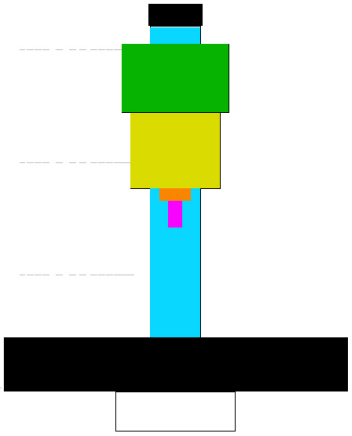
An Alternative to Locking Head Rotation on a Round Column Mill/Drill

By R. G. Sparber



A round column mill/drill has one feature/limitation that drives many people crazy. When you raise or lower the head, it can rotate about the column. You then lose position on the table. The urge to fix this problem has hit just about every owner of this machine at some time. Sure you can avoid the loss of alignment most of the time with good planning plus avoiding extra long tooling. But it remains the "holy grail" of mill/drill fixes. No matter what the fix, there will always be some loss of position. The trick is to employ a fix that is acceptable to the user. I'm a stickler for precision and have found that once I loosen those head bolts, accuracy is lost. So instead, I started to think about how the "big boys" do it.

A Bridgeport mill has massive ways that permit the precision raising and lowering of the table while the head doesn't move. Sounds like a great idea and can be practical if we put a restriction on it. Rather than have this movement be continuous, I will permit my table to move up and down by 0", 1", 2", and 3". I would still move the head to get in range before starting my machining on a part. But the table could be raised and lowered as necessary after that.

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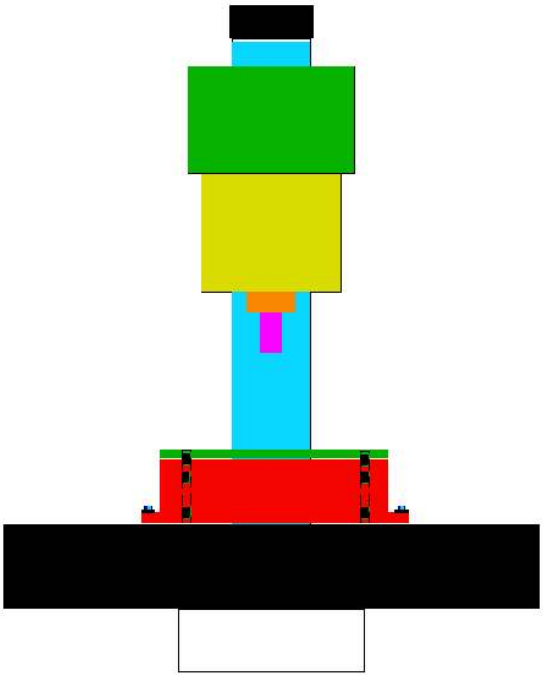
A Poor Man's Knee

My approach is to secure the part being machined to a ½" thick slab of aluminum tooling plate. This plate would have an array of threaded holes that would be used with hold down clamps. The plate would also have close fitting ½" diameter pins that would provide alignment to the plate below it. Each of the lower plates would have both a pair of close fitting holes and pins. The bottom plate would also be ½" thick but would be wider along the X axis to provide bolt holes that anchor into T nuts.



My zero height position is with the top plate fit into the base. To raise up 1", add the 1" thick tooling plate with pins between them. For 2", replace that 1" plate with the 2" plate. For 3", use both of them. If more height is needed, make a 4" thick plate. That will get you from 0" to 7" in 1" steps.

To secure the plates vertically, we could use socket head screws set in counterbored holes but I would prefer to use external hold downs to keep things simple. The hold downs might be needed to secure the part anyway.

At this time, I do not intend to make this attachment. If you do make it, please send pictures!

Your questions and comments are welcome. All of us are smarter than anyone of us.

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