

Distinguished Side-Grain Treasure Boxes

By Clayton Thigpen

These boxes are a surprisingly accessible project for newer turners, and present unique design challenges for seasoned artisans. This project builds on the concepts of paying attention to proportions, trusting your eye, and a repeated practice of how to size different kinds of mortises and tenons to serve the purpose at hand.



Tools (Minimum)

- Bowl gouge (*any size*)
- Spindle gouge (*any size*)
- Square end scraper, Parting tool, or Bedan
- Drill chuck and drill bit (*1/2" to 3/4"*)
- Glue (*wood glue if you're patient. Flexible CA if you're not*)
- Marking/measuring tools

Tools (Nice To Have)

- Thin parting tool (*1/16" - 1/8"*)
- Burn wire
- Point Tool (*AKA pyramid tool*)
- Texturing/Spiraling Tools
- "Bottom Feeder" Bowl Gouge (*steep, short-beveled gouge*)
- 4-Jaw Chuck with 3" jaws
- 4-Jaw Chuck with pin jaws (*for the Knob*)

Materials

The Base and Lid: 2x 8/4 (2") lumber, ~6" square.

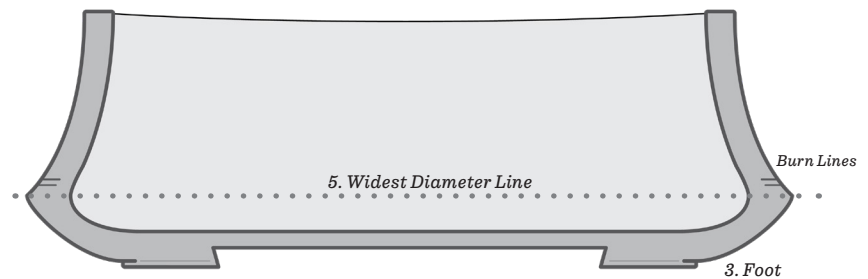
The figured Insert: 1x 4/4 (1") figured wood, ~3" square.

The finial/Knob: 1x 2x2x3" (spindle orientation)

Rounding the Bases

Turning and Shaping the Base

1. Begin by rounding out all three pieces by mounting them on a worm screw drive. The insert and lid need simple tenons to fit whatever chuck you have. Set those to the side, and shape the bottom of the base while it's still on the screw chuck.
2. Once the base is rounded, flatten the bottom and establish a mortise. Ideally this will be around half the total diameter, but if you only have standard #2 jaws, it will likely be a 2 1/8" diameter mortise.
3. To establish the foot, scribe a line about 75% the total diameter of the base. Create a small lip, essentially a very tiny tenon only about 1/16" tall. This will elevate the final piece and create a nice shadow line.
4. If the foot looks too wide because you're using standard jaws, don't worry. It's better to let the foot sit well on the table than make the overall piece look top heavy. Taper it in towards the mortise.
5. Draw a pencil line about a quarter of the way between the "tenon" foot and the top of the piece. Create a soft convex curve from the foot to the line.

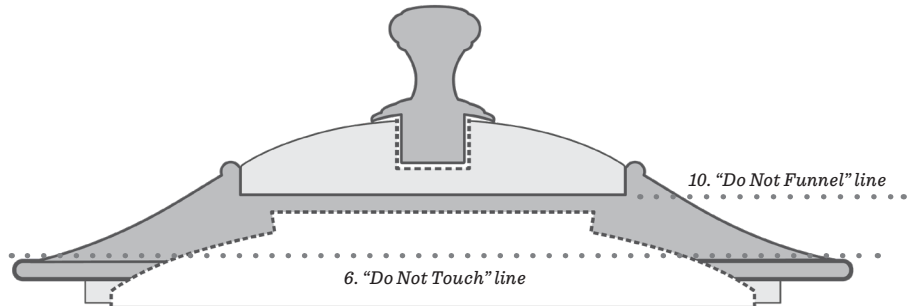


6. Texture, sand, and finish the bottom of the base. There won't be a chance to return to it afterwards.
7. Flip the piece around, mounting it into your chuck, held by the mortise.
8. Taper the outer diameter from the rim to the pencil line you created a moment ago. To determine the diameter of the rim for this, eye the distance between the widest diameter and the diameter of the foot. Make a concave sweep from the rim that intersects that pencil line.
9. Hollow the inside of the base, aiming for 5/16" thickness all the way through. Square walls corners are fine, but if you can, try to create an undercut into a radius instead.

Don't Flip Your Lid

Shaping and Reversing the Lid

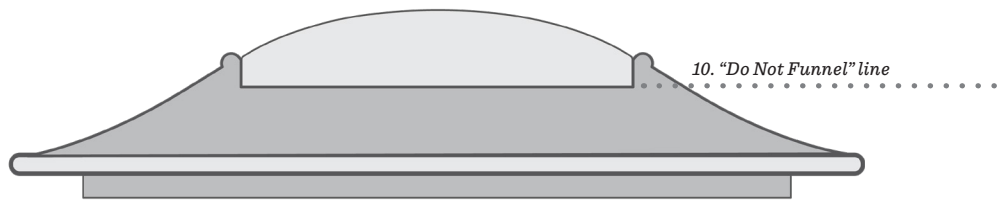
1. As you swap to the Lid, keep the Base nearby. Hold it in the tenon, and shape all sides to run true.
2. Using spring dividers, measure the **inside** of the Base. Scribe the line onto the Lid. Treating the Base like a mortise, sneak up on cutting a tenon in the lid.
3. This in-fitting lid should have some very slight give to it. A "rattle", almost. This will account for seasonal movement in the wood, and allow one-handed lifting. This isn't an end-grain box, don't try to get a piston-tight fit.
4. At this point, hold the Base to the Lid. The widest diameter of the lid should be barely smaller than the widest diameter of the Base.
5. Draw a pencil line about 1/8" up from the bottom of the lid. This is your "Do Not Touch" line. For the rest of this project, you'll need to leave the diameter of the lid here unchanged.
6. With your "Do Not Touch" line, continue on to shape the underside of the lid. Begin by defining the mortise for when you eventually reverse it. Using wider jaws will reduce vibration when it's reversed, but standard 2" jaws allow more room for spiraling/texturing.
7. The underside should be domed in, but not too deep. The more shallow you leave this, the more options you have for shaping the top of the Lid. If you used a worm screw, that pilot hole depth (maybe 3/4" - 7/8") should be enough.
8. Once you have your mortise, which should be the deepest part, take a measurement, and mark that on the outside of the Lid. This will represent a "Do Not Funnel" line when the space for the insert is created.
9. Decorate/texture the inside as desired. Ideally these decorations will match the bottom of the Base.
10. Reverse the Lid onto the underside's mortise. From the "Do Not Touch" line to the center of the lid, create a Roman ogee shape (a convex curve joining to a concave curve). Don't lose sight of the "Do Not Funnel" line, and replace it as necessary as you remove material.
11. Once the ogee shape is achieved, create a bead by rounding over the corner of the Lid into the "Do Not Touch" line. Do everything you can to not reduce the overall diameter. Sandpaper can sometimes work better than gouges.



Assert the Insert

Creating the figured wood Insert

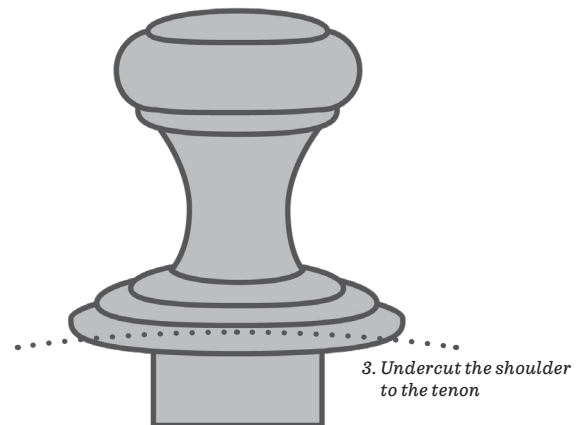
1. At the center of the Lid, mark a circle about 1/2 to 1/3 (wherever you decide is most aesthetically pleasing) of the overall diameter. Create a mortise deeper than you think you need, leaving about 1/8" of material before you reach the "Do Not Funnel" line. Keep the corners straight for now.
2. Mount the Insert material by its tenon. Start by drilling a hole in the center, all the way through. This will eventually hold the Knob. 1/2" is fine, but I usually use a 5/8" drill bit.
3. Reduce the diameter in the same way you did to match the Knob to the Base. Create a much tighter fit this time, or else an uneven, visible gap will show up after it's glued in.
4. Glue in the Insert to the Lid. It's fine if the Insert sticks out too far at first, that will all be reshaped later.
5. Once the glue is dry, simply remove material on the Insert until it follows in line with the Roman ogee shape you originally created.
6. If desired, create a small bead to highlight the join between the Lid and the Insert. Sand this, but don't finish it until the Knob is in place.



Get a Grip

Fitting and Shaping the Handle

1. Start by rounding out the handle blank in spindle orientation.
2. Add a tenon, and mount in your chuck. From here, shape the end to fit into the hole of the Insert. Like every time so far, treat this as a tenon, and the hole in the Insert as a mortise. You want a decently snug fit, but it should slide all the way in without having to force it.
3. Once you have the diameter, create an undercut on the shoulder where the Knob will seat into the Insert.
4. If you have a chuck with pin jaws, reverse the Knob into those jaws and continue the shaping. If not, create a shoulder with about 1/8" overhang wider than the tenon. Go ahead and glue the Knob into the Insert, and remount the entire Lid assembly by the Lid's mortise. This won't give as much flexibility in shaping the Knob, but it will guarantee it's concentric to the rest of the lid.
5. When shaping the Knob, the handle needs to be both taller and wider than you think, to allow for anyone's thumb and finger to easily grip. The shape is arbitrary, but repeating shapes from the other elements of the box help create a sense of unity.



The Finished Project

With Room For Notes

