

Making an End Grain Top

Small tops make excellent gifts and let the wood turner practice lathe skills. The tasks required, as illustrated below, are well within the skill level of beginning woodturners.

Skills required

These tops are end grain projects. If you can't get nice smooth cuts on end grain with lathe tools, you will be spending a lot of time sanding.

The wood/stick must spin at over 1000 rpm (even better at 1500+) to get good cuts. You have to be comfortable working at these speeds.

Sharp tools.

Design

Parts of the top: handle, body, leg, point.

1.5 inch diameter is a sweet spot. Glue together two 3/4" boards to get an interesting top.

2+ inch diameter tops are pretty big and there's lots of cutting to remove wood for the handle.

1 inch diameter is about as small as you want to go. It's possible to do a 1 inch top and they are quite cute.

Handles need to be 1/2 inch long or more. A 1" handle is probably too big even on a 2" top. Handles need to be less than 1/4" in diameter; the smaller the better for getting a good spin.

For best spinning characteristics: weight to the outside edges of the body; light, short handles; body shaped like a disk; short leg from the body to the point. These are not interesting looking but do spin well.

For best looking: what does your heart desire?

The best tops combine looks and spin.

Raw Material, aka a stick

Good dimensions for a stick are 1.5"x1.5"x6.0".

The stick of wood will be held cantilever in a four-jaw chuck. Sticks longer than about 6 inches vibrate a bit on the first top. I've done 7+ inch sticks and the chuck held.

The stick needs to be close to square so it's held solidly in the chuck.

Making an End Grain Top

Process

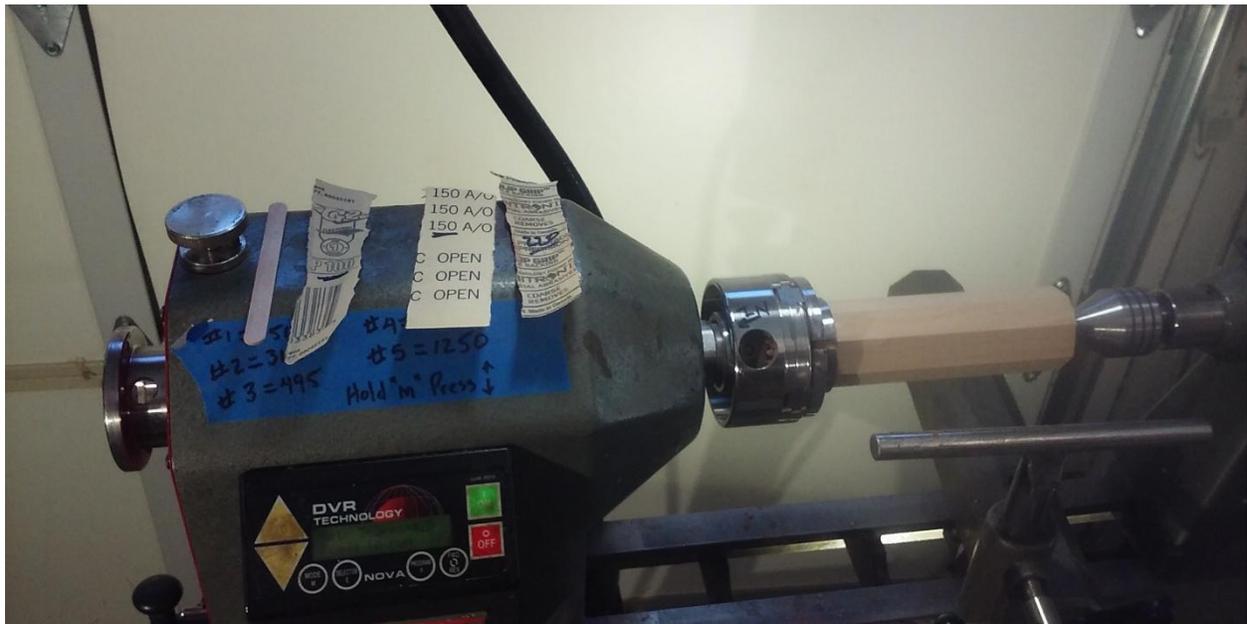
- Prepare the tools
- Chuck up the stick
- Round the stick
- Shape the lower body
- Sand the lower body
- Shape the upper body and handle
- Sand the upper body
- Complete shaping the handle
- Sand the handle
- Add color (optional)
- On lathe finishing (optional)
- Remove the top from the lathe
- Off lathe finishing

Prepare the tools

Sharpen and put tools close at hand. My choices are: roughing gouge; bowl gouge; carbide detailer; and cut off tool.

Wear the appropriate safety gear.

Create sandpaper strips of 100, 150, and 220 grits. Place these strips in order on the headstock. A popsicle stick is required during sanding and can hold the sandpaper down.



Place the sharpies and on lathe finish materials close at hand.

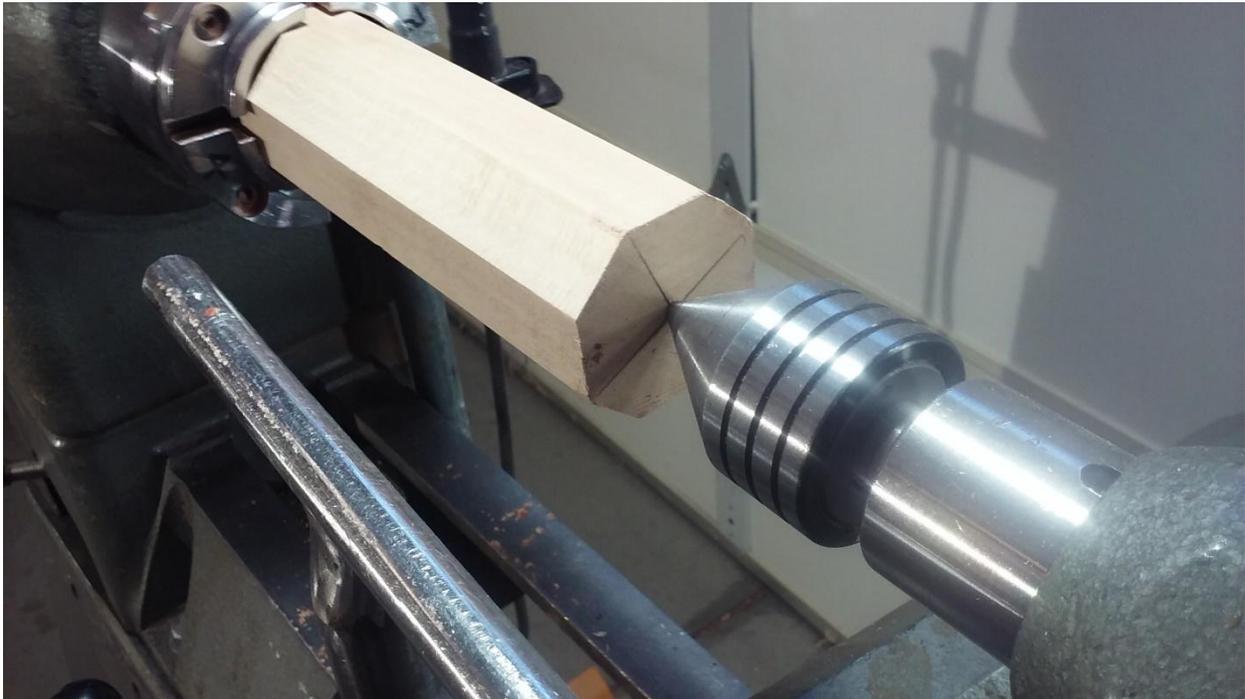
Making an End Grain Top

Chuck up the stick

Use a high quality 4-jaw chuck because a pretty long stick will be held by it.

In preparation for rounding, I always use a live center in the tail stock.

I lightly tighten the chuck, then bring up the live center. Then I tighten the chuck. Don't forget to tighten the chuck. I've forgotten more than once.



Round the stick

I've used roughing gouges and bowl gouges to do this task. Both work well if sharp.

As you get closer to a cylinder, increase the rpms.

Check the tool rest position, moving closer as required.

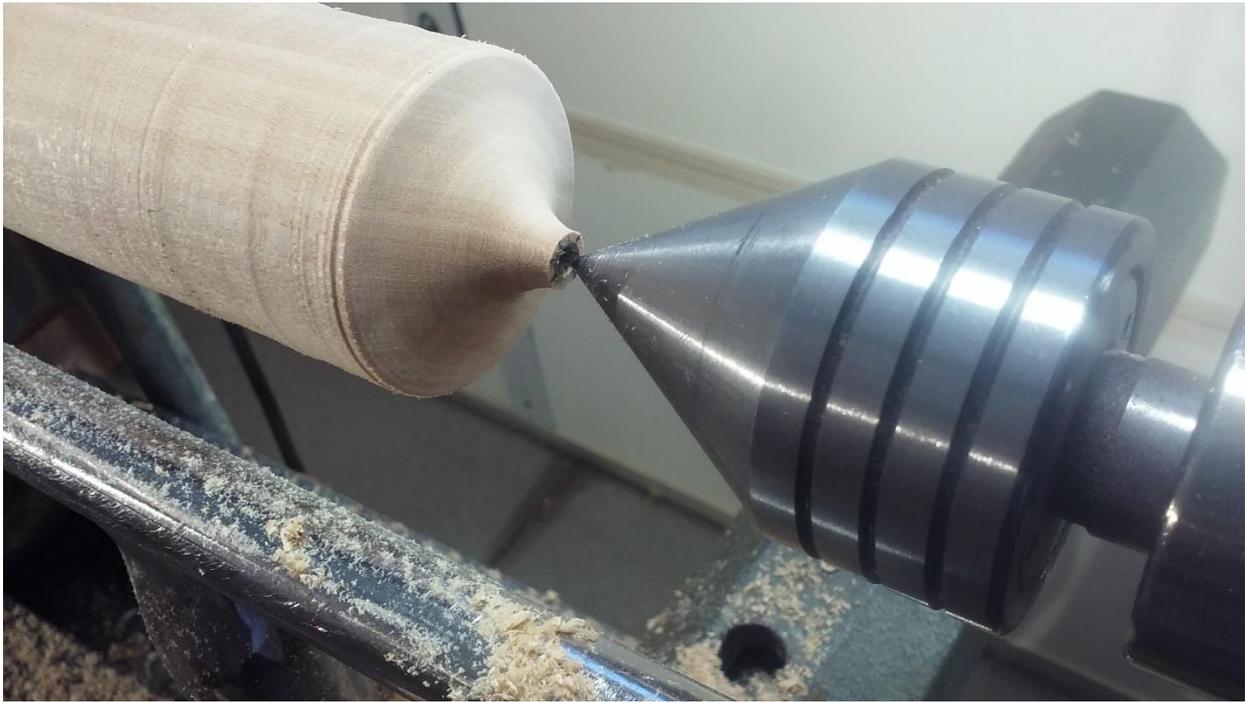
Shape the lower body and point

Shape the lower body with the live center in place.



Making an End Grain Top

When cutting nears the live center, reduce the rpms and slowly withdraw the live center, making sure the stick doesn't fly out of the chuck.



Move the tail stock to the far end of the lathe.

Re-round the stick. The live center may have held the stick slightly off center. Remove the minimum about of material to get a new round stick.

Complete the lower body by cutting a point.



Apply any detail grooves or texturing.

Making an End Grain Top

Sand the lower body

Sand the lower body and point with 100 grit using the popsicle stick. The 100 grit acts as a final shaping tool. If you spend more than 1 minute with 100 grit, you need to sharpen your tools and/or your skills. Sand with the 150 and 220 grit. The amount of time with the 150 and 220 grits should be no more than 10 to 15 seconds.



When sanding, use one hand to hold the strip and one hand/finger to apply pressure to the wood. Do not sand with a single hand holding the paper and applying pressure. It's too easy for you hand to slip and bump into things.

Shape the upper body and part of the handle

Begin cutting away to form the upper body and the handle. As you remove wood to make the handle, the shape toward the head stock will become the lower body of the next top. Make clean and well-shaped cuts on this "next bottom".



Making an End Grain Top

Leave the handle thick. Only reduce the diameter of the handle as required to complete the upper body.



Sand the upper body

Follow sanding procedure from above. 100 grit with popsicle stick, 150 then 220 grits. The goal is very little sanding.



Complete shaping the handle

Work thinning the handle. Do NOT return to shaping the body. The handle will break. The goal is a smooth thin handle.

If the handle is too short, cut away more wood toward the head stock. Remember this face becomes the lower body of the next top. Make clean well-shaped cuts.

Making an End Grain Top

Sand the Handle

Caution, it's easy to break as it is thinned.

Use the popsicle stick and the 100 grit to remove unwanted bumps in the handle. Move to the 150 and 200 grits to sand the handle and the upper body.



Add Color (optional)

Use name brand Sharpies. The cheap brands bleed more. Check your colors, some should look good but just don't. Primary colors work the best.

Turn the speed of the lathe to its slowest. Place your hand on the tool rest and gently touch the Sharpie to the top. There's a sweet spot for leaving the pen in one spot before it starts to bleed, 3-5 seconds.



Spirals start with a ring, then move the pen, then end with a ring. Spirals look good when the top isn't spinning and blur out when the top is spinning. I tend to put spirals on the bottom.

Play with the colors. You can blend and overcoat colors. This is art, there are no wrong answers.

Making an End Grain Top

On Lathe Finishing (optional)

When applying high speed friction finishes be very careful not to create much friction. The handle is very thin and can be broken especially when finishing the outer diameters of the body.

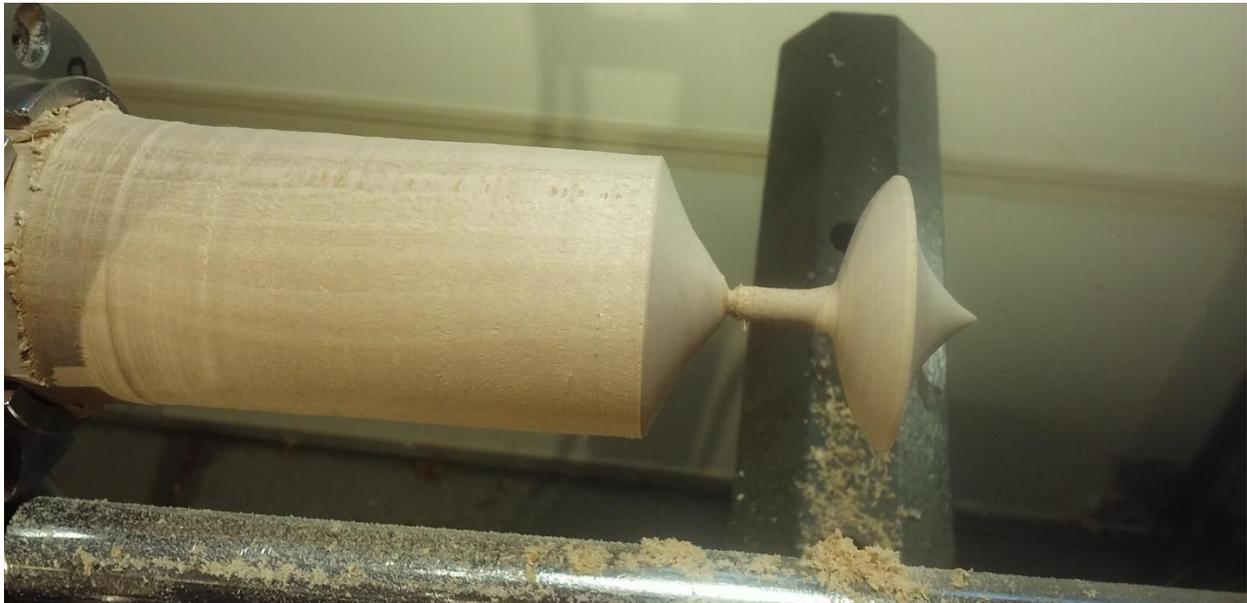
Beeswax is good, but isn't shiny. It's an artistic choice.

Finishing on the lathe is ok, but that finish usually requires a top coat.

If you apply finish, check how the end grain finishes. Cherry and Maple end grain finishes about the same as face grain. Walnut, alder, padauk, mahogany, finish much darker.

Remove the top from the lathe

Start making the removal cut but only about half way thru. Use the 220 sandpaper to lightly sand the just cut area. This will save later sanding. Finish the cut removing the top.



The Bottom of the Next Top



Making an End Grain Top

Test Spin

The top should spin nicely. You should admire it. This isn't a production line. You just created a unique work of art. See that work of art.



Off Lathe Finishing

Finishing is NOT required. But it does add a little extra.

Spray lacquer over sharpie may run a little. The key is to build quick light coats for the first few coats.

Spray lacquer is a quick way to finish a bunch of tops. One rattle can will easily finish 50+ tops. I got 3 coats on the top and bottom of each top.

If you apply finish, check how the end grain finishes. Cherry and Maple end grain finishes about the same as face grain. Walnut, alder, padauk, mahogany, finish much darker, especially with lacquer.

