

Joshua Friend, untitled, 2011, Sipo mahogany, figured maple, 4" × 8" (10 cm × 20 cm)



CROSSGRAIN JEWELRY BOXES

*Crossgrain
Jewelry
Boxes*
Joshua Friend

I like it when a customer challenges me to expand my turning repertoire. Recently, a woman asked if I would make her a jewelry box. I had turned plenty of endgrain boxes, but never one large enough to be regarded as a proper jewelry box, with dividers and a soft, welcoming interior. I began to consider how those standards could be applied to a turned jewelry box. Ultimately, the inquiry led me to explore turning lidded crossgrain boxes (also called lidded bowls).

Benefits and considerations

Unlike traditional endgrain boxes where the grain runs parallel to the ways of the lathe, crossgrain boxes are turned in a perpendicular, or faceplate-grain, orientation. This orientation allows for larger diameter

boxes—expanses across the width of boards are usually larger than expanses across endgrain where the pith may be unavoidable. Wider diameters afford excellent opportunities to use the lid to showcase grain patterns, feature unusual figure, or add embellishments, such as chip carving. Also, the lid and body of the box can be made from different pieces of wood, which opens up possibilities for using contrasting species, like maple and walnut.

For endgrain boxes, the lid and body are usually made from the same piece of wood, with the grain continuing from the body to the lid. This means that when the wood expands and contracts with changes in moisture content, the body and lid are likely to move proportionately with one another and the original good

fit is maintained. The lid and body of a crossgrain box, however, may behave differently with seasonal movement, especially if varying species are used together. For this reason, I do not try to achieve a tight or suction fit of the lid, which would be more likely to fail over time. Instead, I employ a tight fit only during the turning process and then intentionally loosen it for the final fit. Lifting a lid off a jewelry box should not require two hands.

Another consideration is the dryness of the wood. With most lidded boxes, endgrain or crossgrain, it is wise to start with wood that is thoroughly dried to minimize the effects of wood movement as a result of changes in moisture content. This especially holds true for crossgrain boxes. Professional turner Mike Mahoney noted about his crossgrain cookie jar, pictured on page 52, “I carefully dried the pieces: I brought the rough-turned pieces into the house for a few months to give them a natural environment.” *Photo 1* shows several lids for jewelry boxes, which I rough turned both inside and out. The general shape is defined, and I left the lids slightly thick. Rough turning allows the wood to do most (and hopefully all) of its moving prior to final turning.

Noted demonstrator and teacher Richard Raffan said, “The lidded bowl is still my favored project ▶



1 Several crossgrain box lids are rough turned for drying.



2 Turn a shallow tenon on the top of the lid.



3 Establish the lip of the lid.



4 Shape the outside edge of the lid.



5 Hollow the inside of the lid.



6 Leave extra thickness in the middle to accommodate the knob.

through which students may practice facework techniques, and they are excellent design projects too.” So, with these considerations in mind, let’s make a lidded crossgrain jewelry box.

Start with the inside of the lid

It is advantageous to begin with the lid since the lip of the body will be formed according to the lid’s established dimensions. Use material that is at least 1" (25 mm) thick (not 4/4 dimensional lumber, which is only 3/4" [19 mm] thick). Mount the lid onto the lathe using a faceplate, but be aware of the length of the screws you choose and how deep they will go into the lid. Later, you will hollow out the inside of the lid enough to turn away the screw holes. I find that 3/4" screws are long enough for a secure hold but not so long that the result is a too-thin lid after the holes are turned away. Turn a shallow tenon, about 3/16" (5 mm), and begin to rough shape the outside of the lid (Photo 2).

Remove the faceplate and remount the lid into a four-jaw chuck using the tenon. In this orientation, you can work on the inside of the lid using light cuts with sharp tools—remember that the lid is mounted with only a shallow tenon. After truing up the face with a gouge, cut straight in with a parting tool about 1/8" (3 mm) deep to establish the lip of the lid (Photo 3), which later will mate with the lip of the body.

Shape the outside edge where the lid will sit on the body (Photo 4). Unlike a typical endgrain box, where the outside profiles of the lid and body are shaped together, I shape the two components of crossgrain boxes separately. In this orientation, however, there is a likelihood of the wood chipping out as the tool exits the lid material, so I typically employ a design that does not require a flush cut from lid to body.

Next, use a bowl gouge to hollow the inside of the lid (Photo 5). Undercut the inside enough to remove the screw holes. I like to leave

extra thickness of wood at the center to provide a decorative element and to accommodate the knob, which later will be glued into a recess on top of the lid (Photo 6).

Remove the lid from the chuck and set it aside. The top of the lid, including the knob, will be turned with the lid jam fitted onto the body after the body has been hollowed.

Turn the body and top of the lid

Mount the body material onto the lathe, using a screw chuck or faceplate. Since this box will be used to store jewelry, presumably with items stored in a single layer, the finished depth need only be about 2 1/2" (65 mm). A taller box is not necessary.

True up the outside and bottom face and form a tenon (Photo 7). Then bring up the tailstock and advance the live center’s point into the tenon to make a reference mark, which will be used later when jam chucking the body. (It will help you mount the body so that it will run true.)

Remove the body material from the lathe and remount it by holding the tenon in a chuck. Measure the diameter of the lip inside the lid (Photo 8) and transfer that measurement onto the body with a pencil. Use a parting tool to cut straight into the wood,



Joshua Friend, untitled, 2012, Walnut, figured maple, 4" x 8" (10 cm x 20 cm)

just a bit outside of this line to form a lip that the lid will later be jam fitted onto (*Photo 9*). It is important at this point to leave this lip oversized so that the lid does not yet fit onto it. There is a good chance that when the body is hollowed, the release of tension in the wood will cause the perimeter (lip) to change shape. If the wood is sufficiently dry, the hollowing will not cause much movement, but possibly enough to compromise a good jam fit of the lid, which is why I make the final jam fit of the lid *after* the body is hollowed.

Shape and sand the outside (*Photo 10*) and then hollow and sand the inside of the body (*Photos 11, 12*). It is not necessary for the inside profile to match the outside, as is usually the case with a bowl form. In addition, leave the wall thickness somewhat thicker than for a bowl to provide enough wood on the lip to ensure that it will not break off.

Next, make adjustments to the lip to ensure a jam fit of the lid (*Photo 13*). This can be done gently with a sharp parting tool or gouge. The goal is to achieve a fit that is tight enough to be able to final turn the lid (and knob) while it is jam fitted onto the body (*Photo 14*). Take small cuts, turning off the lathe frequently to test the fit. If too much material is removed, either moisten the wood fibers with water or apply masking tape around the perimeter of the lip to create a tight enough fit of the lid.

With the lid jam fit onto the body, it is time to add the knob material. A knob serves an important function, which is to allow the lid to be lifted with one hand. Knobs also provide interesting design opportunities.

Remove the body and lid from the chuck, but first make reference marks on the body and one of the chuck jaws to remount the tenon back into the chuck. This ensures that the body will run true when remounted. ▶



7 Turn a tenon on the body material.



8 Measure the diameter of the lip inside the lid.



9 Transfer the inside diameter of the lid's lip to the body and turn a lip.



10 Shape the outside of the body and sand.



11 Hollow out and shape the inside of the body.



12 Sand the inside of the body.



13 Make an adjustment to the lip to ensure a jam fit of the lid.



14 The inside of the lid fits over the lip of the body and for the next step, a jam fit is required.



15 Turn a cylinder for the knob.



16 With the lid jam fitted onto the body, cut a recess into the center of the lid to receive the tenon on the knob cylinder.



17 Test fit the knob.



18 Glue the knob into the recess and use the tailstock as a clamp.



Shape and then sand the outside of the lid.



Shape the knob using either a round-nose scraper (l) or a small bowl gouge (r).



Mount the material that you will use for the knob into the chuck. Either crossgrain (faceplate) or long grain works fine—it is a matter of preference. True up the end of this material, making it as flat across as possible. Then shape a tenon onto the end, about 1/8" (3 mm) deep and slightly smaller in diameter than the wood. Part off the material (*Photo 15*). Set the knob material aside and remount the body and lid into the chuck, aligning the reference marks. (The cylinder for the knob could be turned ahead of time, but for best results, shape the knob after it is glued onto the lid.)

Ensure that the lid is still jam fitted securely onto the body. Cut a recess into the center of the lid to receive

the knob's tenon (*Photo 16*). I like to use a parting tool because it makes it simple to achieve a flat bottom and perpendicular sides in the recess, which are important to achieving a good glue joint. Take small cuts, turning off the lathe to test the fit (*Photo 17*). When you have the right fit, glue in the knob material, using the tailstock to apply pressure. I use a two-part epoxy for its gap-filling quality (*Photo 18*).

When the epoxy has cured sufficiently (usually overnight), proceed with shaping the lid and knob. Regardless of how good a jam fit you may have achieved of the lid to the body, leave the tailstock in place for extra support. Take light cuts with sharp tools. A gentle shear scraping

can achieve a tear-free surface on the lid, even with figured wood (*Photos 19, 20*), so that I can begin sanding at 220 grit.

Shaping the knob can be a bit tricky, since you are trying to create a tight cove with limited access. I have had good results cutting downhill with a round-nose scraper. It is also possible to use a bowl gouge with the flute facing up and cutting with the wing, as long as the side bevel of the tool is rubbing and you are taking very light passes. Either way, cutting downhill with the grain is essential (*Photos 21, 22*).

Once you have the cove of the knob shaped, finish the top of the knob, taking light cuts. Remove the tailstock for the final passes (*Photos 23, 24*). If the jam fit of the lid is not tight enough, however, leave the tailstock in place, cut as far as you can, and finish the knob by carving and sanding with the lathe off.

With the lid shaped and sanded, remove it from the box. Now it is time to adjust the lip to achieve a loose fit of the lid. Do this by reducing the diameter of the lip on the body (*Photo 25*). Remove only a small amount of material and test fit the lid.

Finish the bottom

To remove the tenon from the bottom of the box and create a foot, I jam fit the body over a scrap block, cut to accommodate the inside. I use small-bubble bubble wrap to protect



Final shape the top of the knob using the tailstock for support until the final cuts.



Adjust the lip of the body to achieve the final loose fit of the lid.



26

Jam fit the body over a scrap block and use small-bubble bubble wrap to protect the box's interior.



27



28

Turn away the tenon and add detail to the bottom. Remove the remaining wood using a carving tool. Sand.



29

the box's interior surface and bring up the tailstock to hold the body in place (Photos 26, 27). Position the live center of the tailstock into the reference mark in the tenon that you made earlier.

Shape the bottom, undercutting it slightly, which will ensure that the box sits flat. I use a small bowl gouge, and when I get close to the live center, I switch to a shallow gouge. Leave a small nub, and remove it later with a carving chisel and abrasive. Add detail lines for visual interest or as reference lines for adding a personal inscription (Photos 28, 29).

Dividers, finish, and flocking

For the dividers inside the jewelry box, I use medium density fiberboard (MDF). The thinnest I have found is 1/4" (6 mm) thick, which feels a bit too thick for the size of my jewelry boxes, so I reduce its thickness to 5/32" (4 mm) using a wide drum sander. Cut two pieces that will interlock and fit the profile inside the body. I use

a profile gauge to transfer the inside profile of the body to the MDF and use a bandsaw and belt sander to cut and fine-tune the pieces before gluing them in place (Photos 30, 31, 32).

Apply finish to the body and lid. I spray them with several coats of gloss lacquer, but use whatever finish you prefer.

To add a soft lining inside the box, I spray in flocking fibers, which come in several colors. The process is easy—simply follow the manufacturer's instructions. First, thoroughly seal the area to be flocked using lacquer, shellac, or varnish. Note, however, that if the surface is not sufficiently sealed, you may only get a thin application of flocking because the flocking adhesive will have soaked into the wood too much. Apply the adhesive (colored to match the flocking fibers). Then quickly apply onto that the tiny flocking fibers. The result is a soft, felt-like surface (Photos 33, 34).

Flocking materials, including special applicators, can be purchased from DonJer Products (donjer.com).

The jewelry box is now ready to receive its crowning glory: jewels from its new owner.

Joshua Friend, a woodturner and writer, is a member of the Nutmeg Woodturners League, an AAW chapter that meets in Brookfield, CT. See jfriendwoodworks.com for examples of his work and contact information.

Joshua Friend,
untitled, 2012, Poplar,
mineral-streaked maple,
4" x 8" (10 cm x 20 cm)



30



31



32



33



34

Create dividers by using a profile gauge to match the curve of the interior.

Apply adhesive and flocking fibers for a soft, feltlike lining on the interior. Have your box placed inside a clean tub or plastic-lined box so you can collect and reuse excess fibers.



Mike Mahoney, *Cookie Jar*, 2010, Ash, African blackwood, 9" x 14" (23 cm x 36 cm)

Bonnie Klein, untitled, 2011, Basswood, 2" x 3½" (5 cm x 9 cm)



Cindy Drozda, *Fire Star*, 2008, Amboyna burl, African blackwood, Mexican fire opal in 14K gold, 6" x 7" (15 cm x 18 cm)



Bill Clark, *Running in Circles*, 2009, Bigleaf maple, bloodwood, 2½" x 5" (6 cm x 13 cm)



Keith Gotschall, *Tortilla Holder*, 2012, Maple, 3¼" x 11½" (8 cm x 29 cm)



Richard Raffan, untitled, 1970, Walnut, 4" x 8" (10 cm x 20 cm)