



I build a lot of furniture—often complex, exacting pieces carefully mapped out in scale drawings. Some years ago I began making bandsawn boxes as a way to relieve the tension of working on such long, demanding projects. The boxes are quick, requiring no measuring, no joinery, and almost no planning. They welcome creativity, opening a door to limitless variations of form and embellishment. And most of all, they are fun. I can grab a piece of scrap, make a fast pencil sketch right on the wood, and work freehand at the bandsaw to create a box in no time.

I've always admired Shaker boxes, with their combination of good form and minimal material making a container that is lightweight, strong, and elegant. My goal with bandsawn boxes is similar: to push the



Beautiful Bandsawn Boxes

Seamless boxes from a single block of wood

BY MICHAEL CULLEN



limits of the material without compromising strength or function—and wind up with something beautiful.

I cut the boxes from a single chunk of wood, sawing it apart and then gluing it right back together with some parts removed. This makes for perfect grain matches and no issues of wood movement. I cut a tapered plug from the center of the blank, which I use to make a perfectly fitting bottom to the box as well as a keeper that holds the lid in place.

I make two types of bandsawn boxes. One has two curved walls that meet in a point at each end. The other is a four-walled, rectangular form. Almost all the steps for making the two types are the same.

Michael Cullen makes furniture and boxes in Petaluma, Calif.

Two-walled box



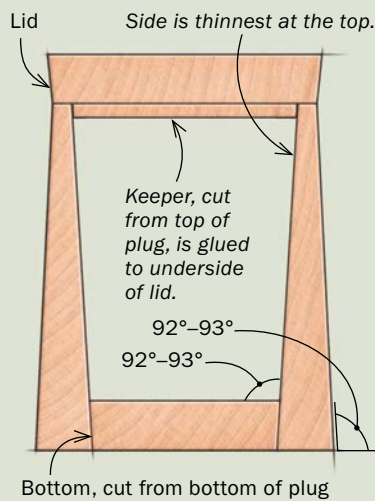
To make the two-walled box, start with a thick block of wood: 12/4 or 16/4 stock is optimal. Some of my favorite species for bandsawn boxes are basswood, walnut, mahogany, maple, and cherry. I carve and milk-paint many of my boxes, but I leave some unadorned.

Flatten the top and bottom of the blank, making the surfaces parallel. The sides don't have to be milled, but the glue-up will be easier if they are not too uneven. There's no required size for a blank, but one about 8 in. long by 4 in. wide by 3 in. or 4 in. tall would be good for a first try.

The first step at the bandsaw is to cut the lid from the block. Then set the lid blank aside and draw the shape of the box on the top of the box blank. These lines will define the interior of the box, so be sure to leave space outside the lines for the wall thickness.

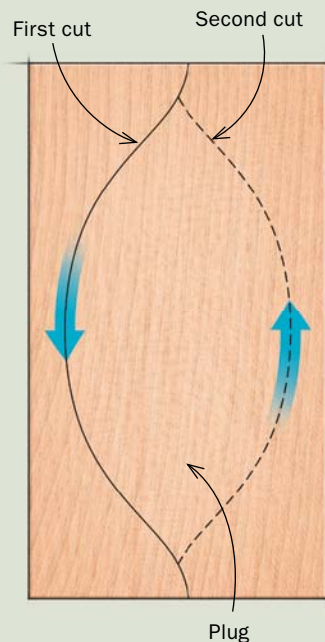
To saw out the interior, angle the bandsaw table roughly 3° off horizontal. A little more or less is fine. The idea is to make the interior cavity tapered—smaller at the bottom—so the tapered plug can be used to make a perfectly fitting box bottom. Saw steadily without rushing, so the blade tracks without deflection. The better the cut, the better the joints will be. I use a 3/4-in. blade with 4 or 6 tpi (teeth per inch). With the cuts complete, bring the outer halves together. The joints at each end should mate with no light showing through.

CROSS-SECTION



THE FIRST TWO CUTS

Make the two cuts in opposing directions to yield a tapered plug.



1 INITIAL SAWING

Off with the lid. After milling a block of wood, saw a slice off the top and set it aside—this will become the lid.



Tilt the table. After cutting off the lid, Cullen creates the interior cavity of the box by cutting a tapered plug from the blank. Set the bandsaw table a few degrees off horizontal before cutting out the plug.



Two curving cuts. For a box with pointed ends, two sawcuts are all it takes to shape the interior walls. Cullen makes a shallow test cut into the end grain to confirm that the blade is angled in the right direction and will yield a cavity that is smaller at the bottom.

Two-walled box continued



2 GLUE UP THE SIDES

Don't overdo the glue. Apply the glue carefully to prevent squeeze-out inside the box, where it is very difficult to clean up.

Hands before clamps. To be sure the bandsawn joints line up perfectly, fit the halves together first with hand pressure. Hold them firmly together for a minute or two to let the glue tack before applying clamps.



Glue up the sides, and when the glue has cured, drop in the plug. It should rest slightly below the bottom of the sides and form a perfect seal. Mark the plug where it emerges, then remove it and draw a second line at least $\frac{1}{4}$ in. above the first. With the bandsaw table still angled, cut along both lines to create the box bottom. Take a slice off the top of the plug to make the keeper for the lid.

Cutting the outside perimeter of the box is easy: Use a pencil with one finger held against the inside surface of the box and trace around the cavity, then cut to the line. Walls that are too thick make a box look clumsy; I typically make them about $\frac{1}{2}$ in. thick at the top, which gives a light, graceful

feeling. For a wall that is thicker at the bottom, creating a solid look as on this box, you can leave the bandsaw table at the same tilt as for the inside wall but approach the cut from the opposite direction.

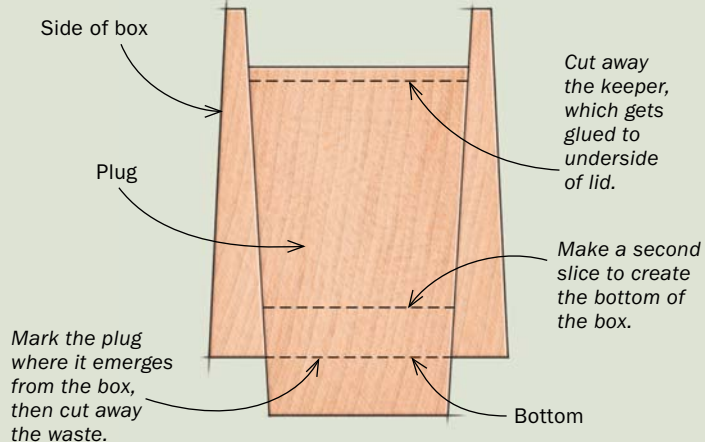
After gluing the lid keeper to the lid blank, put the lid on the box and trace the outside shape of the box on the underside of the lid. Then cut out the lid. I often make the cut so the lid flares outward. It looks good and makes the lid easier to grip. I usually fair the curves and smooth the bandsawn texture with rasps and files, and finish with sandpaper on a flat sanding block, beginning at 100 grit and ending with 400. For more aggressive shaping, I'll use the disk sander.



3 SLICE THE PLUG

Mark the excess. To create the perfectly fitting bottom of the box, first push the plug into the cavity and draw a line around it where it emerges.

TAKE THREE SLICES FROM THE PLUG



Two cuts to get the bottom. With the bandsaw table still angled, saw off the waste piece at the lower end of the plug, then take a second slice to make the bottom of the box. Last, cut a slice off the top of the plug—this will be the keeper on the underside of the lid.



4 COMPLETE THE BODY OF THE BOX

Color comes next. If you'd like to paint the inside of the box, now is the time, while you have access from top and bottom. Paint the bottom as well.

Free the box from the blank. To create walls that are thicker at the bottom, leave the table tilted as before but approach the cut from the opposite direction.



Pop in the bottom. After brushing a narrow band of glue around the lowest part of the inside walls, drop the bottom into the cavity and press it into place.



5 ADD THE LID

Locate the keeper. Guided by a tracing of the inside of the box cavity, Cullen glues the keeper to the underside of the lid blank. He presses the keeper into place, holds it a minute, then clamps it.

Sizing the lid. After gluing on the keeper, fit the inverted box onto it and trace the perimeter of the box onto the lid blank. Then remove the box and saw out the lid.



A fitting lid. Cullen saws the lid at an angle opposite to the walls of the box. The flare looks good and also makes the lid easier to lift off (below).



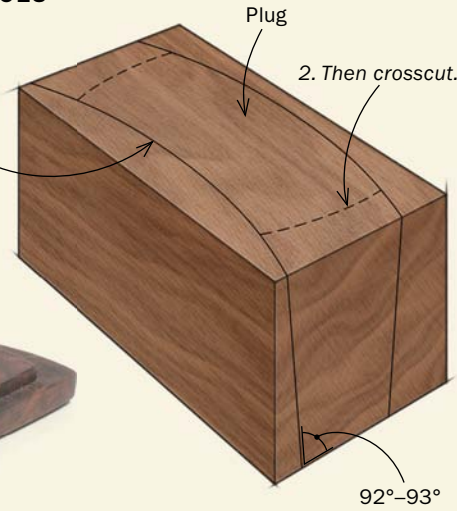
Four-walled box



TAKE FOUR SLICES

1. To establish the interior of the box, first make two slices lengthwise.

2. Then crosscut.



To make a four-walled bandsawn box, you'll follow nearly every step of the procedure for a two-walled box. The only real difference is in the pattern of cuts you'll make to the box blank once you've sliced off the lid blank.

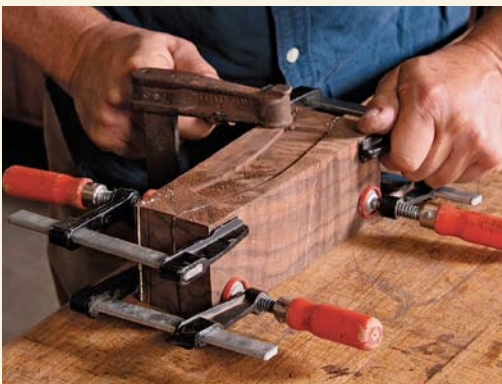
After slicing off the lid blank, draw the design directly on the top of the box blank. Again you'll want the interior cavity to taper inward from top to bottom, so angle the bandsaw table a few degrees. Slice lengthwise through the block for the first

cut, then the second. The blank will now be three long, narrow pieces. It's a good idea to mark them so they'll go back together in the correct order. Now crosscut the central piece at each end to define the ends of the box's interior.

The glue-up here is slightly trickier than for a two-walled box, and to keep the parts aligned during assembly I often do the glue-up around the plug. Be careful when applying glue to avoid squeeze-out, which could glue the plug in place.



From a blank to a box. With the bandsaw table angled a few degrees, make the two long cuts first, then the short ones to create a four-walled box.



Assemble around the plug. Cullen uses the plug to help keep the parts positioned for gluing. Careful glue application and the kerf spaces at either end of the plug keep it from getting glued into the box.



Saw the outside walls. After glue-up, cut the outside walls to free the box from the blank.



PLUG YIELDS MORE BOXES



Cullen often uses the plug from one bandsawn box to make a smaller nesting box. The plug he's holding above yielded two more boxes.

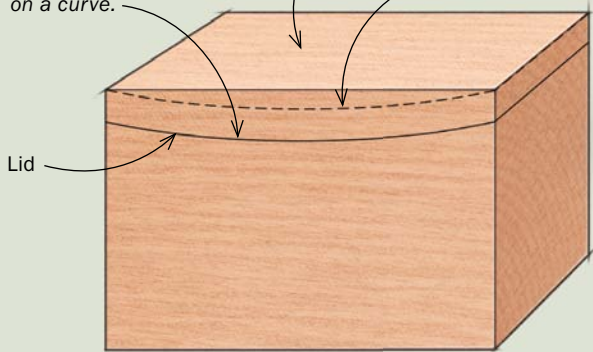
Saddled lid

CUT A CURVED LID

1. Cut the lid blank from the box blank on a curve.

Waste

2. Saw the top of the lid to a matching curve after gluing on the lid keeper.



The lids of these bandsawn boxes are open to all sorts of variations. The box and its lid can be flat-topped, scooped, crowned, even wildly undulating. I made the lid for this mahogany box so it curves downward in the middle. The process tracks the

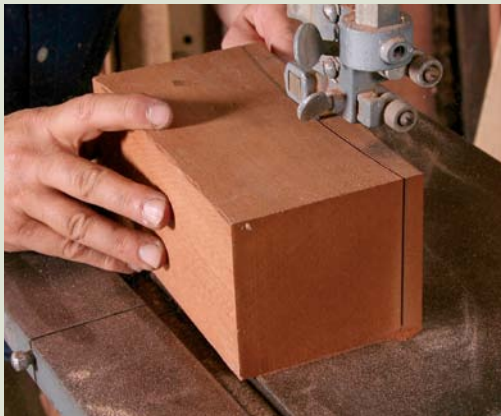
steps for making a flat lid with just a couple of exceptions.

When I cut the lid blank from the box blank, I simply drew a curved line and followed it. Had I drawn a squiggly line, the lid would fit just as well. After cutting out the sides of the box, I

sliced the lid keeper from the top of the plug, cutting parallel to the curving top face of the plug. I glued the keeper to the lid blank while the lid blank was still flat on top. Then I sawed the top of

the lid to a parallel curve. I could just as easily have left it flat on top or sawn it to a wavy surface. Experimentation is the name of the bandsaw boxmaker's game.

Cut away the lid on a curve. To make a lid that's dished end to end, cut the lid from the box blank on a curving line (right). After cutting the box apart, slice the keeper from the top of the plug, following a parallel curve (below).



Press the keeper into place. After applying glue—careful to stay well inside the perimeter line—press the keeper onto the lid blank and hold it a minute (left). Then add clamps, using the plug, which is sawn to the identical curve, as a custom caul. With the keeper glued in place, saw the top of the lid to a mating curve (below).

