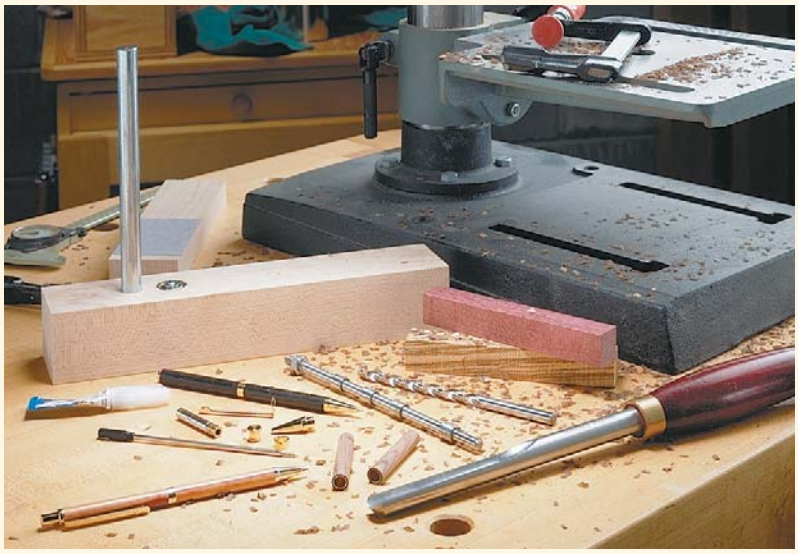
SMALL PROJECT

WOOD PENS

Got a few small scraps, a drill press, and an hour? That's all it takes to turn out one of these elegant little pens.



Being one who appreciates a beautiful piece of wood (no matter what the size), I'm always hanging on to scraps, some no bigger than my finger. But until recently, I didn't know what to do with these scraps except "squirrel" them away in a drawer.

Then I ran across the perfect project: wood pens. Wood pens don't take much time or material. And it's a great chance to try your hand at a little turning — even if you don't have a lathe. I turned all the pens in this issue on a drill press with a simple shop-made jig, see page 26.

Note: For a list of items you'll need, see the box on page 25. For sources of pen-making supplies, see page 35.

PREPARE BLANKS. The first task to making a pen is to prepare the blanks for turning, see Steps 1-3. This involves cutting the wood blanks to size and adding the brass barrels that will hold the pen mechanism.

SQUARE ENDS. There's nothing complicated here. But you do want to be careful when drilling the 7mm holes for the barrels. These holes are centered on the ends of the blanks and run their full lengths, see Step 2.

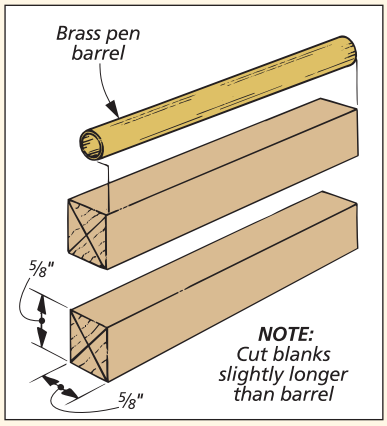
What's important is that the holes are square to the ends of the blanks. Otherwise, you'll end up with tiny gaps when the pen is put together.

SETUP. To get these holes as accurate as possible, I made a fence with a shallow dado cut in one face, see Step 2. This fence also speeds up the process somewhat. Once it's clamped in position, you won't have to worry about centering the bit for each blank.

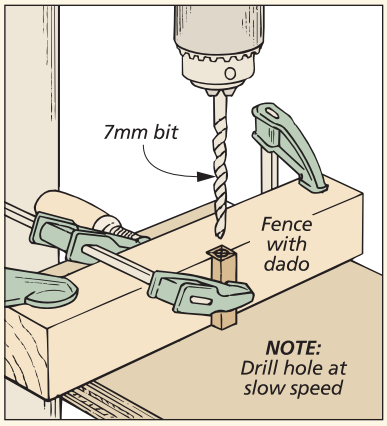
DRILL BIT. But besides the fence, I also used a drill bit designed specifically to drill into end grain. (I didn't have a 7mm bit and needed to buy one anyway.) What's different about this bit is that the point is steeper and the flutes are wider to remove the chips more quickly.

SUPER GLUE. To glue in the barrels, I

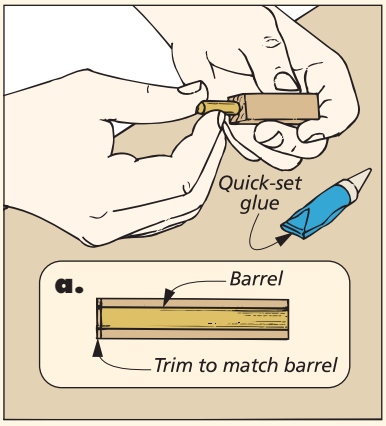
▲ *This barrel trimmer squares the ends of the blanks to the barrels, so the pen mechanism will fit together without any gaps.*



1 *To begin, cut two wood blanks slightly longer than the barrels. Then mark the centers on the ends.*



2 *With the blanks cut to size, the next step is to drill a 7mm hole through the blank to hold the barrel.*



3 *Now, glue the barrel in the blank. Then trim or sand the blanks to length, keeping the ends square.*

applied quick-set glue to the barrels, see Step 3. But don't use the kind that sets up instantly — you need a little bit of time to push the barrel inside the blank so it's flush with one end.

BARREL TRIMMER. If you don't mind spending a little more money, a barrel trimmer does a neater job than sandpaper when it comes to squaring up the ends of the blanks, see margin photo on page 24. This trimmer has a shaft that fits inside the barrel after it's glued in place, see Step 3. As you twist it, the cutters scrape the end of the blank square to the barrel.

TURN BLANKS. After the blanks are trimmed to the right length, it's time to turn the blanks down to size, see Steps 4-6. (I used a spindle gouge.) The blanks are mounted on a steel mandrel with three bushings that match the finished diameter of the pen tip, center ring, and cap.

STRAIGHT SIDES. Since I turned the blanks with the drill press, they're held upright rather than horizontal. With this orientation, it's a little tricky to tell if you're turning the blanks straight. So you have to tilt your head occasionally to check your progress.

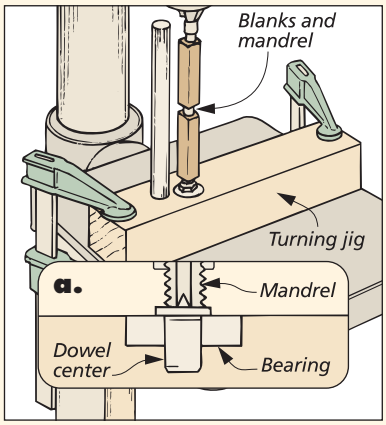
The goal here is to rough out the blanks until there's a slight shoulder at the bushings, see detail 'a' in Step 5. The sides should be straight or bowed out just slightly.

SANDING BOARD. Now to keep the blanks straight while reducing them to their final diameter, I used 150-grit sandpaper mounted to a board, see Step 6. Then when the blanks were close to final size (I used a calipers to check my progress), I set the board aside and did the finish sanding by hand, working my way up to 600-grit.

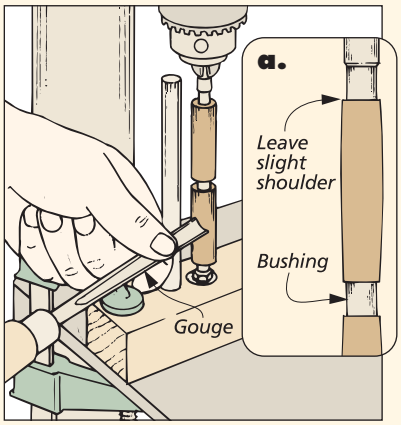
FINISH & ADD MECHANISM. All that's left now is to apply the finish and then press the pen mechanism into the barrels, see Steps 7 and 8.

The nice thing about finishing the blanks is that you can do it while they're turning on the drill press. And though you can apply almost any finish, there are special waxes and turning finishes available.

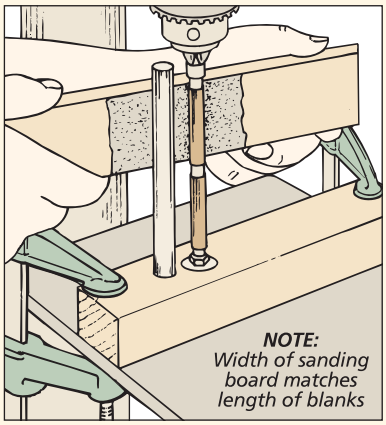
When you add the mechanism, the blanks can be oriented in any direction. And you may find that one end of each blank is just a hair larger than the other. I used my calipers to find the end closest in diameter to the center ring. This produces the smoothest fit, since the center ring is the part of the pen you feel the most. W



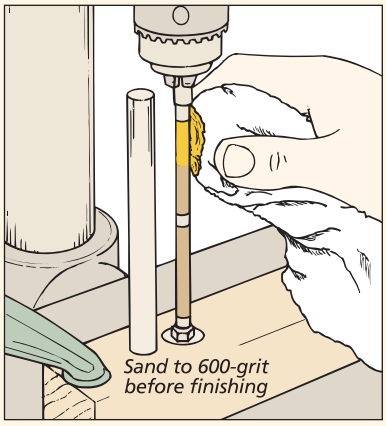
4 *With the blanks secured to the mandrel (see margin) mount it to the drill press and turning jig.*



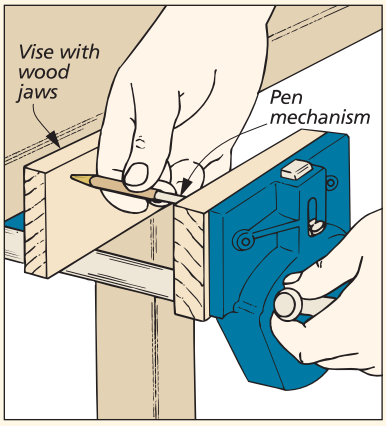
5 *Next, turn the blanks slightly larger than the bushings. Blanks can be straight or bowed slightly, see detail.*



6 *Now the final shaping can be done with 150-grit sandpaper mounted to a board.*



7 *Set the sanding board aside and finish sand the blanks to 600-grit. Reduce the speed and apply a finish.*

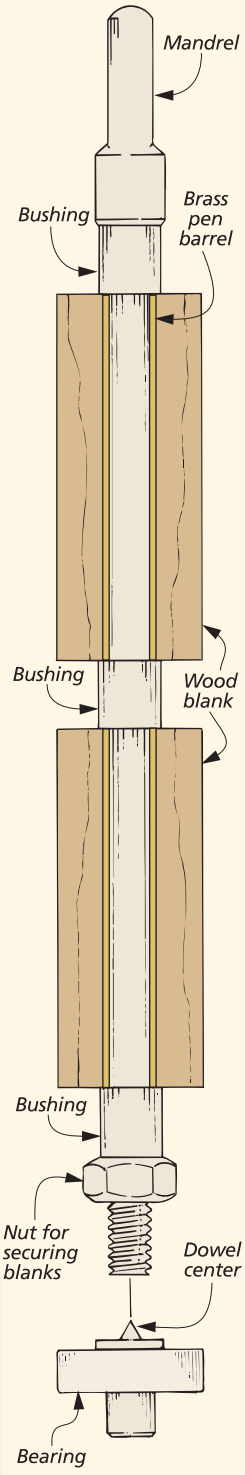


8 *To add the pen mechanism, use a wood vise, holding the pieces straight as they're pressed together.*

PEN SUPPLIES

- 5/8" x 5/8" - 5" (rgh.) Wood Blank
- Pen Mechanism Kit
- 7mm Twist or Brad Point Drill Bit
- Quick-set or Instant Glue
- Turning Jig (see page 26) or Lathe*
- Mandrel w/Bushings*
- Spindle Gouge
- Vise with Wood Jaws
- Barrel Trimmer (Optional)

* To turn pens with a lathe, you'll need a live center and a mandrel with a Morse taper.



TALKING SHOP

Turning Jig

The guys in the shop looked a bit puzzled when I showed up with this turning jig, see photo. But this bare-bones jig really does the job. In fact, after seeing it work, they all got busy making plans to turn some pens of their own.

HOW IT WORKS. The secret to this jig is the "live center" that holds the mandrel. This is simply a common ¼"-dia. dowel center that sits in a bearing, see Fig. 1.

As the drill press spins the mandrel, the dowel center helps keep the mandrel straight, without creating a lot of friction.

And to support and guide the gouge as the wood is turned, I added a tool rest made from a piece of ½"-dia. steel rod.

CONSTRUCTION. To build the jig, I started out with a base cut from 1¾"-thick stock, see Figs. 1 and 1a.

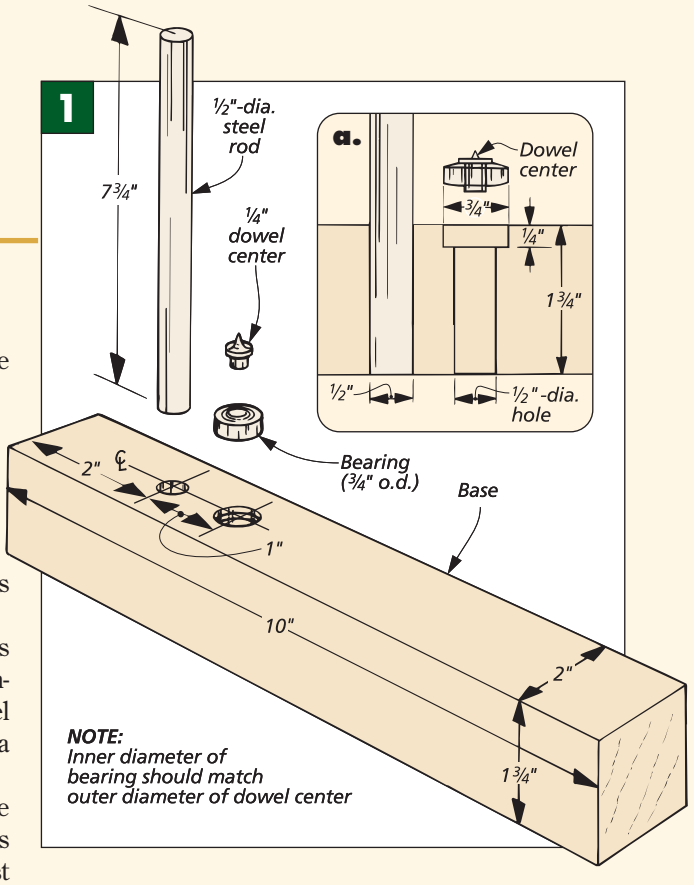
Then I drilled three holes: a clearance hole for the dowel center, a ¼"-deep hole for the bearing that allows the dowel center to spin, and finally, a hole for the steel rod. Note: I drilled these holes closer to one end to provide more clearance for the gouge when turning.

With the holes drilled, the hardware is pressed in place (I didn't use any glue).

JIG SETUP. To set up the jig, mount the pen blanks on the mandrel and chuck it in the drill press. (Set the drill speed at 2000 RPM.)

Now position the jig so the dowel center fits in the dimple on the tail end of the mandrel and clamp the jig securely to the table.

It'll take a bit to figure out the best way to hold the tool. Just play with its angle and position, and you'll soon find something you're comfortable with.



TOMPKINS TURNER

I'm a pushover when it comes to jigs. So when I saw this one for making pens on a router table, I just had to try it.

The Tompkins Turner is a turning mandrel on wheels, see photo. The mandrel is a rod threaded at each end. The bushings are plastic. And to secure the blanks and lift them off the table, there are a pair of wheels that screw onto each end of the rod.

The procedure is simple enough. The blanks are prepared just like you do when turning them. But the wood is removed by making multiple passes over a straight bit.

Each pass is made from right to left, and the jig is rotated slightly between passes. To make sure you don't run the jig into the bit, there are a couple stop blocks that are attached to the table.

Note: The instructions recommend using a ½" straight bit with a cutter across the end. (I used an ordinary straight bit, and it seemed to work fine.)

I had no problems with the Tompkins Turner and was surprised at how smooth the blanks ended up. Still, sanding and finishing are more work since the blanks aren't spinning. And I still think it's more fun to watch a pen take shape while turning, rather than routing.