Wooden Tubes, Cigars, and Treasure Maps

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What would you store in a hand-crafted wooden tube? There are lots of possible objects. I like to use a lidded tube to safely transport a single cigar. Tossed into luggage or a golf bag, it protects my favorite smoke while in transit. Perhaps you are not a cigar smoker, then what better way to present a rolled up secret treasure map to a child at a birthday party? Uses for wooden cylinders with tight-fitting lids are only limited by one's imagination.

Making a wooden tube with a cap, with the grain running parallel to the ways of the lathe (between-center orientation), is much like making a lidded box. Instead of hollowing out the inside with a turning tool, you use a drill bit chucked into a Jacobs chuck mounted in the tailstock. It is critical for the cap to have just the right fit: snug enough so it won't fall off, yet loose enough to be pulled off without undue struggle. Getting the lid to fit right can be a challenge, but don't worry—you can control the fit of the cap by "sneaking up" on the perfect fit with patience and care. Here's how to make a tube with a perfectly fitting lid.

Choose the wood

Although I generally don't use softwoods (conifers) for most turning projects—their lower density increases the likelihood of denting—softwoods are a good choice for a tube because the wood doesn't resist the tool as much as hardwoods do. Less resistance improves tool control and causes less vibration and chatter when cutting across the endgrain. Additionally, using a softwood will make shaping the top of the cap easier because the cutting action for this step is accomplished a good distance from the chuck, without tailstock support. But more on that later...

Red (aromatic) cedar is a great choice of wood for this project. Many cigar humidors are lined with cedar, so it seems appropriate to use it for a cigar tube. Plus, I love the smell of cedar in my shop after turning it. Another wood I like to use (and the one I chose for illustrating this article) is butternut. Butternut is similar in density to red cedar and strikes a nice balance between beauty and workability.

1 It is important to use dry wood, otherwise the piece could change shape after completion, altering the fit of the cap.

2 Turn the wood to a cylinder with tenons on each end. Mark the length for the cap.

Rough turn the cylinder

Start with a block of dry wood measuring 2" (5 cm) square by about 11" (28 cm) long, and mount it on the lathe between centers *(Photo 1)*. Rough turn it to a cylinder, but keep a diameter of at least 1¾" (44 mm) to allow for ample wall thickness later. Form tenons on both ends of the piece, and decide which end will be the top (or cap) and which will be the bottom. Mount the cylinder into a four-jaw chuck using the tenon on the cap end. Make a mark where the ▸

cap will be parted off (about 1½" [38 mm] from the shoulder of the tenon is appropriate), and bring up the tailstock for support *(Photo 2)*. Part the body of the cylinder from the cap. A narrow parting tool is best for this job since a small kerf will minimize the disruption of grain flowing from the cap to the body. I like to part down most of the way and then finish the cut with a handsaw.

To cut across endgrain, engage the cylinder's edge slowly and carefully, then ride the bevel all the way to the center.

A Forstner bit quickly and consistently forms the interior walls of the cap.

Cut from the center to the outside, with the bevel rubbing.

The inside of the cap is finished.

Drill out the tube's body slowly, clearing the chips frequently.

Prepare the inside of the cap

With the cap section still mounted in the chuck, cut across the endgrain, first to true it up and then to make a slightly concave cut. I like to use a spindle gouge for this task. Making this cut concave now will help to ensure there are no gaps later where the cap will meet the body of the tube *(Photo 3)*.

Next, insert a 1¼" (32 mm) Forstner bit into a Jacobs chuck, held in the tailstock. With the lathe speed set slow, advance the bit about ½" (13 mm) into the endgrain of the cap *(Photo 4)*. The interior walls formed by this drilling will later mate up with the neck portion of the tube's body. You could alternatively form these walls by using a square-end scraper or parting tool, but I find drilling to be easier and more reliable when making multiple tubes. Additionally, the Forstner bit produces walls that are consistently straight and perpendicular to the end of the cap.

At this point, I like to hollow the bottom of the inside of the cap a bit further and decorate it with concentric circles. Both of these processes can be accomplished using a spindle gouge, small bowl gouge, or detail gouge, cutting from the center to the outside with the flute facing to the left (remember you are cutting endgrain, which requires a different approach than cutting sidegrain, as for a bowl). Once the cut is started, pull to the left with the bevel rubbing and stop each cut just short of the prior cut *(Photos 5, 6)*.

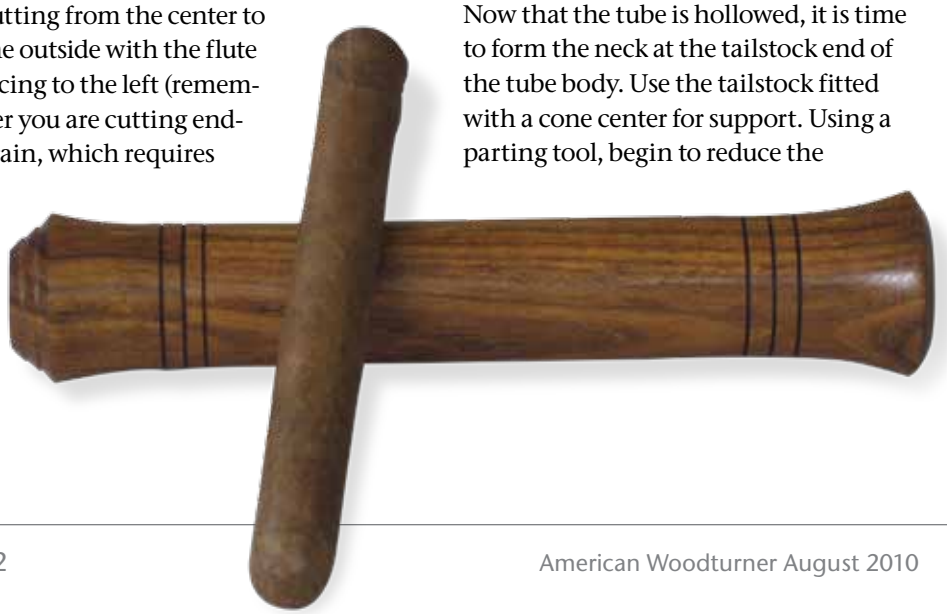
Drill out the cylinder

Remove the cap section from the chuck and set it aside until later. Mount the body section of the tube into the four-jaw chuck, grabbing the tenon that you formed earlier. Chuck a large brad-point bit into the Jacobs chuck. The bit I use is about 1" (26 mm) in diameter and is about 6½" (17 cm) long. Run the lathe at a slow speed (500 to 800 rpm), and advance the bit slowly into the wood, allowing the bit to eject the shavings. Back the bit out frequently to aid in this process *(Photo 7)*.

Since the travel distance of my tailstock quill is shorter than the length of the drill bit, it is necessary for me to reposition the tailstock closer to the headstock after I have drilled the full extent of the quill travel. Drill the full length of the bit. Measure the depth of the tube's cavity, and transfer that depth onto the outside of the tube, making a mark on the wood. This mark will be used later as an indication of where to begin cutting the bottom end of the tube. Don't forget to allow for the length of the brad point at the end of the bit—you don't want to end up with small pinhole on the bottom of your tube!

Fit the cap to the body

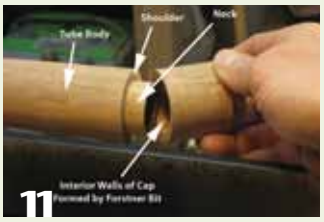
Now that the tube is hollowed, it is time to form the neck at the tailstock end of the tube body. Use the tailstock fitted with a cone center for support. Using a parting tool, begin to reduce the




Use a cone center in the tailstock for support when beginning to form the neck section.


Use your fingers to apply counterpressure as you fine-tune the neck to achieve a perfectly fitting cap.


Cut the shoulder slightly concave. The principles used to create a good fitting cap are the same as those in making a lidded box.



At this point, the cap should fit snugly and the outside of the tube is ready for final forming.

neck's diameter *(Photo 8)*. Keep in mind the length of the neck should be slightly shorter than the length of the interior walls formed in the cap by the Forstner bit earlier. This way, the cap will seat properly. So, if the cap's interior walls were drilled to ½" (13 mm) deep, then the neck should be about 7/16" (12 mm) long. Nevertheless, maximizing the length of the neck is important because the added surface area improves the fit of the cap so it will not fall off.

Since the Forstner bit used to drill the cap was 1¼" (32 mm) in diameter, we know that the outside diameter (OD) of the neck will also need to end up at 1¼" (32 mm). But we want to sneak up on the perfect fit, so begin by bringing the OD of the neck down to about 1⅜" (35 mm), using the tailstock for support. Err on the side of leaving it fat at this point, since you can always take more wood off. Once you get the OD of the neck close to the final dimension but still too thick, it is time to fine-tune the fit little by little until you arrive at the perfect snug fit.

During this fine-tuning process, stop the lathe often to test the fit and see where more material needs to be removed from the neck. I find it inefficient to continually remove the tailstock to test the fit and replace it to cut further, so I remove the tailstock and use my fingers to apply counterpressure while lightly cutting with the parting tool *(Photo 9)*. Counterpressure is necessary because the cutting action is taking place far away from the chuck without tailstock support. A steady rest would do the job as well. I take off a little material, turn off the lathe, and test the fit. Repeat the test-fitting as many times as is necessary to achieve a fit that is just right.

If you accidentally take off too much material and the cap fit is too loose, it is possible to tighten the fit slightly by applying layers of thick CA glue around the neck. Let the glue dry ▸


With a good friction fit, the cap and body are mounted together, ready for shaping the outside to achieve a seamless look.


Measure the correct diameter at one point on the tube's body.


Reduce the diameter of the rest of the tube's body.


Turn V-grooves using a skew chisel. Here is where you can be creative with this project—there are many options for embellishment.


Using a wire, burn the V-grooves to highlight them.


With the tailstock out of the way, apply counterpressure with your fingers for support when shaping the top of the cap.

18 Use a spindle gouge to shape the bottom of the tube to create a decorative and smooth surface.

19 Leave a nub of wood attached to the bottom and use a handsaw to part the cylinder off.

20 Remove the nub using a carving gouge, then sand.

21 A drying board with holes to receive dowels makes spray finishing easy. This system also works great for other small projects.

completely before sanding it down and retesting the fit of the cap.

Once the cap has just the right friction fit on the neck of the tube's body, make a slightly concave cut on the shoulder of the neck, just as we made a concave cut on the cap earlier. The two mirroring concave cuts (on the cap and on the shoulder of the body) when mated will ensure that the outermost points make contact, which results in a tighter looking fit of the cap—no gaps. I make this cut using a skew chisel, long point down. Engage the edge of the shoulder with the long point and make a short slice inward and to the left, down to the neck *(Photos 10, 11)*.

Turn the outside of the body

Put the cap onto the tube's body and bring up the tailstock for support, applying only gentle pressure with the tailstock *(Photo 12)*. You should not have to use the tailstock pressure to make the cap fit well. Now you are ready to turn the outside of the body using the tool of your choice. I like to use a roughing gouge for this step, but a skew chisel would also do a great job. Bring the diameter of the tube down to 1½" (38 mm) *(Photos 13, 14)*.

You can get as creative as you like with the shape of the outside of the tube, as long as you respect the thickness of the tube walls. At the cap end, I like to form a finger grip to allow for easy removal of the cap. Sand the outside of the tube, and add embellishments. I'm fond of burn lines at and around the point where the cap meets the body, which help to hide that juncture. Lay out lines using a pencil, then cut shallow grooves using a skew chisel. Hold a wire tight in the groove until the wood begins to smoke *(Photos 15, 16)*.

To get a clean final cut on the end of the cap, remove the tailstock and again apply counterpressure with your fingers. Use a sharp spindle or detail gouge to give the cap its final shape *(Photo 17)*. The advantage of using a softer wood is apparent at this stage—a denser wood would chatter and vibrate much more when unsupported by the tailstock and far away from the headstock.

With the cap shaped and sanded, it is time to part the tube off the lathe. Remove the tube's cap and again use the tailstock with the cone center for support. Using a spindle gouge, begin stepping down the end, or bottom, of the tube's body. Remove wood until only a small nub is holding the piece on the lathe. I like to turn the lathe off at this point and make the final cut with a fine-tooth handsaw. To remove the small nub from the end of the tube, use a small carving gouge and sandpaper *(Photos 18, 19, 20)*.

Finishing

I like to use lacquer for a quality, durable finish. It is, however, possible to apply a friction polish while the project is still on the lathe, but its quick luster will not last over the long term.

I spray the cap and tube body separately using a length of dowel with masking tape wrapped around one end as a means of holding the pieces while spraying *(Photo 21)*. Hold the end of the dowel and spray the piece. Keep in mind when spraying the tube section that it is necessary to mask off the neck so that the perfect fit of the cap won't be affected by a buildup of lacquer. After spraying, the dowels can be set into a drying board with holes in it, so you never have to touch your workpiece while finishing. This low-tech method works great for spraying all kinds of small projects. ■

Joshua Friend is owner of J. Friend Woodworks. See jfriendwoodworks.com for contact information and examples of his work.