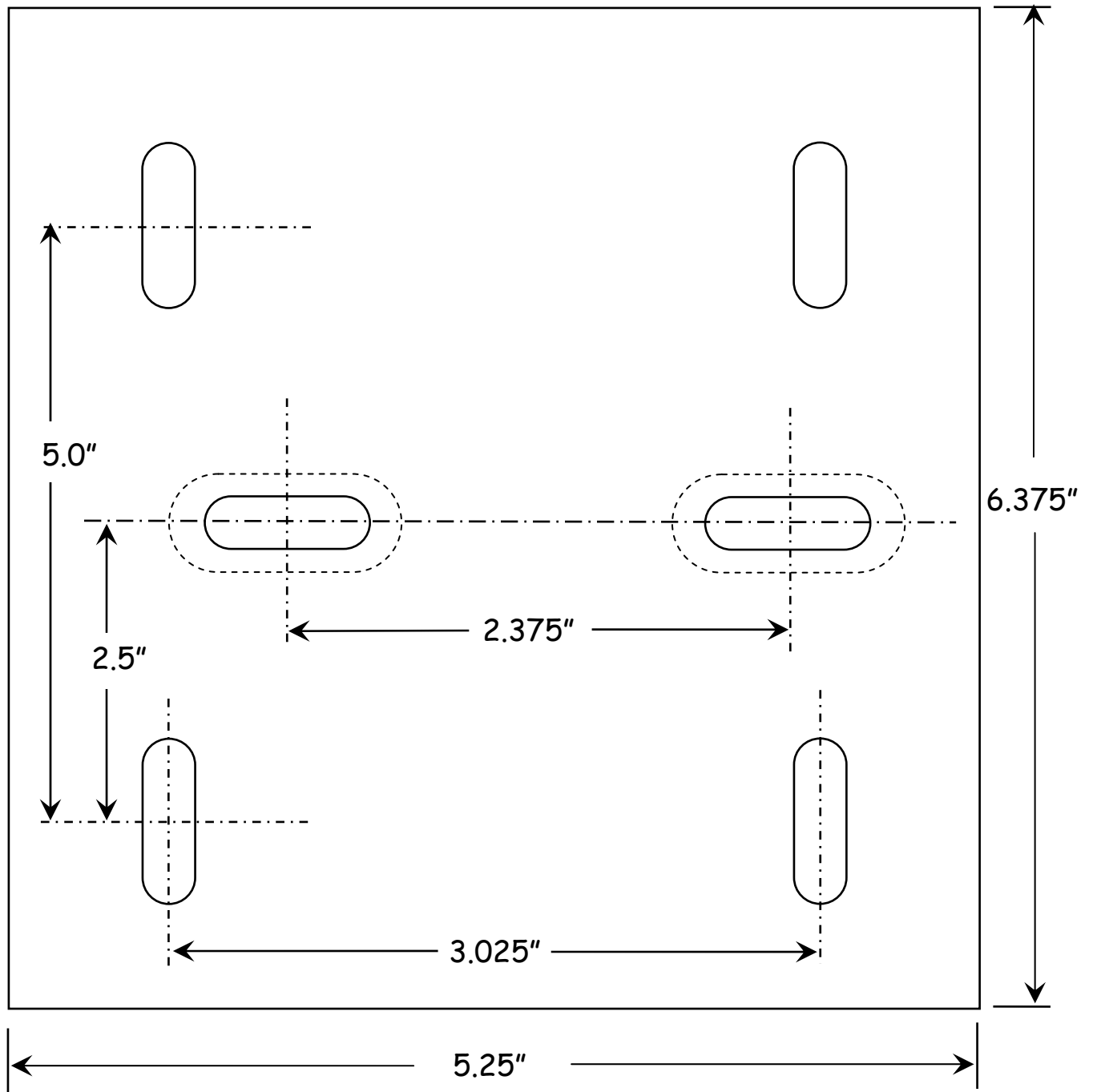
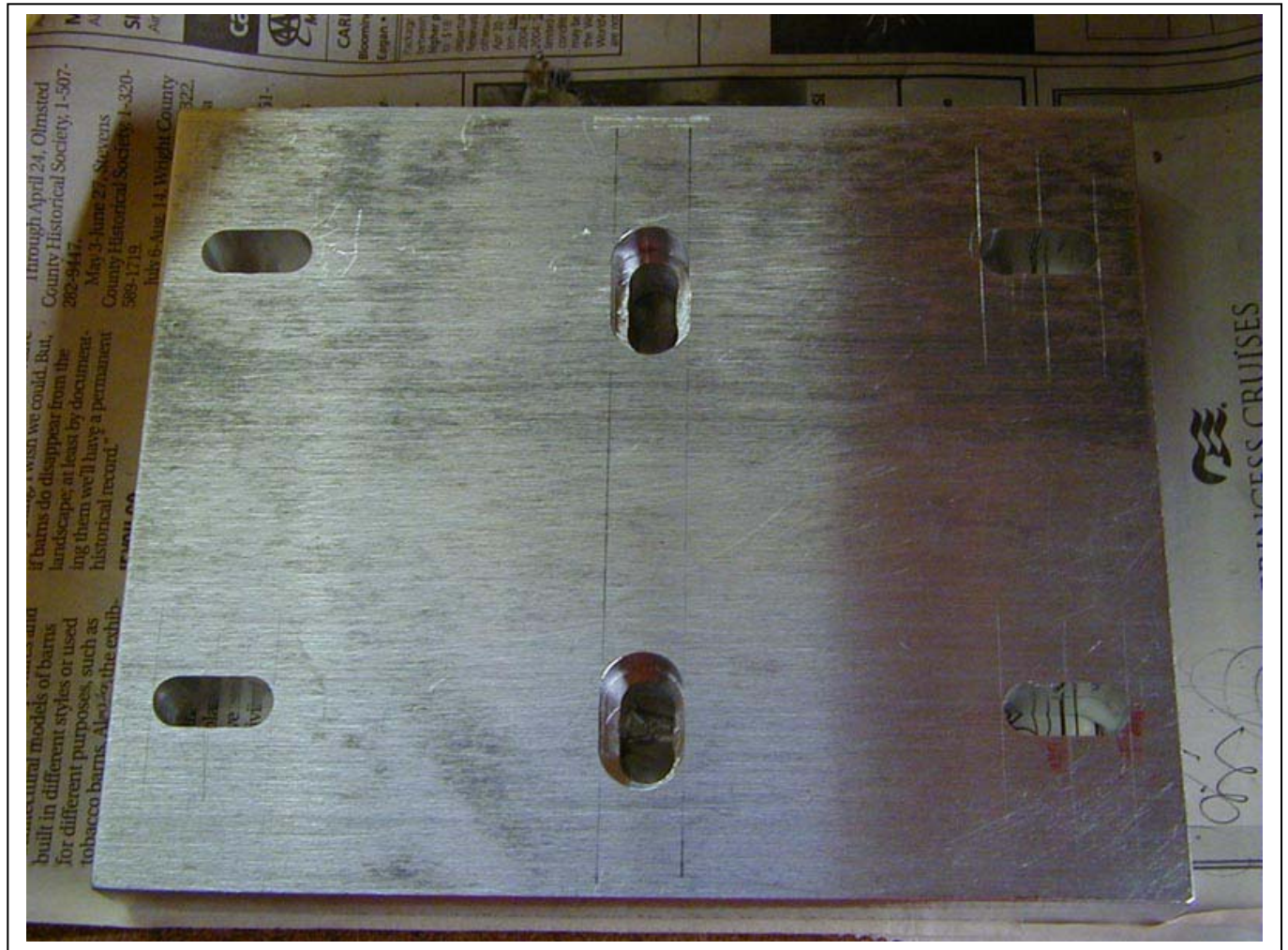


**Setting Up My HF 9x20 Lathe
With A Variable Speed DC Motor**

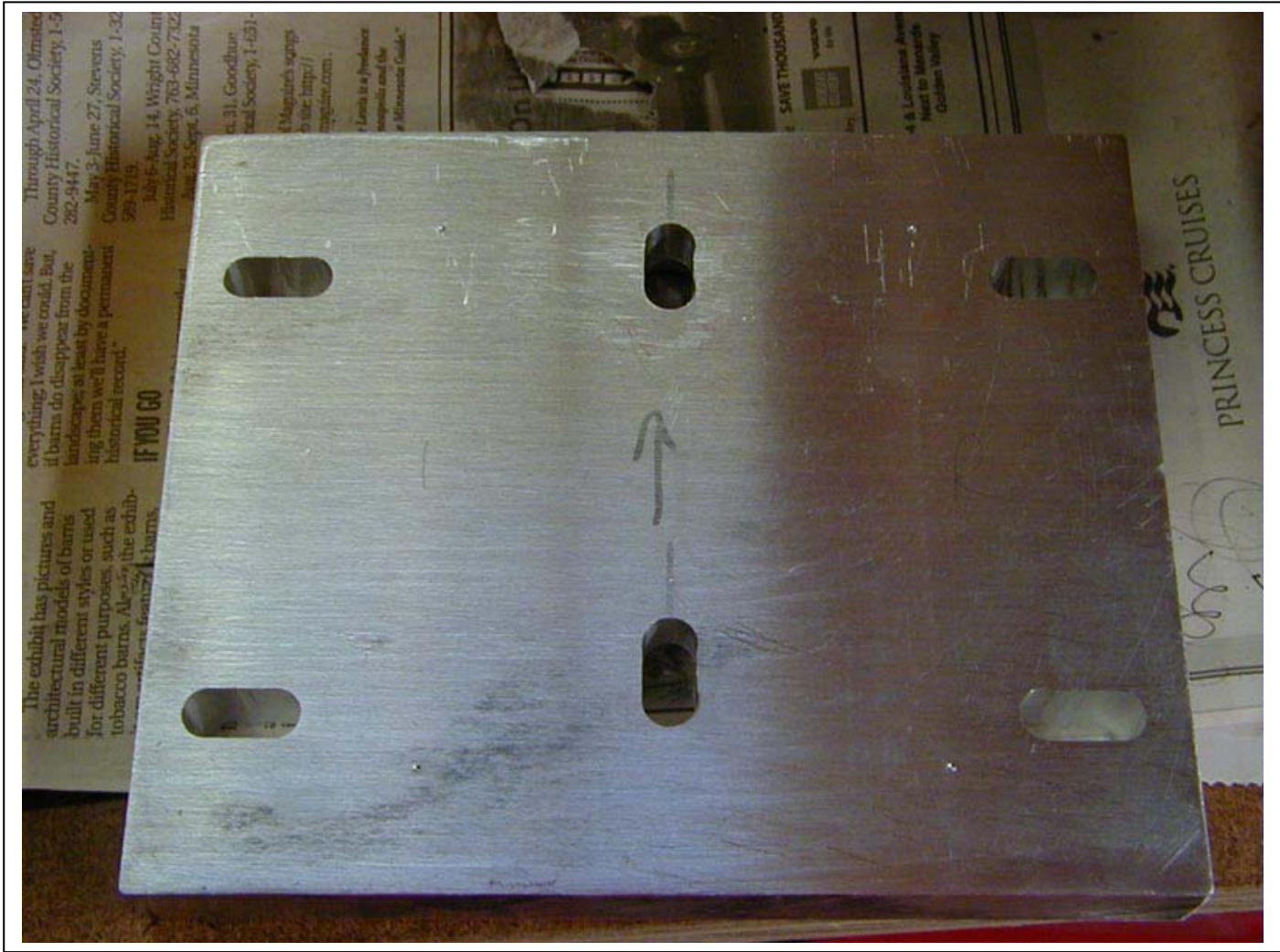
12-13-2004 Ed Kadlec



I used 5/8" aluminum plate for the motor mount.



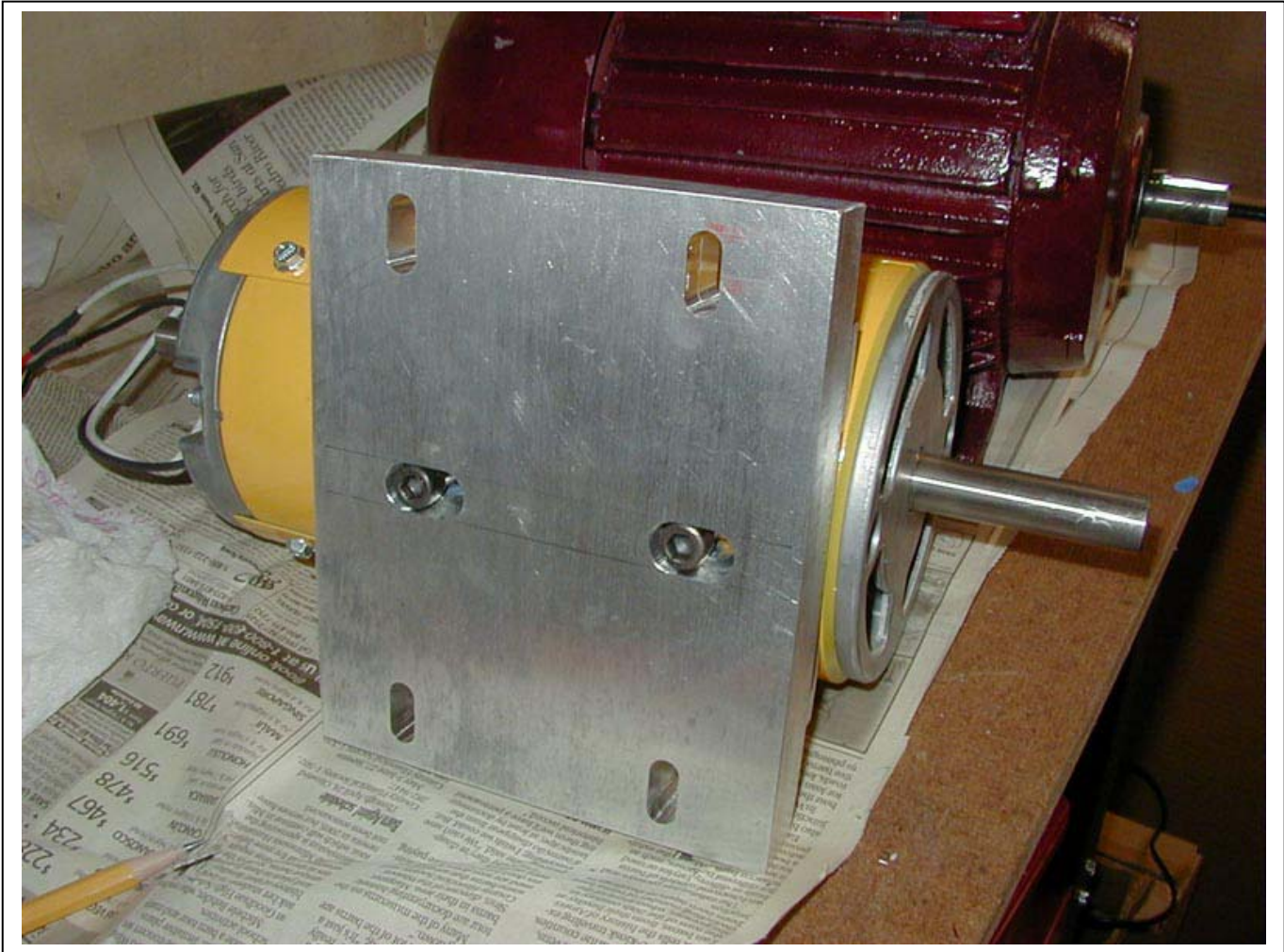
The slots I milled in the mounting plate for the DC motor.



The other side of the mounting plate.



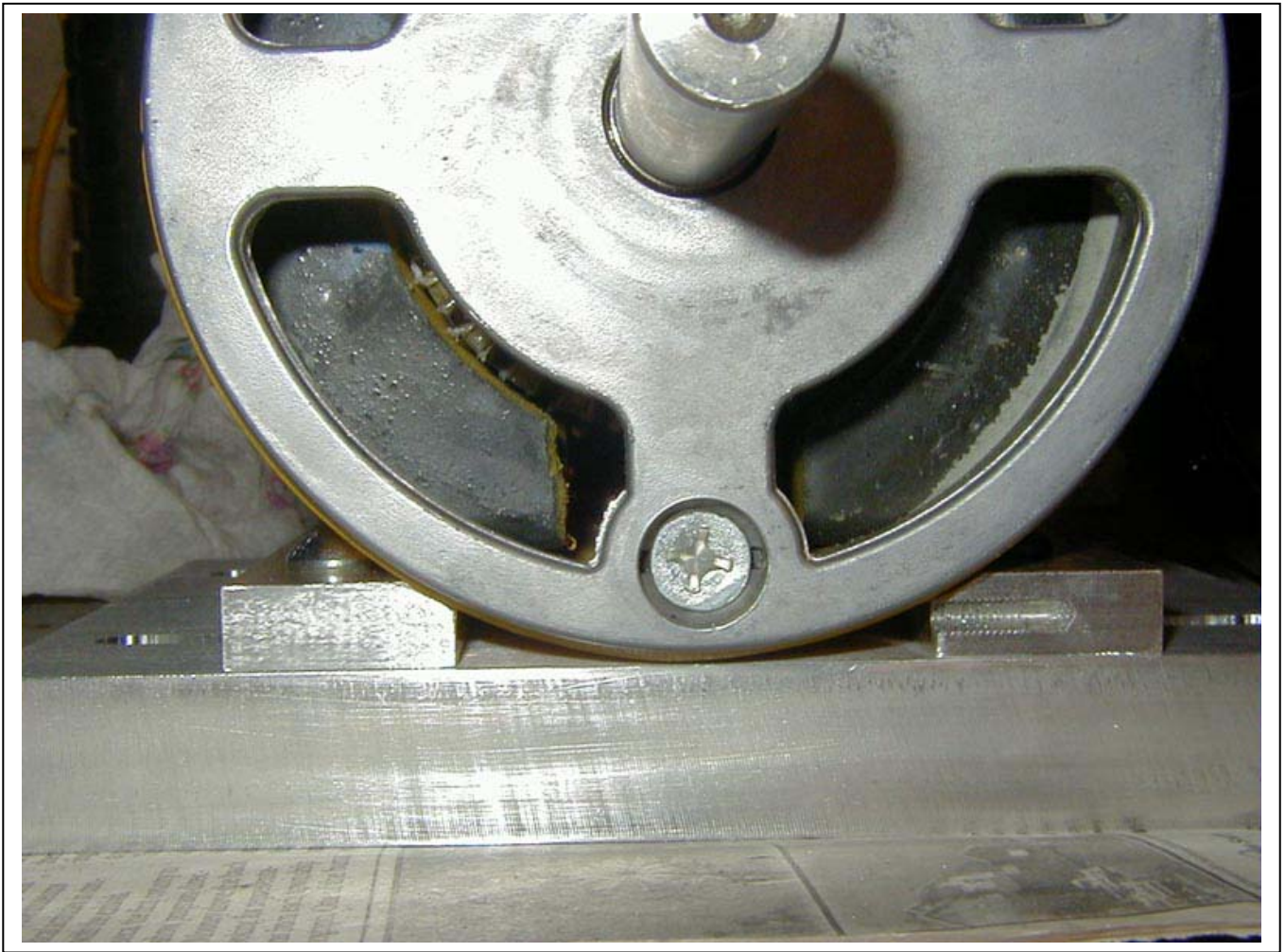
The DC treadmill motor I won on ebay.



The mounting plate on the motor.



This picture shows the slanted strip edges which bear against the motor housing. I ended up using epoxy to attach the strips to the mounting plate.



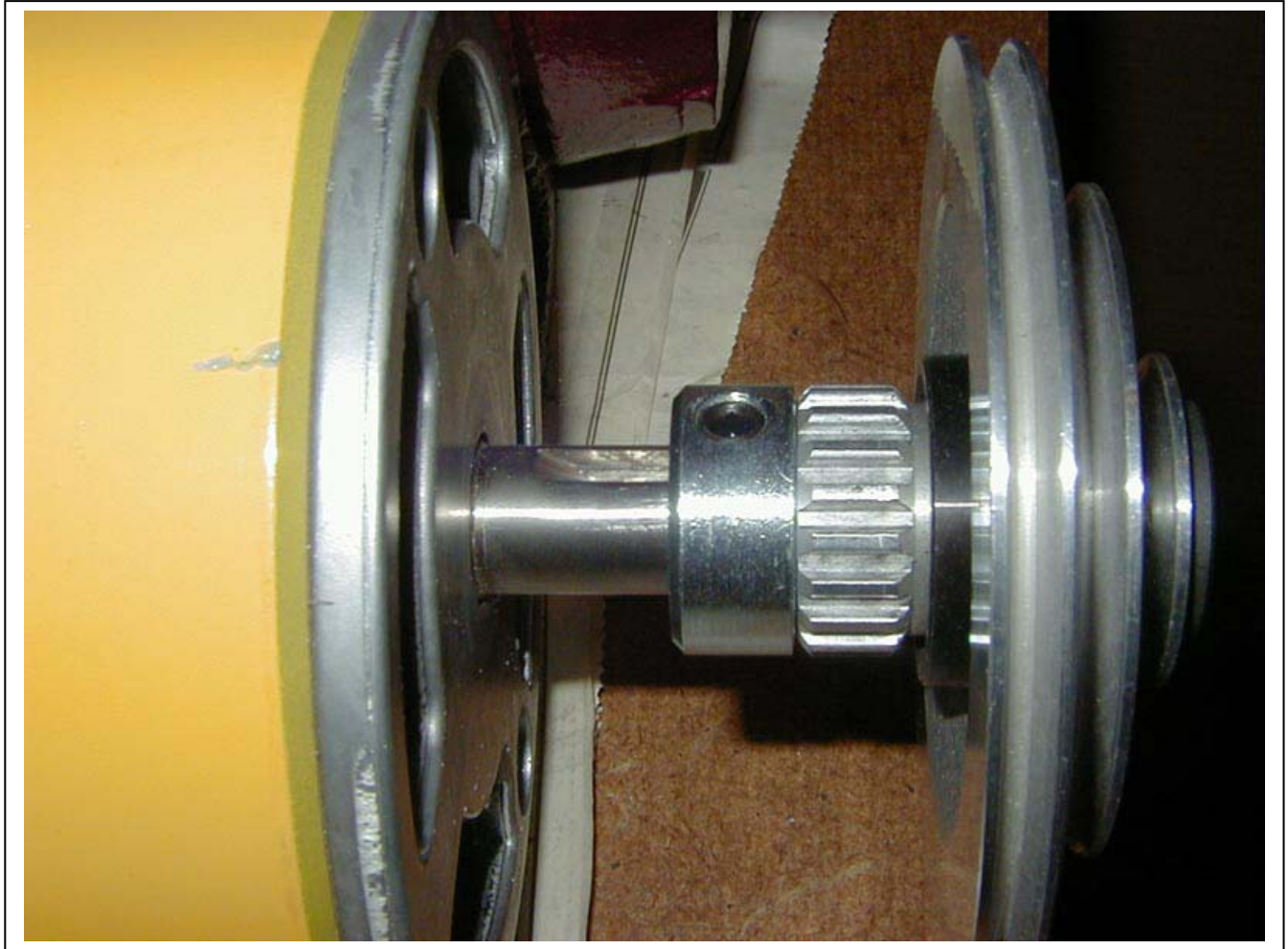
This shows how the slanted edges of the strips bear against the motor housing.



These pictures show a drill and tap guide that I made to help drill straight into the end of the motor shaft. I drilled a hole with a number 7 drill and then tapped the hole with a $\frac{1}{4}$ -20 tap. This hole is used to hold the large flat washer against the pulley like it does on the AC motor. The large hole is sized for a snug fit on the motor shaft. Mine was $\frac{5}{8}$ ". The small hole is drilled with a number 7 drill bit. Slip the guide onto the motor shaft and drill the end of the shaft with a number 7 drill bit using the guide to guide the drill bit. Make sure to use a high quality drill bit because the shaft is made of fairly hard steel. Then drill out the small hole on the guide to slightly larger than the $\frac{1}{4}$ -20 tap. Then use the guide to guide the tap while tapping the hole.

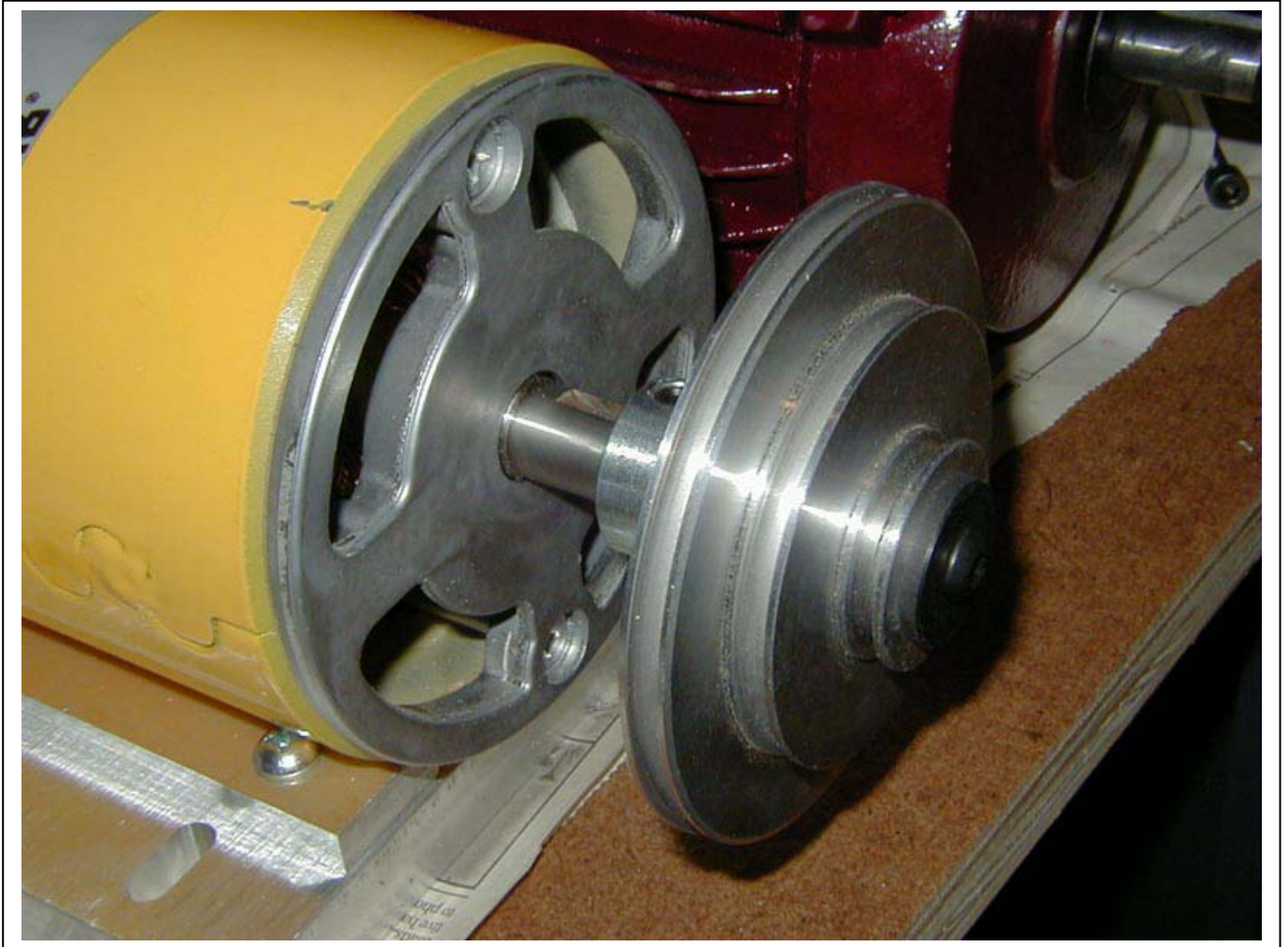


This picture shows the drill/tap guide in use tapping the hole in the motor shaft.

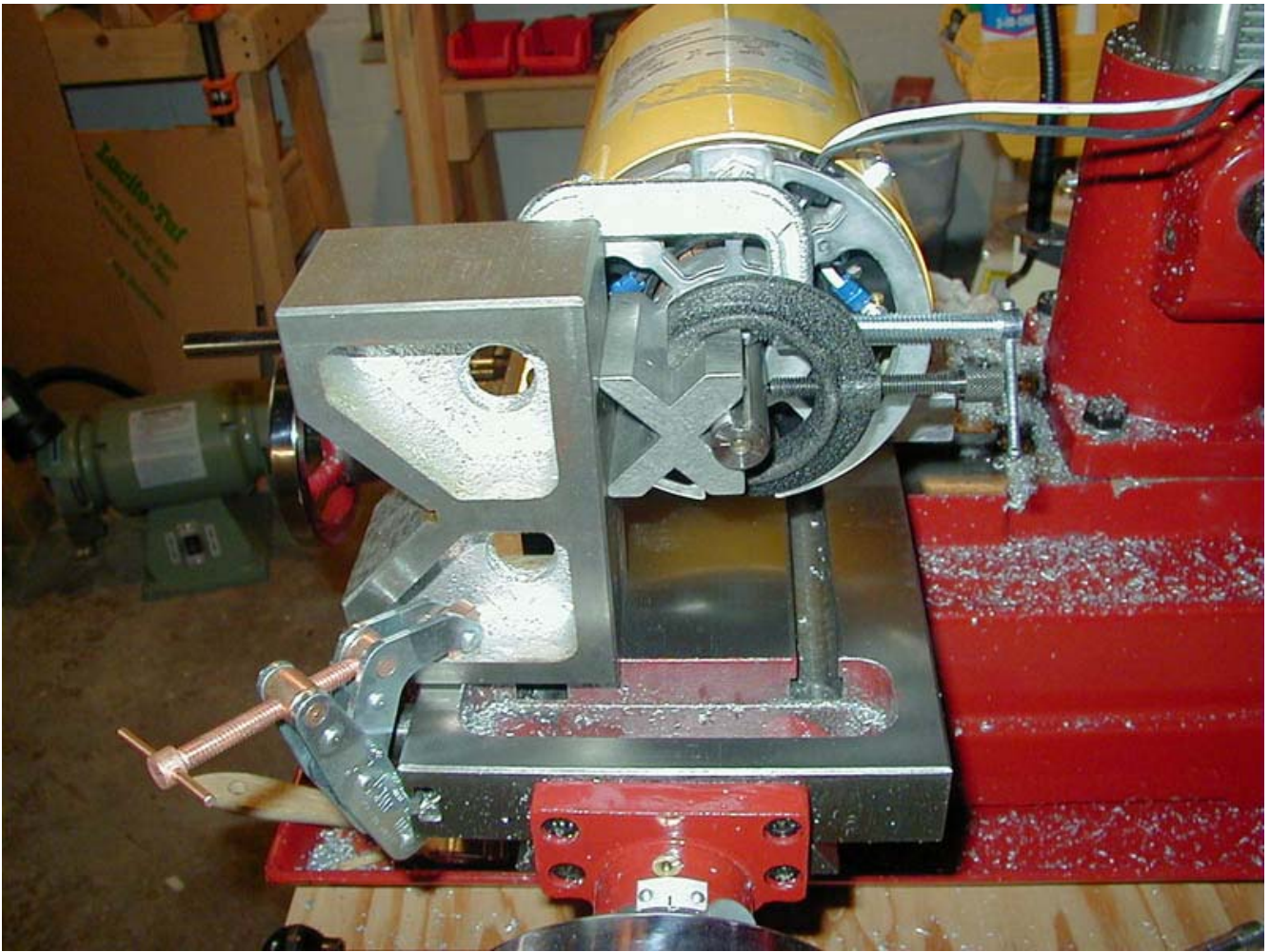


This shows the shaft collar behind the pulley to space the pulley at the correct point along the shaft. I may have to turn this down a little if it interferes with the belt but I think it will be OK as is.

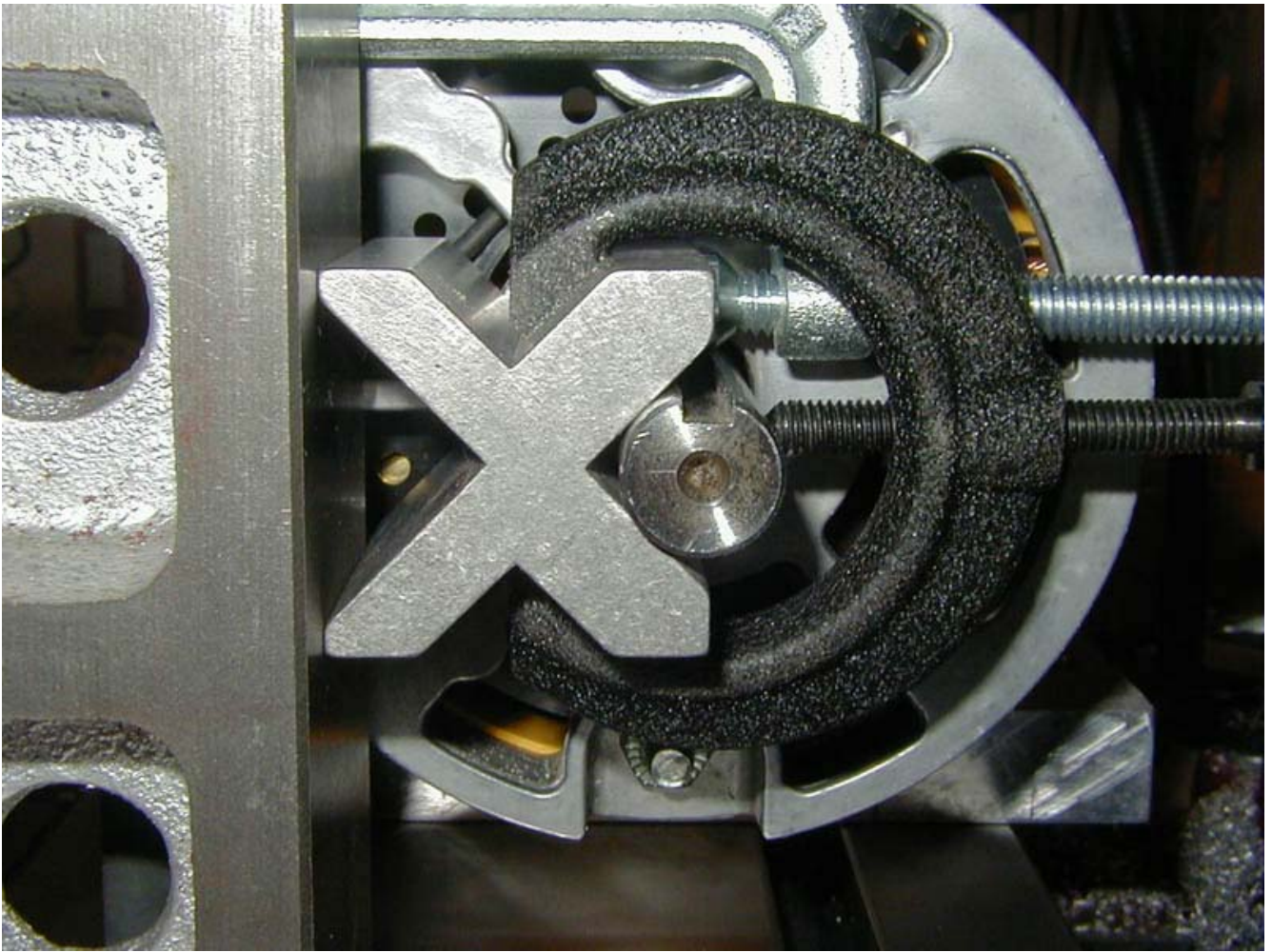
After some testing on the lathe I found out that the shaft collar would not stay put with just the setscrew holding it in place. I will need to drill a hole in the motor shaft and pin the shaft collar to the motor shaft. Not a big deal, just a pain to do.



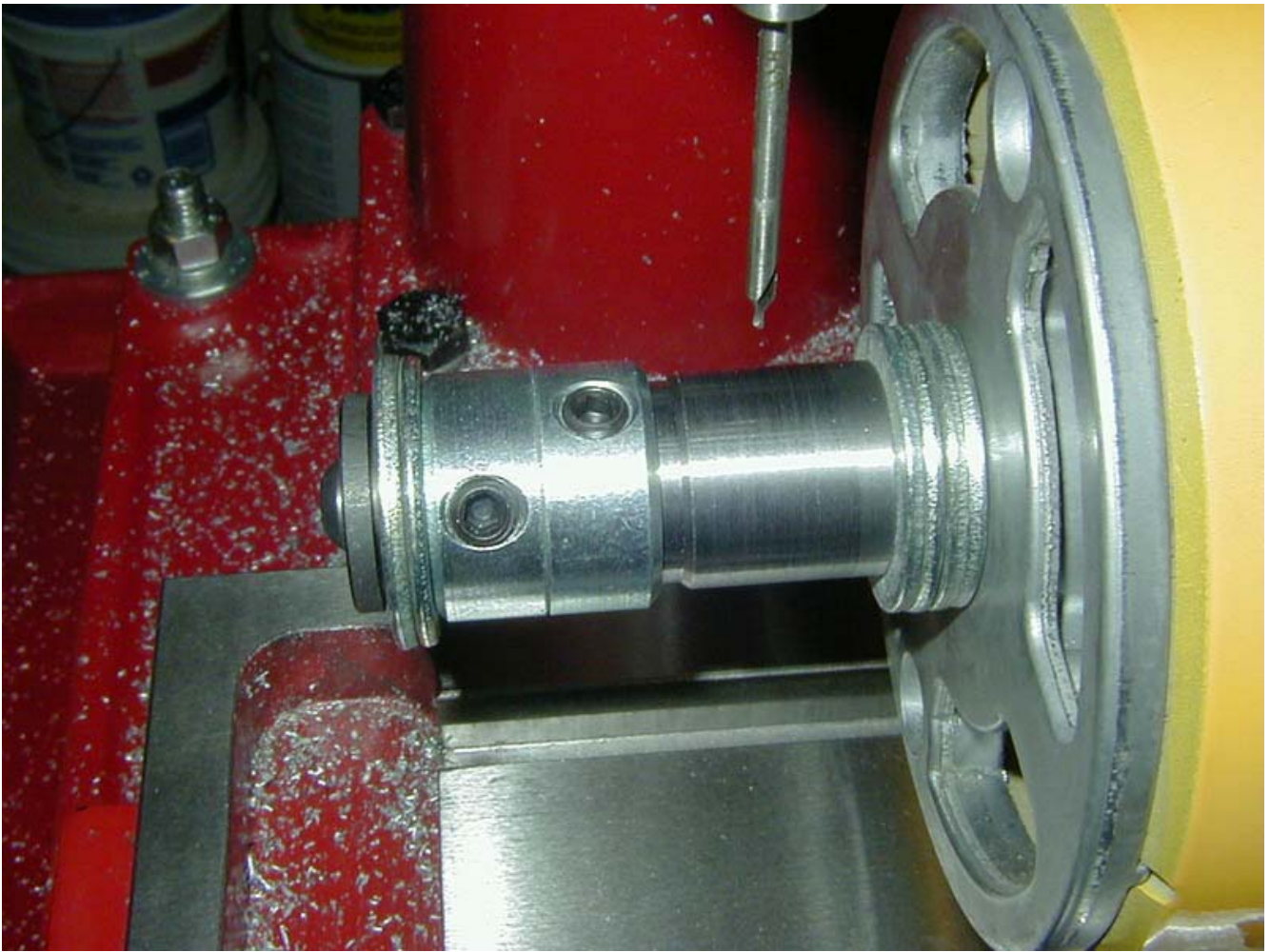
This shows the end of the shaft with the original washer from the AC motor held against the pulley with a 1/4-20 screw.



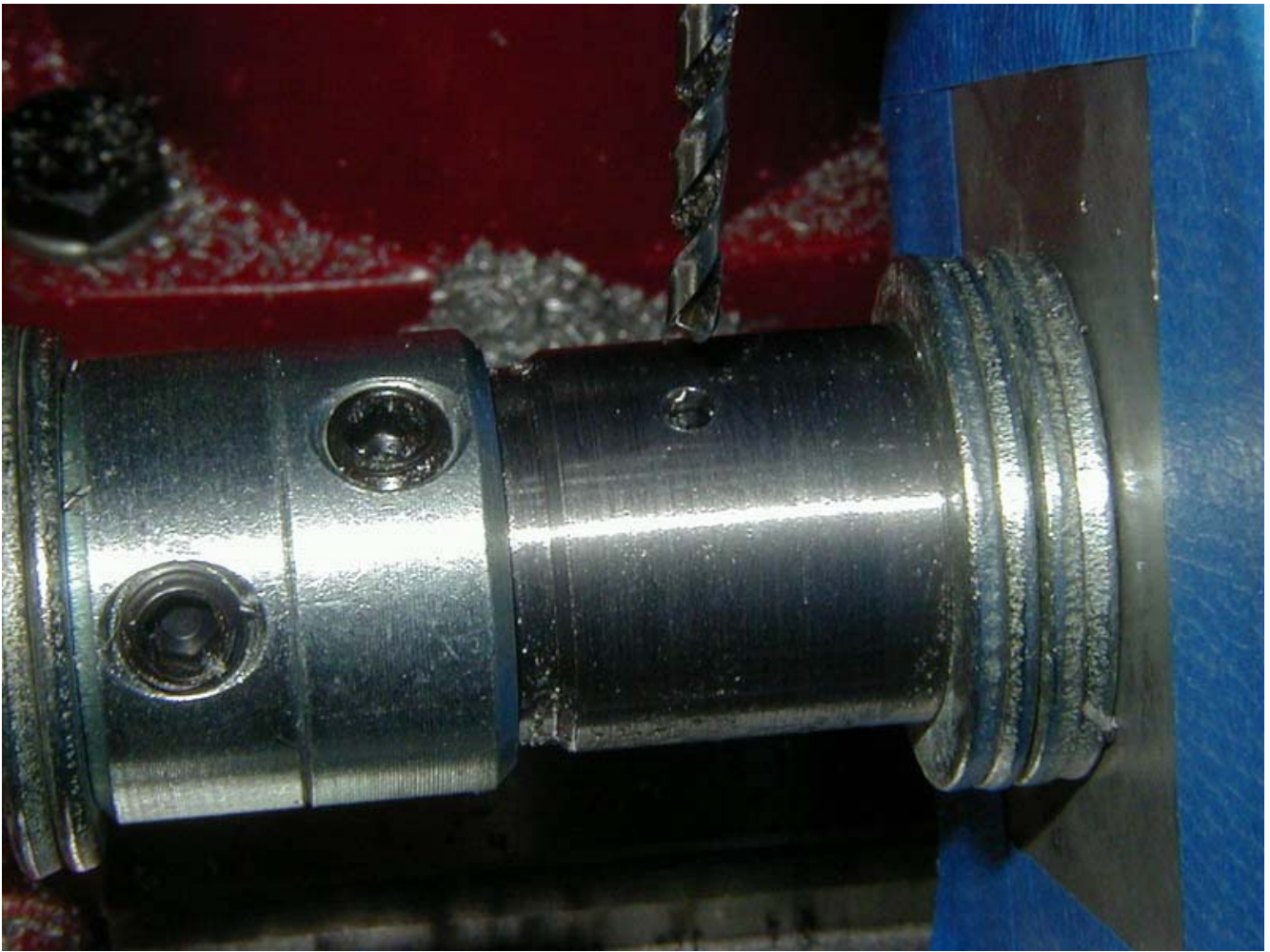
This shows the setup for holding the motor shaft locked in place so I could drill it for a roll pin.



This is a close-up shot of the setup.



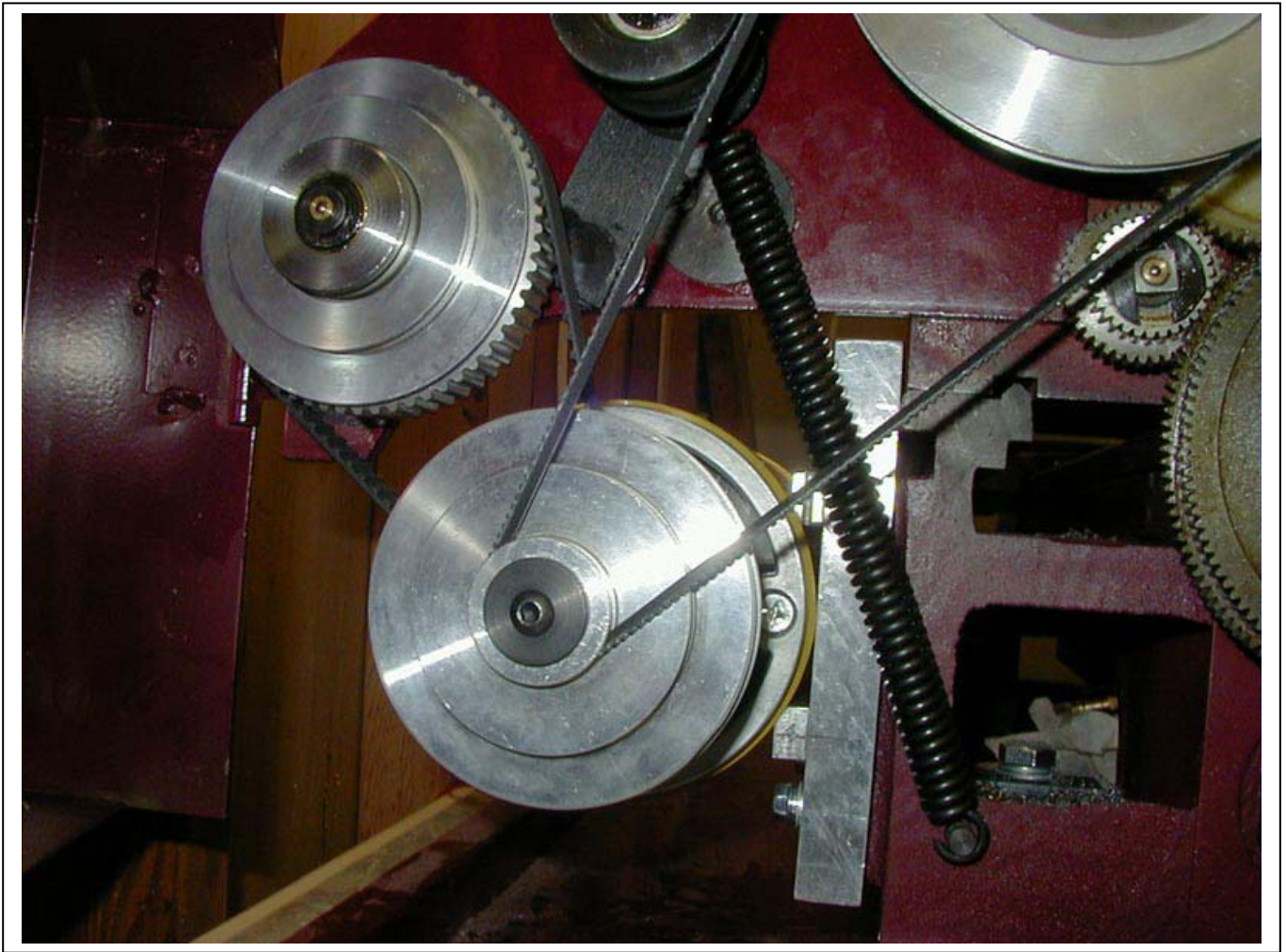
Here's the other end of the setup. I'm spacing the new collar I made at the correct place on the motor shaft ready to drill for the roll pin.



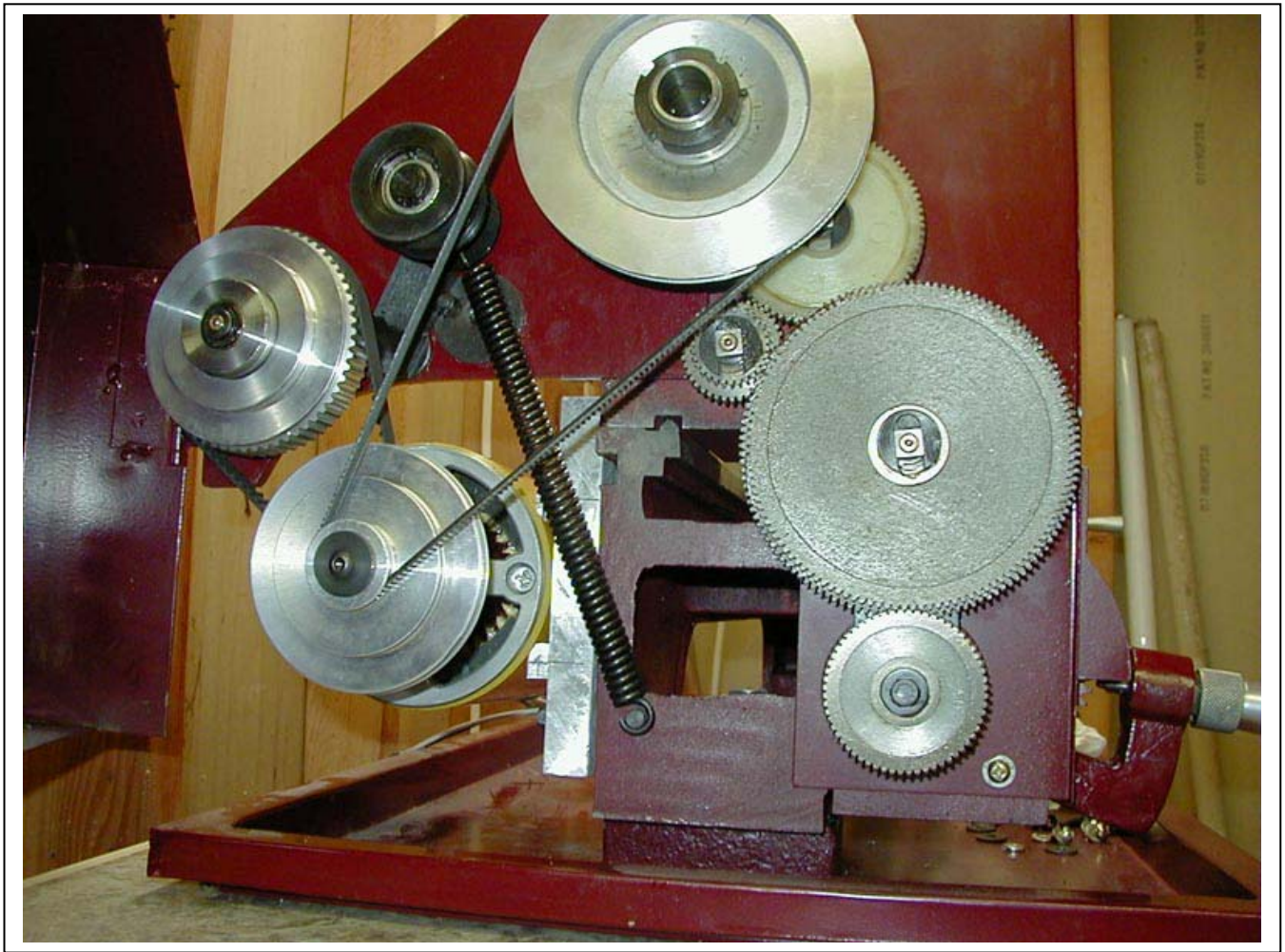
The hole is drilled through the collar and the motor shaft.



The pin has been inserted through the collar and motor shaft.



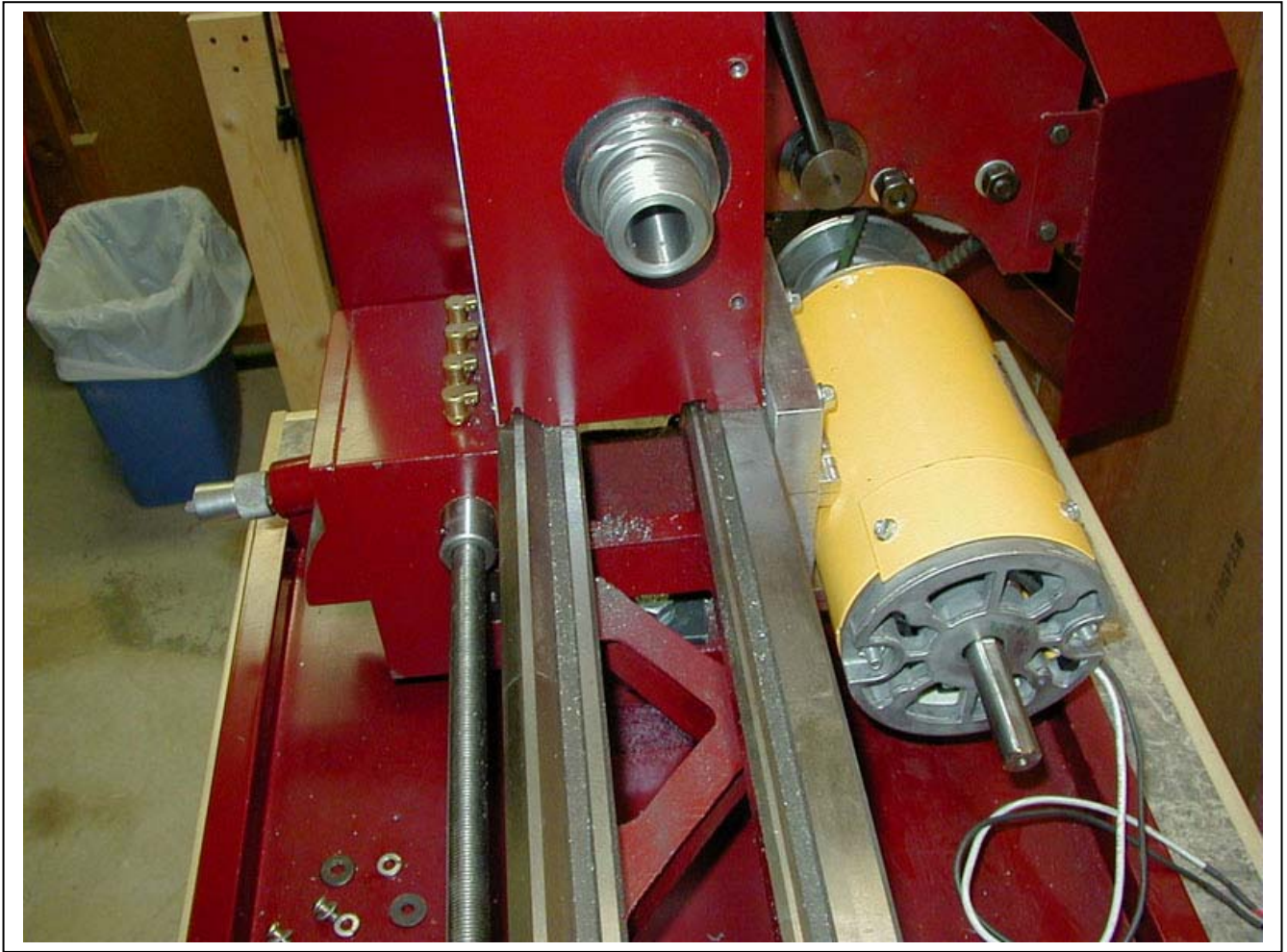
This picture shows the motor assembly mounted to the lathe. As you can see, I was able to use all the original pulleys and belts so this is going to work out slick.



Another picture showing the motor on the lathe.



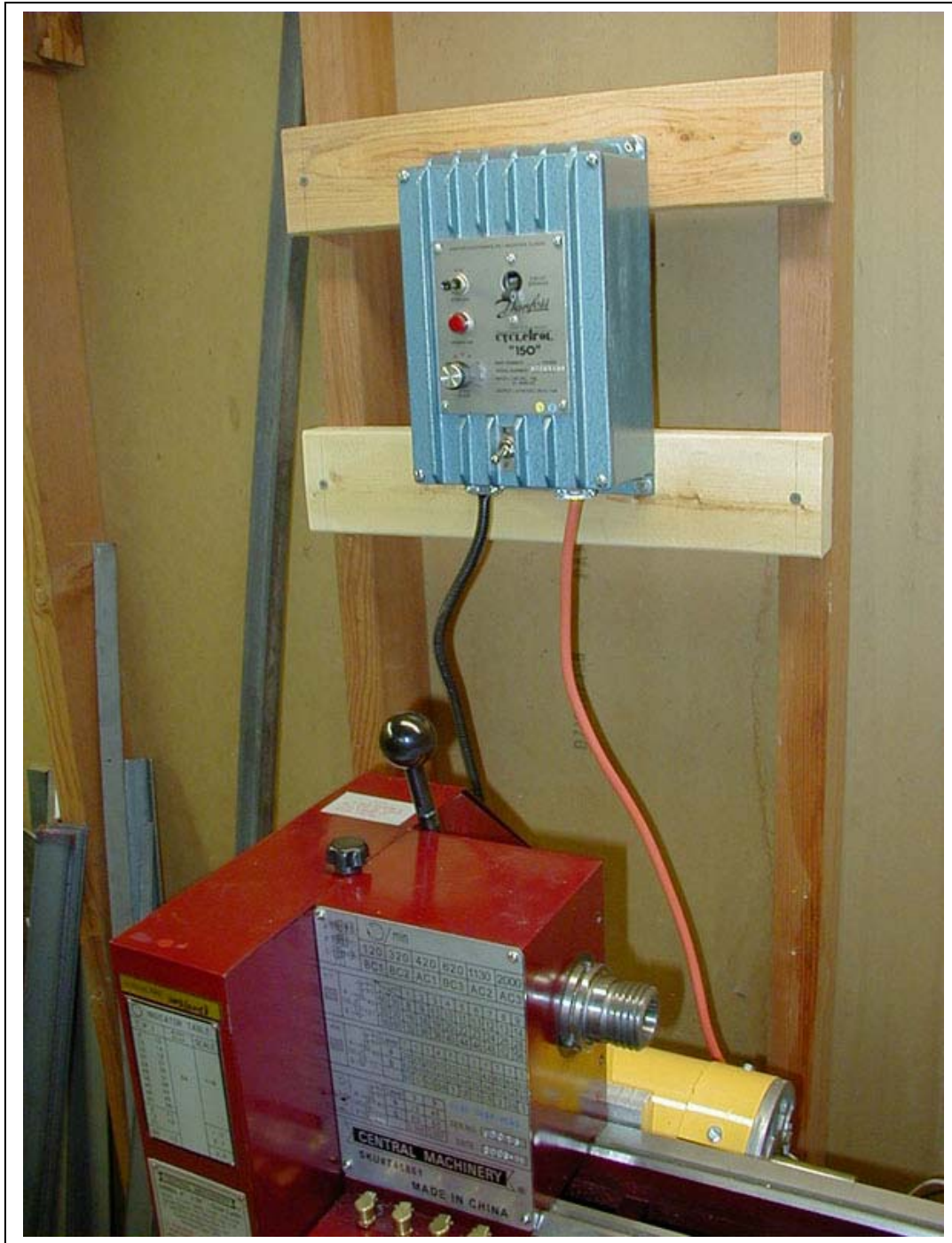
I decided to add two bolts at the bottom of the mounting plate to use as jacks to help me adjust the motor. I stick a piece of wood under the bolt heads and turn the bolts to raise or lower the motor in the slots.



This shows the motor from a different angle.



This is the controller I won on ebay. I got this one based on Steve Bedair's experience with it on his 9x20 lathe.



This picture shows my lathe setup with the new DC motor and controller. I haven't put the backslash on yet and I need to fix up a filter of some sort on the end of the motor to keep swarf from getting inside.