

Final Assembly of Feed Crank

By R. G. Sparber

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The feed crank plate was machined in the last article. Now I will add the plates that form the T slot plus cut the T nut.



Here you see the finished part. Two slabs of CRS are screwed to the feed crank casting to form the T slot.

Only one dimension is critical here – the slot must be uniform. For this reason, I did almost no measuring and instead relied on spacers of known thickness.

My first step was to rough cut the slabs of CRS. I then placed them on the castings to mark the curve. My belt sander was used to finish the ends. The two holes were marked out about 0.8” from the end. The exact distance is not important.



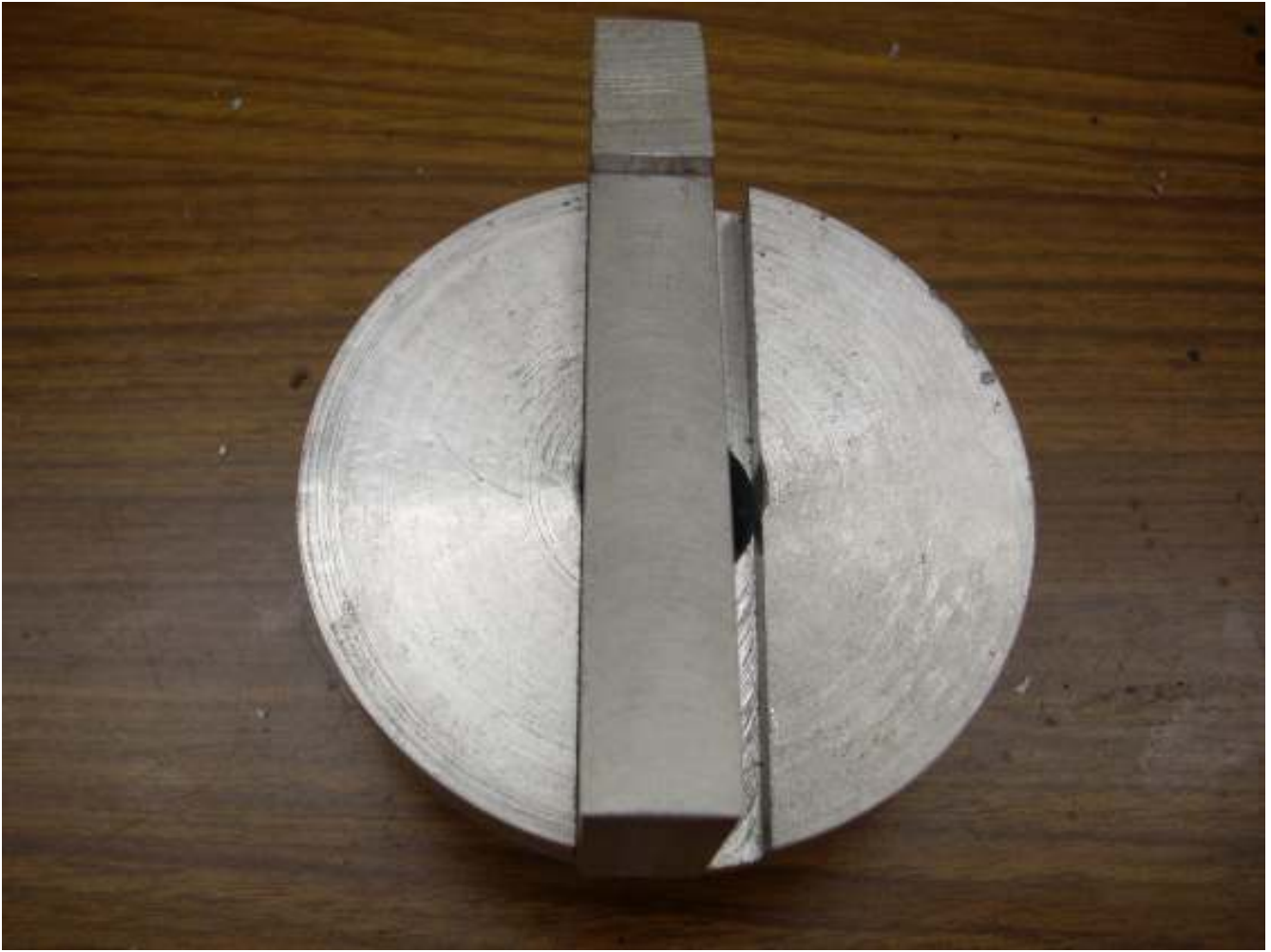
I don't care exactly where the holes are on the plates but I do want them to be uniform. I erected a fence to guide my drill press vise. This insures that both holes are the same distance from the edge of the plate. The first hole is being center drilled here. The vise is slid to the left and the second hole center drilled.

I then drilled my clearance holes for the 10-24 screws.

The second plate was then clamped into the vise with the finished plate on top. I spotted through to mark the second plate and then removed the finished plate. Clearance holes were again drilled.



Now it is time to fit the plates to the casting. The machined slot is 0.750". I have a piece of scrap 0.500" thick.



This leaves me a 0.250" wide gap.



My first plate is clamped to the casting with the inside edge snug against my 0.500" spacer. This edge is then parallel to the far edge of the 0.750" slot and 0.250" overhanging the near edge.



It is then a simple matter to spot my clearance drill through these holes.



The cones left in the top of the casting accurately guide the tap drill.

With the plate removed, I chucked up my spiral point 10-24 tap. A squirt of WD40 is my cutting fluid. The drill press is run up to full speed and then power removed. As the spindle coasted down, I ran the tap into the casting. Plenty of power to fully tap the hole.

The casting is deburred using a countersink mounted in an old brace and bit drill.



With the 0.500" spacer back into the slot, I do my final fitting of the first plate.





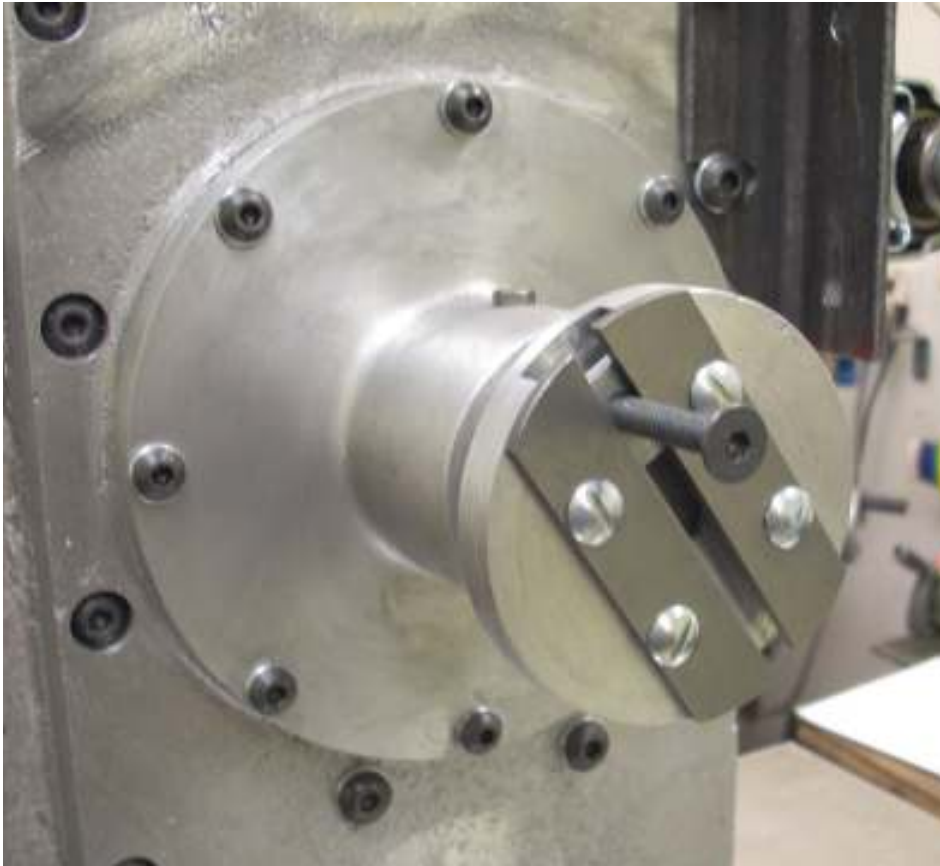
Now I employ a piece of 0.250" thick scrap to set my second plate.



I again spot through the plate with my clearance drill to cut cones into the casting. As with the first plate, I drill and tap for the second set of screws.



The first plate was set parallel to the far slot edge. I now use it and my 0.250" thick scrap to do my final positioning and screwing down of the second plate. The gap is now uniform and 0.250" wide. It is far more accurately set than needed yet no measuring was done.



The T nut is just a piece of 1/8" thick CRS tapped 1/4-20. I milled it square and is a sliding fit to the slot.

I see a potential safety hazard here. The ends of the T slot could snag a finger. I may later add covers to the ends.

Not shown in this article was that I cut the shaft to length. Not much to it except for having to remove and replace a lot of screws.

Rick Sparber

rgsparber@AOL.com