

Shot Barrels

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Material

8/4 White Oak. White Oak is the traditional choice for barrels because of its strength, resistance to leakage, and the flavor that charred oak brings to whisky. Choose clear, straight grain boards without checks or defects. Rip the board square. Cut to 3" lengths. So you have blanks 2x2x3. Other sizes will also work, but this is what I start with.

Inspect each blank for checks and defects. Any that are cracked will not hold liquid. Use these for practice, another project, or firewood.

A 6½" wide board that is 5' long will yield about 60 blanks. There will be loss due to hidden checks or knots, some from heat-cracking when you char the inside, and some from barrels that just insist on leaking for unknown reasons. I count on losing about 10-15%. So that board should yield at least 4-dozen barrels.

Turn the Bottom

Mount the square blocks in a 4-jaw chuck. Use a spindle roughing gouge (or tool of your choice), remove all the square corners down to round. Get as close as you can safely get to your chuck. Turn a slight curve to make the bottom half of the barrel shape. I run the lathe at around 1000 RPM.

Use the point of a skew or point tool (etc) to make two shallow grooves near the end of the barrel. These make the "barrel bands", and one of these grooves will be used to reverse-chuck the blank for turning the bottom (it should be about ¼" - ⅜" from the bottom). Burn the grooves with a piece of scrap countertop laminate.

True up the bottom. I like to recess the bottom (so there's a foot around the edge) and burn the inside of the recessed edge with the laminate.

Sand this bottom half to about 180 grit or so.

Hollowing

Turn the blank around, gripping one of the grooves in your chuck jaws.

I use a Nova chuck with standard (50mm) jaws for this. The inside of those jaws are straight with a little "beak" at the end. This bump fits perfectly in the groove around this 2" blank.

If you have other jaw types, you may have to experiment with how to grab the groove, or make a different sized barrel. You can cut a short disc from 1½" or 1¾" PVC pipe and create a bird-beak profile with a small scraper. Snap that on the barrel groove and grab that in your chuck .

True up the end and drill a depth hole with a hand-held drill bit to about 2⅜" depth (first create dimple or cone to start the drill using the point of a skew or spindle gouge).

Use a hollowing tool or box scraper (etc) to hollow and finish the inside. Leave a wall thickness around 3/16" to ¼" (the outside is still square, so you'll have to visualize it as round). The sides should be straight and the bottom mostly flat, but leave a rounded corner where the wall meets the bottom (a square corner will not char well). Round over the top rim a bit, and sand it till it feels like something you'd be willing to put on your lips (180 grit is good). If you have reasonably good finish from your tools, you shouldn't need to sand anything except the rim, as the inside is just going to get burned anyway.

I dislike Forstner bits for this project because:

- Cutting end grain on a lot of pieces dulls them and they are difficult to sharpen
- They leave a square corner, which you have to fix (round over) because it won't char in the corner
- They leave a divot in the middle of the bottom that you have to turn away because it looks bad and won't char
- There's a time-cost to setting up for drilling (then resetting to clean up the bottom), which adds up if you're making multiples

Fire!

Clean off your lathe and the surrounding area of sawdust and chips. Find and inspect your fire extinguisher. If you don't have

one in the shop, now would be a great time to fix that problem. Fill a spray bottle full of water, adjusted to a mist setting (not a stream). This is a second fire extinguisher, and for cooling and rinsing the inside when we're done burning.

Turn on the lathe at its slowest speed – mine can go down to about 50 RPM.

Use a propane torch to burn the inside. You want an even, black char on the whole inside. I usually start with the bottom, then move to the rim. By that time most of the rest is pretty close. If you can still see light-colored wood, give that spot more flame. If the outside seems to get too warm, give it a shot with the spray bottle.

You need enough heat and flame to get a good char, but too hot and the blank may crack. The reason we hollowed the inside while the outside top was still square was to leave more material to resist cracking. I do lose a few blanks from cracking at this stage, so don't be discouraged if you do too.

Once you're satisfied with the inside char, shoot a mist of water inside. Roll up a couple paper towels into a log and stuff that into the barrel. Don't stick your finger in, it's still really hot in there. Just use the paper towels. This will clean off some of the excess soot and help to cool down the blank. Remember to clean up any water off your lathe bed.

Turn the Top

Next, turn the outside top half of your barrel, cut and burn two more grooves, and sand.

Testing

I test every piece that I make. Some have invisible defects from the wood, some have cracked when they were charred, and others just insist on leaking for some reason.

I set up barrels on a wire baking rack, fill them with water, and watch for about 5 or 10 minutes. Those that obviously leak out the side or bottom are tossed aside (toothpick holders? firewood?). A bit of "weeping" out the bottom will usually be fixed with the finish.

Finish

Traditional wooden boat builders used a mix of pine resin (also called pine pitch or pine tar), boiled linseed oil, and turpentine as a sealing finish. I have found that pine resin with walnut oil makes a nice, natural finish and helps seal the pores of the end-grain. I melt roughly equal parts resin and walnut oil in a double boiler, making a honey-like consistency. I use two tin-cans for my double boiler, on a hot-plate set just enough to barely boil the water. It does take a while to melt the resin.

This finish is applied warm from the double boiler, worked into the wood with paper towels. I run the lathe at around 400 RPM for this - fast enough to work the finish in, but not so fast that you get a stripe across your chest. Apply finish just up to the rim of the barrel, but not around on the inside. Leave the inside just charred.

Sharpen a 1/4" dowel in a pencil sharpener, and use that to clean any excess finish out of the grooves. Flip the blank around in the chuck and finish the other end. Work a bit extra of the finish into the end-grain pores of the bottom.

The barrels may be a bit sticky after the finish dries. Let them sit for a while (an hour or so) and wipe them down again with a clean rag or paper towel.

After the finish, I test them again. Any still weeping out the bottom will get another coat of finish on the bottom.

Use and Care

This is on the back of a business card I hand out with each Shot Barrel:

Your Shot Barrel is like a small whisky barrel: it is White Oak, charred inside with fire. No other finish is used on the inside. The outside is sealed with natural pine pitch and linseed oil. After some use, you may notice a few drips out the bottom – this is normal and unavoidable with wood. You just need to drink faster!

Use your Shot Barrel for plain spirits (whisky). Other drinks will get into the pores of the wood and can spoil. Clean by simply rinsing with warm water. Do not use soap; it will soak into the wood and spoil your next drink.