

Oh, Canada

This project demonstrates two ideas you can incorporate into your next pen project. First, use a laser service to cut positive and negative shapes of contrasting woods—like the maple leaf shown here—that fit together seamlessly.

Then, add contrasting species right on the barrel.



By Richard Kleinhenz

Crafted items based on a flag motif are always attractive to the citizens and friends of that country. Here's a stylish fountain pen that's easy to make and sure to please more than just Canadians.

Although this design reflects Canada's maple leaf, consider this a springboard to incorporate just about any custom laser design into your next pen.

The contrasting bands on the barrel can be more than a pleasing design variation. With this technique, you can save a project and add what penturners call an "oops" band to cover a breakout or other defect in the turning stock.

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Woodturners

1 Get started

The pen shown features the Baron fountain pen kit with titanium-gold plating from Arizona Silhouette (arizonasilhouette.com). Other kits that work for this design include the Junior Gentlemen II from Crafts Supplies and the El Grande from Berea Hardware.

Platings introduce two interesting variables—color and

wear characteristics. The titanium-gold plating is one of the top platings in looks and durability.

The stock for this pen is a kit available from Kallenshaan Woods (kallenshaanwoods.com). The kit includes a drilled and rough-turned holly cap (upper barrel) section with the maple-leaf outline and a bloodwood leaf to fit in the cutout. The kit includes stock to make the bloodwood end sections for the cap and the main barrel.

Other custom items required are a pen mandrel for your lathe and a set of bushings specifically for the Baron pen kit (available from the kit manufacturer or distributor).

For lathe tools, you'll need a thin parting tool, $\frac{3}{4}$ " skew, or $\frac{3}{8}$ " gouge.

2 Assemble the feature barrel

With a hobby knife, dental pick, or your fingernails, press the maple leaf into the cutout. Be careful not to break off the stem—or worse—lose the broken stem. If you lose the stem, whittle scrap bloodwood to fit the space. After placing a leaf in the cutout, flow thin cyanoacrylate (CA) glue over the entire area, locking the leaf into place.



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This variation uses the Sierra kit, available from Berea Hardwoods and Arizona Silhouette.



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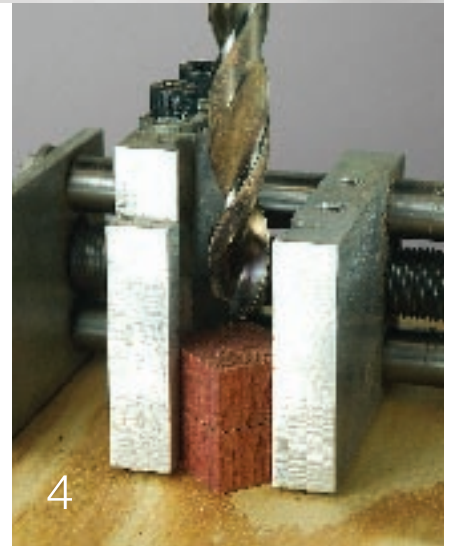
After the CA glue has set, check to see if the barrel slides freely onto the larger of the brass tubes. Check for obstructions: It is possible that a drop of CA glue wicked through the seam and dried inside or that the laser-cut leaf dropped down too far. You'll need to remove the obstruction with a round file or rasp or sandpaper wrapped around a dowel.

3 Begin assembly

When the barrel section slides on freely, glue it onto the brass tube using five-minute epoxy. Make sure you have good coverage; apply epoxy to the inside of the barrel (especially in the area of the inlay). This step is important when you final-turn the barrel because an air pocket could lead to problems that appear later.

4 Add the bloodwood accents

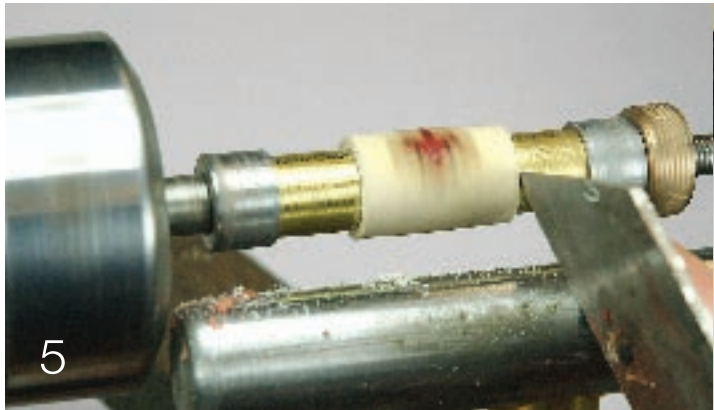
While that tube dries, measure the exposed brass tube ends and cut two pieces of bloodwood about $\frac{1}{32}$ " longer. Drill the pieces using a $\frac{15}{32}$ " (12 mm) bit. If you can cut and drill reasonably square, there is no need to engage a pen mill. Sand one of the faces of each block so you can make a clean joint against the center section. You can stack and drill both pieces in one operation as shown at *right*.



4

Custom laser-cut designs

The appeal of the maple leaf on this design relies on precise laser-cutting. One company that specializes in this custom work is Kallenshaan Woods (kallenshaanwoods.com) of Las Vegas. Do you have your own custom design you'd like to incorporate into a pen? Send Kallenshaan your own design plus rough-turned wood sleeves in two contrasting colors. For a small fee, Kallenshaan will return laser-cut pieces to you.



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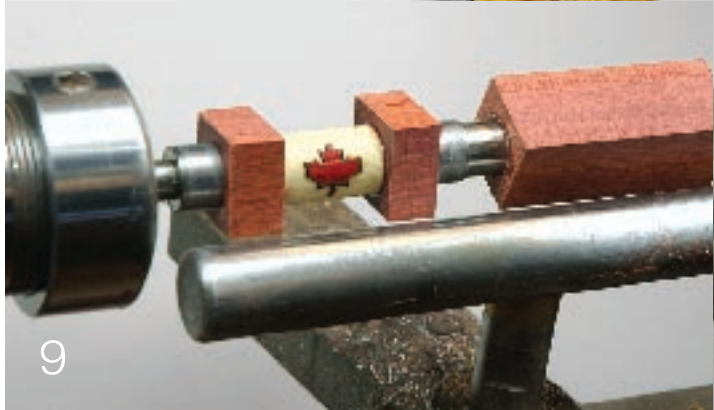
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5 Mount the barrel

Mount the barrel on the lathe using the two largest bushings. With a parting tool, square up the wood shoulders and turn away excess epoxy. Test-fit the bloodwood pieces you cut; each should butt up snugly against the center barrel and extend just beyond the ends of the tube. If you're not satisfied with the fit, use a pen mill to square up the faces. A poor fit will detract from the beauty of the pen.

6 Clamp the upper barrel

Glue the end pieces using five-minute epoxy or gap-filling CA glue. Although you can glue end block, barrel, and end block all at the same time, I prefer performing this in separate steps. This gives me the opportunity to make barrel-length adjustments. By breaking this into three steps, I can also verify that the joints are 100 percent square to the tube.

7 Prepare the main barrel

While the glue sets, prepare the main barrel. For details, see the tip box *opposite*.

Glue the smaller brass tube into the hole using your favorite glue or adhesive. Epoxy, polyurethane, and thick CA glue are favorites of penturners.

With a pen mill, square the end faces of both pen barrels. A custom-turned sleeve adapts the



thin pilot to the brass tube. It is important to have the end faces absolutely square—anything off square will show up as a gap against the metal hardware pieces in the final pen. It's also important to clear off any glue inside the tube with a round file or a pocket knife.

8 Remove burrs

At this point, remove the small burr at the end of the brass tube and add a small taper by using a simple deburring tool available from machine-shop supply houses. This step streamlines the pen assembly later.

9 Turn the barrel

Mount the pen mandrel on your lathe and the barrels on the pen mandrel. Both ends of the tubes are the same on this Baron kit, so you don't have to pay attention to the order of the bushings. Two cautions: First, do not over-tighten the mandrel nut. And don't

use pressure with the tailstock; the live center mounted in it should just support the mandrel.

Turn the stock round, using a $\frac{3}{4}$ " skew or $\frac{1}{2}$ " spindle gouge to reduce the stock to the bushing diameter. Once the main barrel is round, stop the lathe, loosen the tailstock and mandrel nut, and retighten with minimal pressure. This minimizes the mandrel bowing effects that result in non-concentric turned barrels.

Take your final cuts with a sharp skew, reducing the barrel to bushing diameter. Your goal is to avoid sanding the cap tube with the leaf inlay.

10 Finish the pen

If sanding is required, you run the danger of pulling red dust into the white holly. If that happens, I've had good luck cleaning the holly with lengthwise strokes with a white Scotchbrite pad. Drenching your pen stock with an initial coat of thin CA is a worthy strategy to avoid this finish dust problem.

Finish the blanks on the mandrel. My current favorite finish is thin CA glue. Sand to 400 grit, then apply three or four coats of thin CA, spreading it with your finger wrapped in a plastic bag (the bags from your pen kit are ideal).

Aerosol accelerator is an economical way to speed the CA curing. Avoid applying too much accelerator, which causes the CA to

foam or cloud.

To level the CA layers, lay a skew flat on the tool rest and scrape at or just below center. Then sand with 400-grit sandpaper until you remove the shiny highlights.

Next, finish with Micro-mesh 1500, 1800, 2400, 3200, and 4000. Inspect that you have not broken through the CA anywhere, indicated by a dull area. If you break through the finish, apply fresh coats of thin CA glue and repeat the steps above.

Remove the mandrel and polish the pen at a buffing wheel loaded with white diamond compound.

11 Assemble your pen

To assemble, follow the instruction sheet packaged with the hardware kit. Because I don't like to pull attention away from the cap design, I often leave out the small black decorative ring and gold-trimmed centerband.

Your drill press makes a convenient pen press. First, turn a piece of hardwood scrap round, as shown at *left*; this becomes the upper anvil in the drill chuck. A scrap of plywood or solid counter-top material turned on end provides an excellent hard surface.

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Avoid shattered barrels

One of the biggest disappointments for penturners occurs when the stock cracks as the drill bit exits the barrel. Here's one preventative strategy. Cut the barrel stock about $\frac{1}{4}$ " longer than the smaller tube (total length about $2\frac{3}{8}$ "). After you mount the $\frac{25}{64}$ " (10 mm) bit in your chuck, set the depth stop to drill $2\frac{1}{4}$ ". Drill through the center of the stock; the bit will not exit. Then cut to the desired length ($2\frac{1}{8}$ " for this project).