A RF-30 Mill/Drill Y-Axis Gib Lock, Version 1.0

By R. G. Sparber

If you feel a different amount of resistance as you move the RF-30 Mill/Drill's apron in the +Y versus -Y directions, a loose gib might be involved.

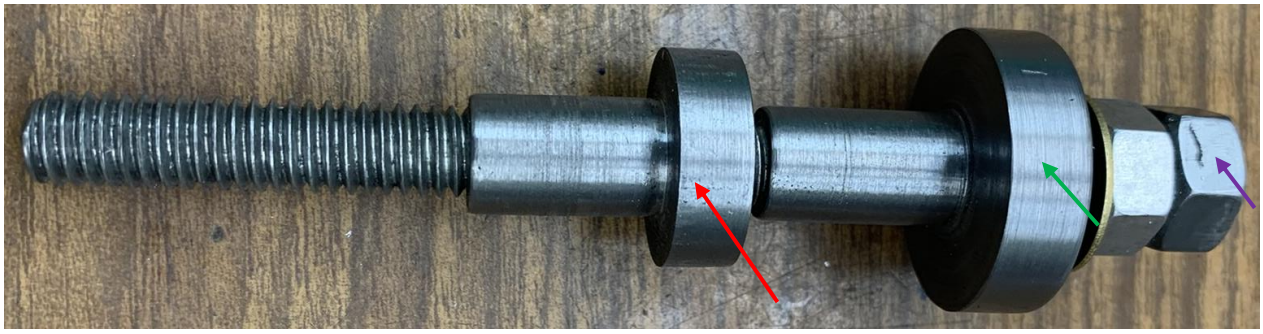
As the apron moves away from the front of the mill, the gib tends to slide out of its pocket. This decreases friction.

As the apron moves towards the front of the mill, the pocket tends to move over the gib, making the apron harder to move.

The solution is to lock the gib to the apron so there is no relative motion.

The original gib lock depended on a close fit between the gib slot (red arrow) and a screw head. That didn't work well. I replaced it with a pair of flange nuts on a 5/16-18 bolt. That worked for seven years. But yesterday, it reached end-of-life. The tiny interference area between flange nut and gib wore away enough to permit excessive gib movement again. Fortunately, the gib was easy to file to square up the slot and end of the gib in a few minutes.

Time for a better fix. The goal was to increase the bearing surfaces significantly to minimize this wear. When I finished this project, I realized I had built almost exactly what Dave Kellogg had suggested back in 2015.



The smaller stop fits mostly inside the apron while the larger stop (green arrow) presses on the end of the gib.

I didn't have the right length of bolt, so silver brazed a nut (purple arrow) on the end of a length of threaded rod.

To install, I screwed the assembly into the apron until the threaded rod bottomed out. Then I put a wrench on the end nut and locked the rod into the apron. Next, I used my finger to turn the smaller stop until it was at the "proper" location, a trial and error task: select a position, move the apron in and out, and feel for excessive drag. Then I backed the stop out a little and retested. The goal is to have a small amount of drag, so side play of the ways is minimized.

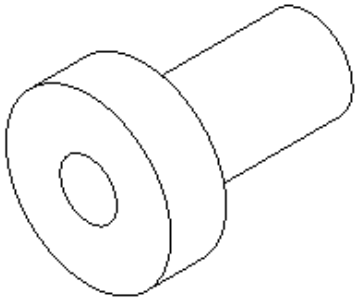
With the small stop positioned, I finger tightened the large stop against the end of the gib. Then I tightened the locking nut. It pressed on a washer which compresses a lock washer. Friction caused a small additional rotation of the large stop. The gib is now solidly locked to the apron.

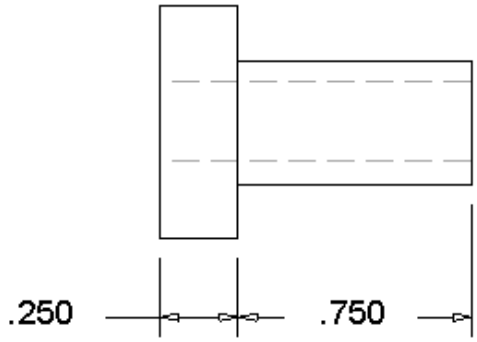
Notice that my stops have long, small diameter sections. These serve two purposes. First, they help resist the larger diameter sections tilting when under load. They

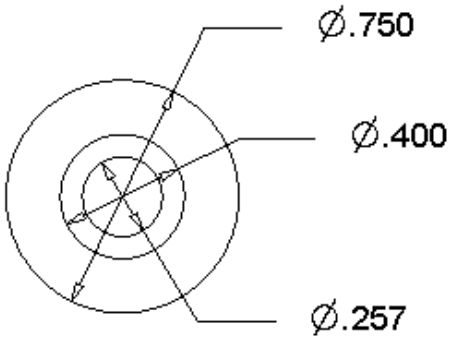
also reduce the bending of the threaded rod. Bending would cause the gib to move relative to the apron.

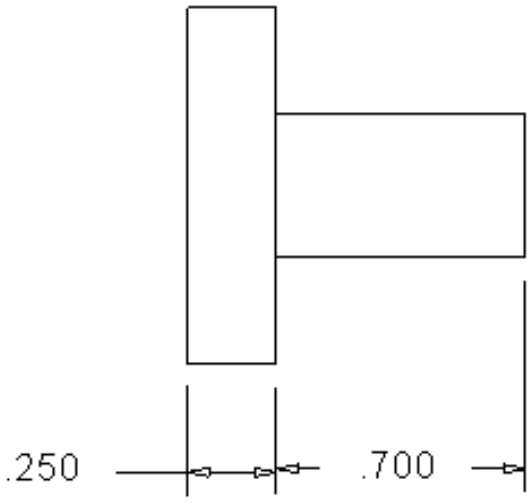
The Stops

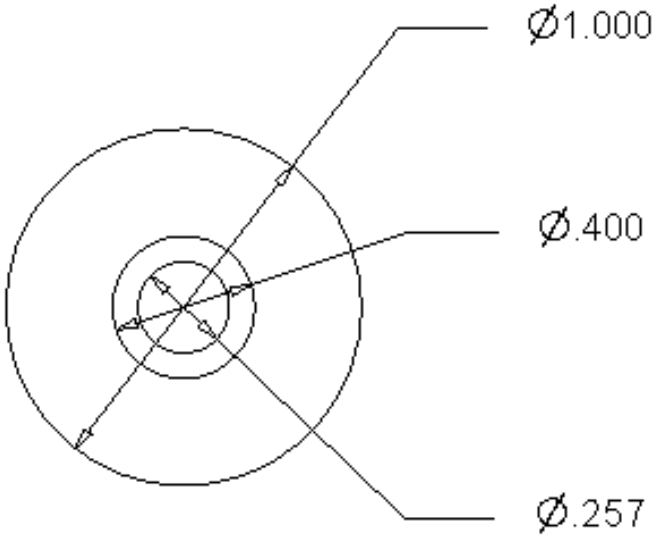
Both parts are CRS. The 0.257 inch diameter holes were tapped 5/16-18 through.











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