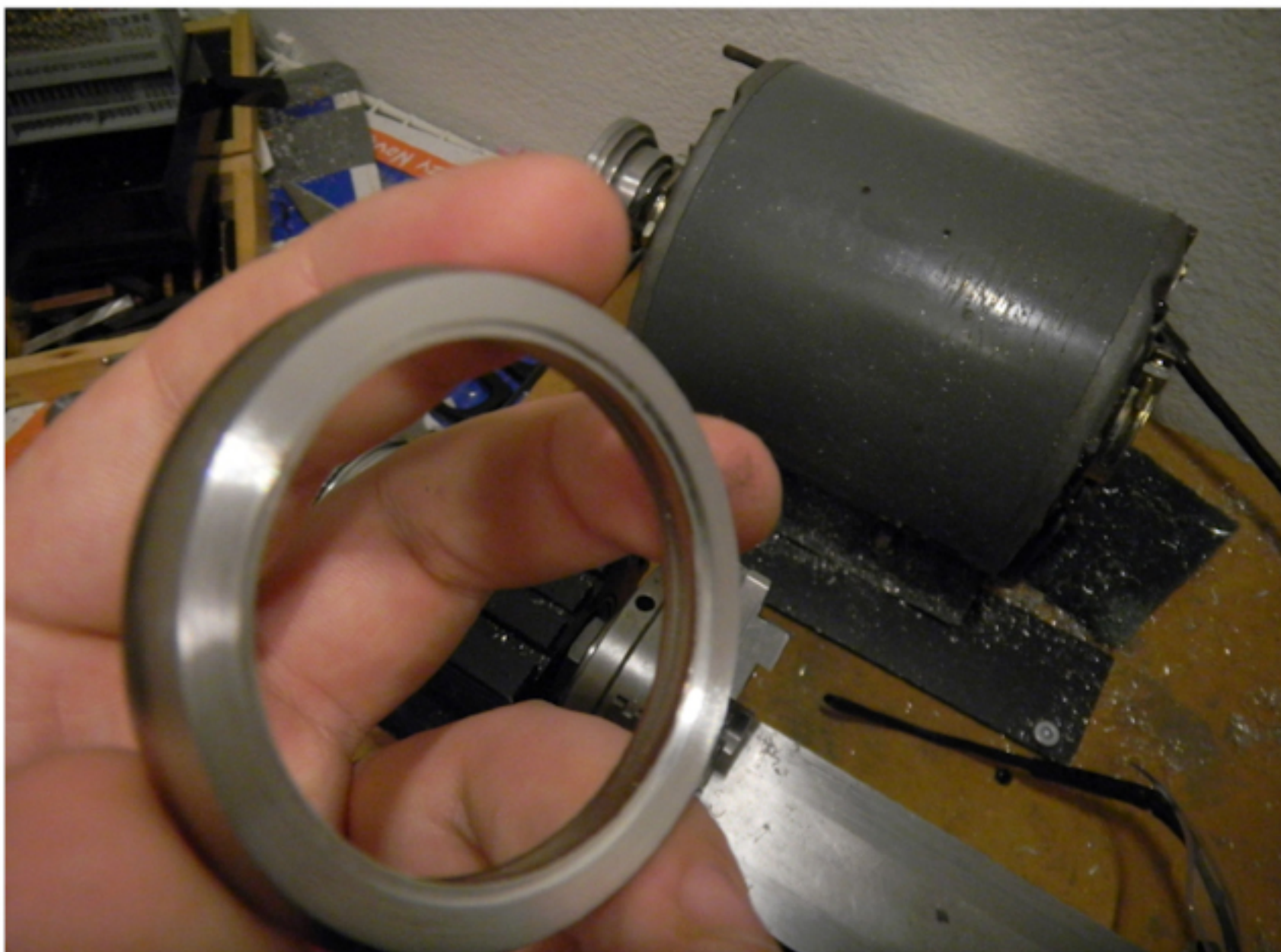
The cut started at the bottom of the joint between the rim and shell so that the entirety of both were preserved.





The angle of the cut allowed a larger, thicker section of the rim to be preserved, removing as little material as possible between the shell and rim.

This is a fairly tricky cut as you are cutting in two directions at once, so great care must be taken as to not lock up the piece and cause a snag.

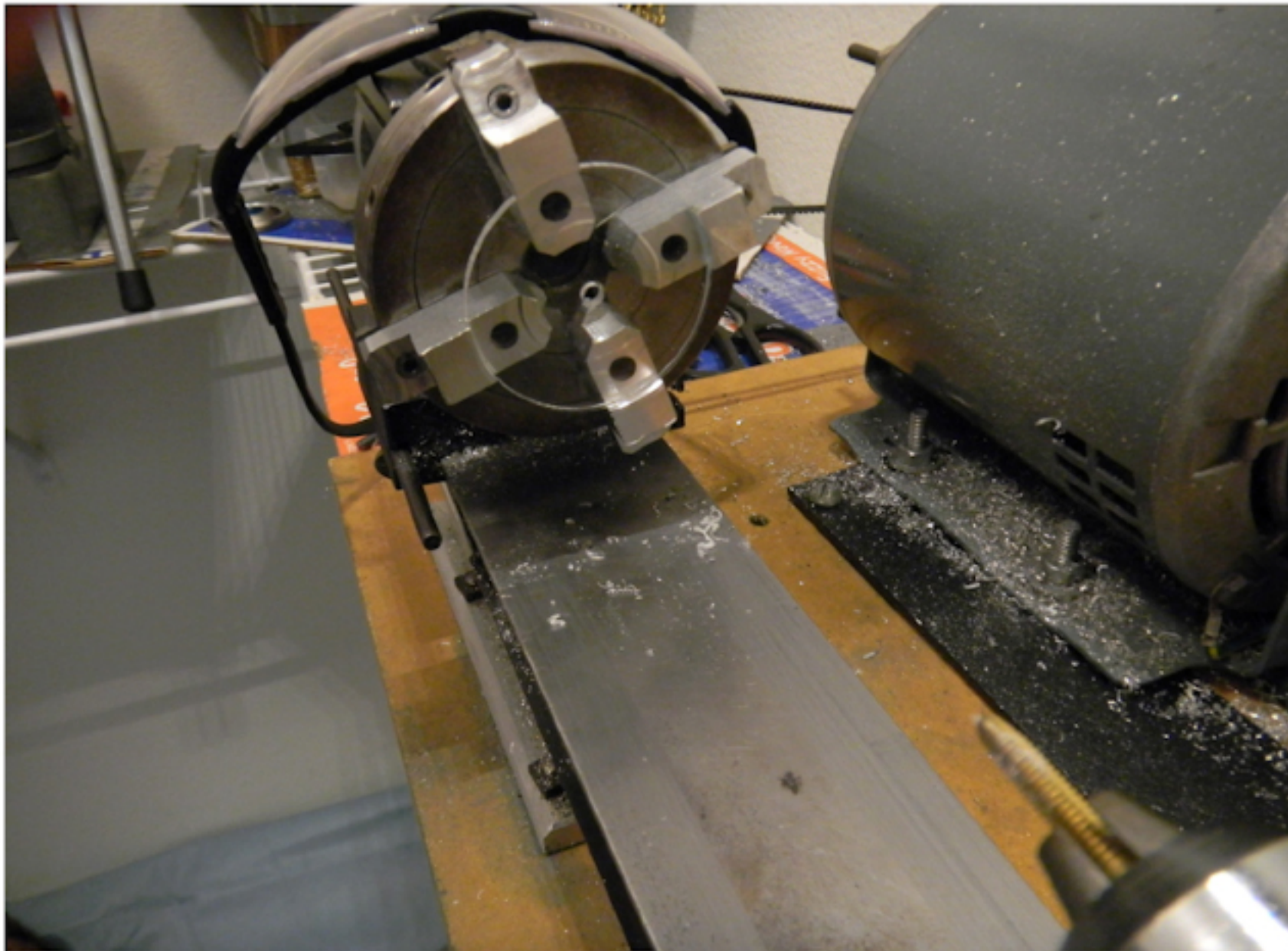


The rim was machined smooth, some width was removed, and a step was cut similar to those cut for the hub.

The rim had to be cut so that it ran 'true' in relation to its outer diameter, so a small amount of material was removed from the inner diameter as well.

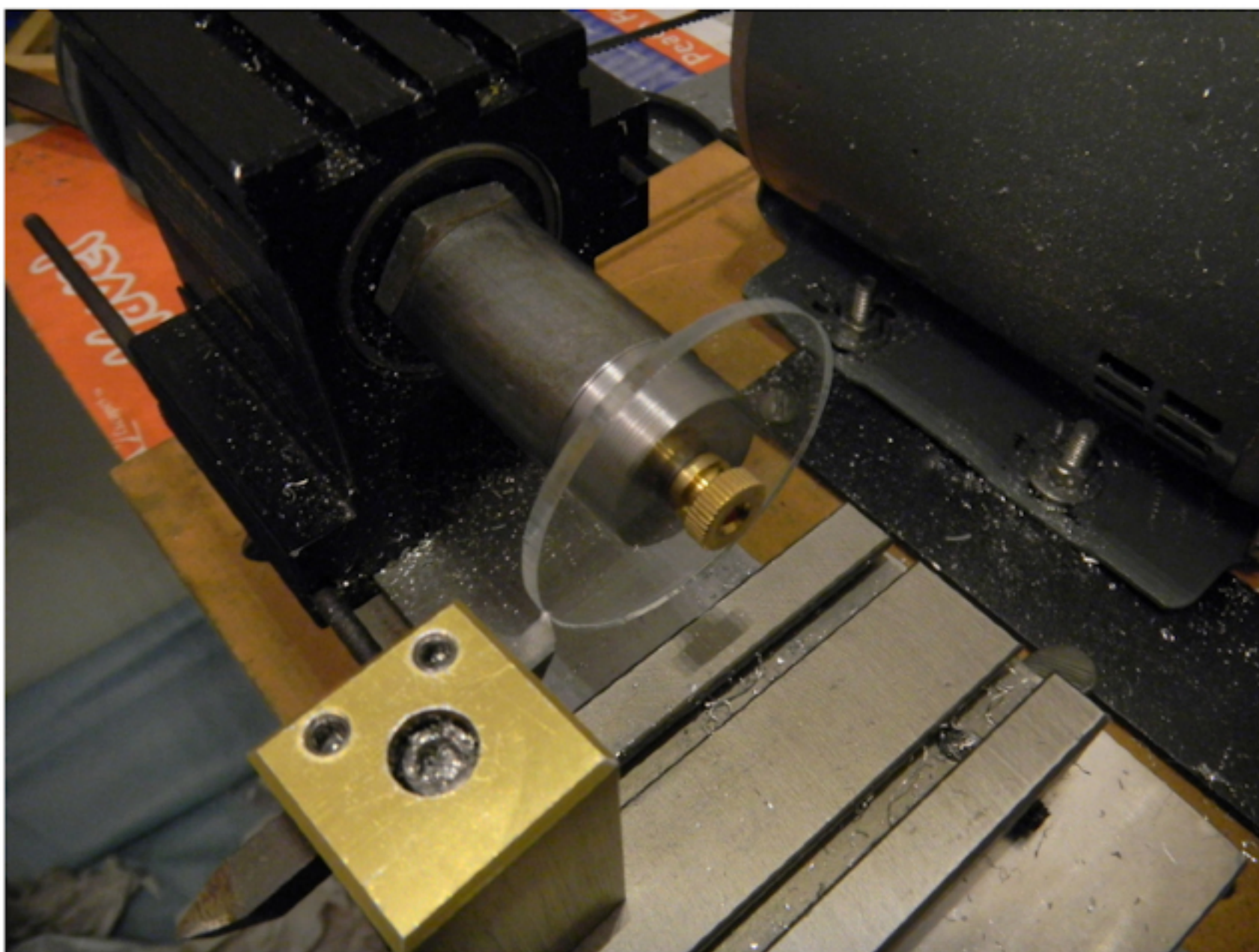
A step is created in the shell piece as well.





An acrylic disk is mounted, then drilled and tapped with an 8-32 thread.

This isn't meant to offer any real support or durability, but to act as a way to turn the piece from its center.

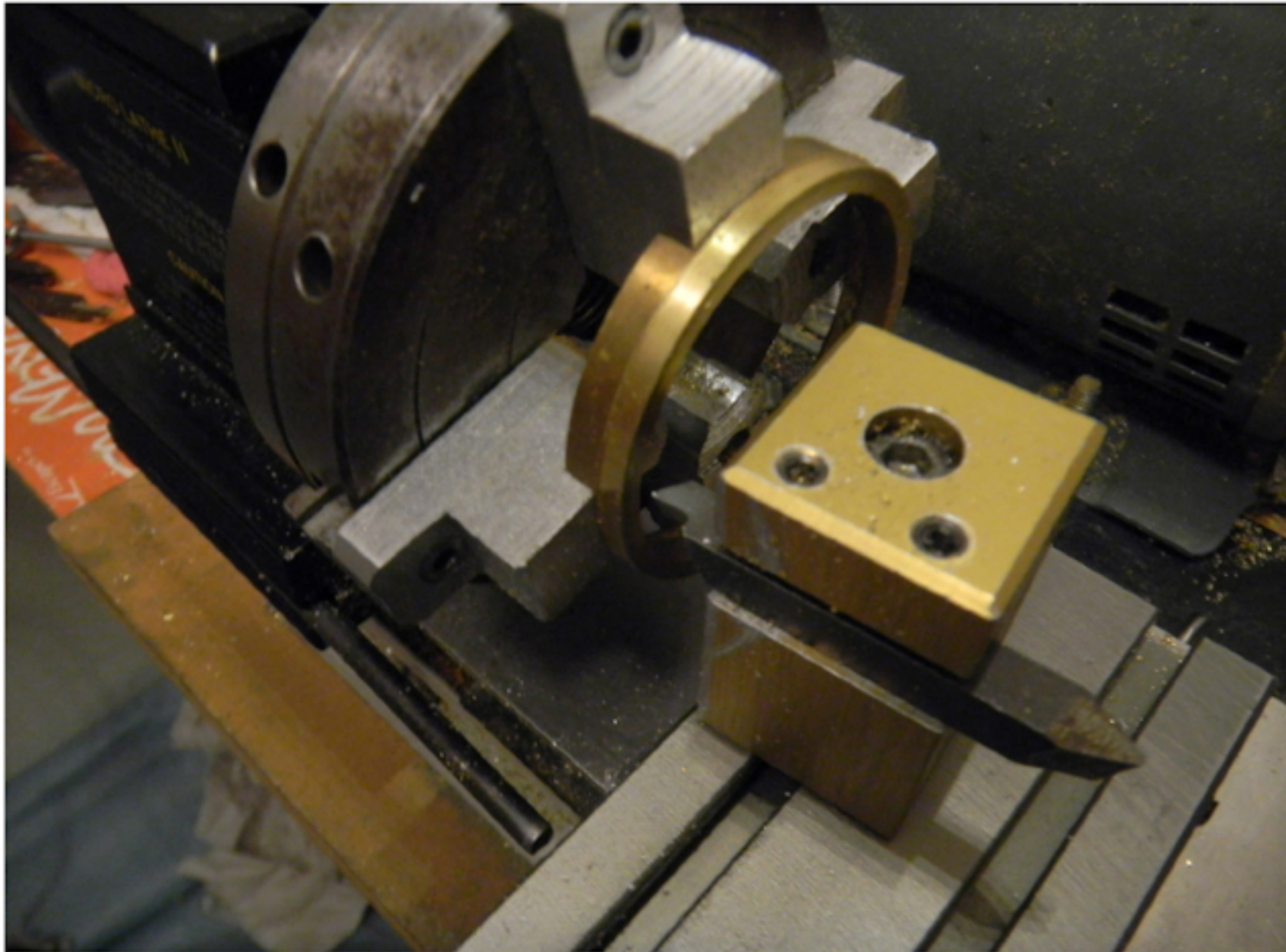


The piece is then screwed onto a piece of threaded rod, which is then tightened down on by a thumbscrew. This pulls against a nut on the other side of the headstock, creating a 'draw-bar'.

The outside of the piece is turned so that it is now perfectly concentric with the inner hole and a step is created on the outside to match that in the metal rim.

The piece can now be held from the outside in jaws, then the inner diameter turned to match the side of the step made in the shell.

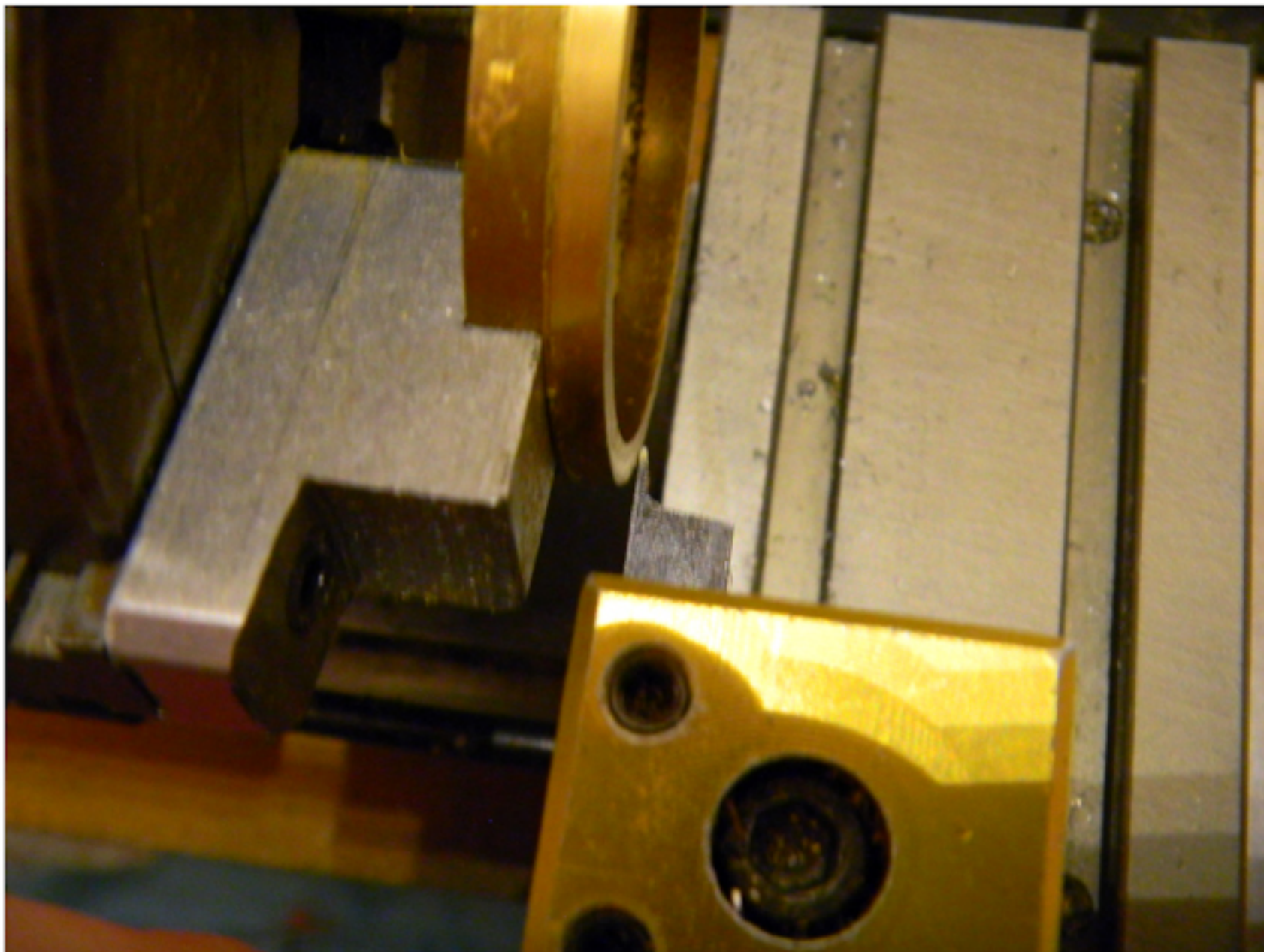




A brass tube is machined to size.

The outer diameter is cut up to the chuck jaws. Then the piece is turned around and held from the newly cut section. This insures that the piece is concentric.

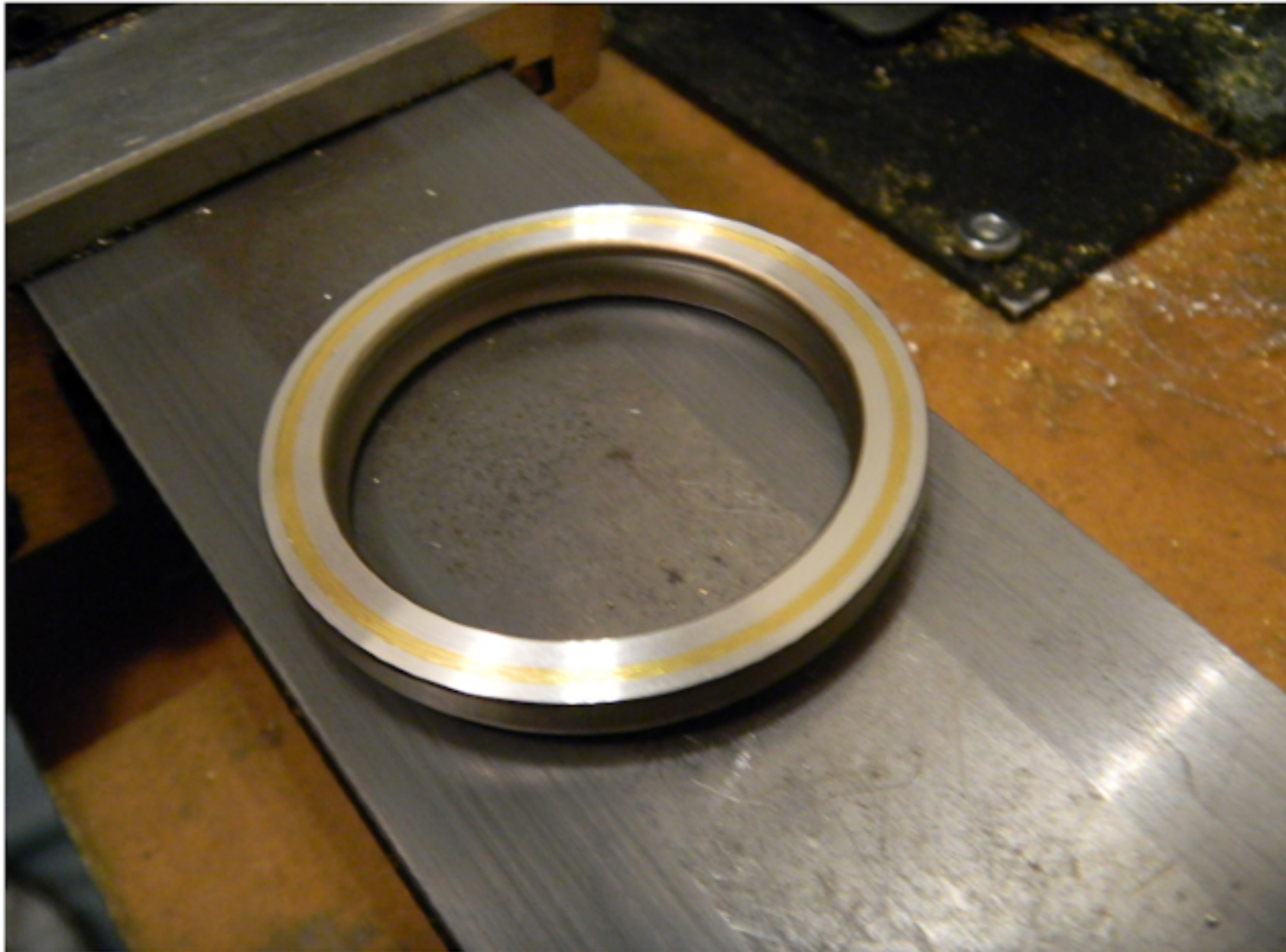
The inner diameter is then cut to size.



The newly machined brass section is parted off with a very, very thin bit.

WD-40 makes a decent lubricant here, and using compressed air to blow chips free as you cut is a must to keep the piece from snagging.





A groove is cut in the rim to match the new brass weight ring.

The ring is pressed into the groove, then cut down to be flush with the edge of the rim.

A final pass cuts both rim and brass ring to make the transition between them as smooth as possible. This also exposes the bare aluminum, which can be polished.



The pieces are assembled, mostly with a tight press fit, plus the aid of a few dabs of glue.

The tops of the acrylic disks are cut to match the angle of the slope of the rim

Everything gets cleaned and polished. This is extremely labor intensive due to the various surfaces.

In this one yoyo, there is nickel plating, raw aluminum, brass, and acrylic. It picks up fingerprints extremely quickly, so it is dubbed 'The White Glove' - Kyle Weems (kyo)



