

## Beall Buffing Shaft Project

by Raymond Lanham September 12, 2004

1. Starting with a 24" long 3/4" diameter threaded bar, purchased from Home Depot, I ground off the threads until I had a 5/8" round shaft. Spray painting the threads prior to grinding allows you to see what you're doing and helps to keep the shaft round rather than oval as you grind. The drill chuck for my lathe has a 5/8" capacity so I ground the end to .625. If your lathe chuck is smaller, you'll need to grind more off.



2. If you have the regular Beall Buffing wheels, the hole in the center is approximately 3/8" and must be enlarged to 3/4". You'll notice the stitched circle around the hole. It's about 1" diameter. You'll need to punch out a hole 3/4" diameter to fit the shaft and the copper inserts which you'll see on another picture. These inserts keep the wheel centered on the shaft.



3. I made a punch from a piece of 3/4" electrical conduit. Cut the conduit to 6" length and grind one end to make it sharp. You need a block of end grain wood to pound on when punching out the 3/4" hole. Keep rotating the punch as you hit the end with as large a hammer as you have (I used a small sledge) until the punch goes all the way through the cloth wheel.



4. Here you see the punch all the way through the cloth wheel with the punched out cotton holes inside the conduit. This must be done with all three of the wheels before going on to the next step. You see the white diamond wheel with the punch sticking out one side and the Tripoli with the punched out linen, flannel & cotton holes scattered around. Making certain that your punch is very sharp is the key.



5. Once the 3/4" holes are punched in the cloth wheels, it's time to make 3/4" inserts from 3/4" copper water pipe. Using a copper pipe cutter, make three inserts for the wheels and make certain that they are 3/8" in length, but no longer. They will keep the wheels centered on the shaft but must not be as wide as the cloth wheels are thick. The large washers & nuts will clamp the wheels to the shaft.



6. This photo shows all three cloth wheels with their inserts in place. Ready to be placed on the shaft. I used (2) 3/4" washers and nuts on each wheel. One set on each side of the wheel. I cut (2) 6" pieces of 3/4" plastic water pipe to act as spacers. Starting with the ground end of the shaft, I positioned one wheel with nuts & washers on each side, one plastic spacer, another wheel, more nuts and washer, another spacer and the remaining washers & nuts. You'll need to decide how long you want your shaft to be. 5" spacers would have been adequate but you'll need to leave about 1" of shaft on the end.



7. This photo shows the end of the shaft that will fit in the tailstock rotating center. The hole was hand drilled and if you're careful, using a center punch and a center marking square, you shouldn't have any trouble. If you're uncertain of your success with this aspect, a machine shop would probably turn one end of the shaft down to 1/2" and drill the hole in the other end (after you decide how long you want it to be) for \$5 or less.



8. This photo shows the lathe drill chuck attached to the opposite end of the shaft. Note the large washers and nuts on each side of each wheel holding each wheel tightly to the shaft. Each end of the shaft has a 3/4" lock washer to keep everything in place. The spacers are tight between the nuts but not overly tight. They cannot turn on the shaft and keep those revolving threads away from errant fingers.



9. These photos show the Beall Buffing shaft in place on my lathe, ready for non-stop work. How nice it is now to be able to buff on all three wheels without having to stop and change each wheel. I hope you find this project helpful and that it saves you money that you could spend on a good, nay..... GREAT gouge, hollowing tool or video to take you to the next skill level.

*"Life is not measured by the number of breaths we take but by the moments that take our breath away."*

