The Journey from Penturning to Penmaking

by Kurt Hertzog

So You Want to Be a Penturner

Penturning is a funny segment of woodturning. There are woodturners who turn pens and penturners who turn only pens. They really fall into two separate and unique categories. The woodturner who has or adds penturning to his or her repertoire usually has all that is needed except the mandrels, bushings, and pen-specific doodads. Sometimes, the turner started with pens and then moved into the broader realm of woodturning or more rarely was a woodturner who now takes an interest in pens. Regardless, when folks who are entirely new to the craft (hobby, sport, profession?) make the leap, they are at their most vulnerable. There are dollars to be had and no end of places to spend them. We'll dedicate this column to "starting from scratch" and, hopefully, provide a reasonable road map for those getting their feet wet while preventing them from getting a bath. Making pens, in a nutshell, is gluing brass tubes into a hole in the wood, and then turning and finishing to a size appropriate to press-fit in the rest of the parts (see Fig. 1).

DISCLAIMER

Before we go too far, let me throw in a few disclaimers. First, this is a way to get into penturning, but certainly not THE ONLY way. I explain it with a clear conscience having no financial stake in it at all; if and when you go shopping, don't forget that some of the folks giving you advice have a financial stake in the game—that isn't sinister, but certainly take it into consideration.

The next disclaimer is about safety. I assume that you know that safety glasses are the MINIMUM in required personal protective gear. Face shields and dust masks might be in order for sanding; however, I'm not covering PPE (personal protective equipment) or ventilation, since that is a totally different issue. Safety is in your hands, so don't ignore it—it is important.

My last disclaimer is the same as for all my columns: I write this as one who has made most of the mistakes already and I am sharing the path minus my mistakes with you. I didn't do it all right the first time and am not speaking from the high ground—only from experience.

LATHES

Obviously, you'll need a lathe. You'll hear of and perhaps see every concoction from pistol drills squeezed in a vise to attachments for a drill press being used as a lathe. Is this workable? Perhaps it is; however, it's probably not the best way to begin if you intend to continue to turn pens over the long haul. What kind of a lathe? Without being facetious, it doesn't matter—pretty much, whatever you have will work! You can turn pens quite nicely on the biggest

Fig. 1

As you might read in a dictionary, penmaking is gluing brass tubes into wood to be turned so that the brass pen components can be press-fit into the tubes.

Fig. 2

The wood has no idea what tool was used; a sharp tool, properly presented, cuts nearly any material you'll encounter.

Fig. 3

There are "pen tools" available, but standard-size tools work quite nicely and their size and mass add value.

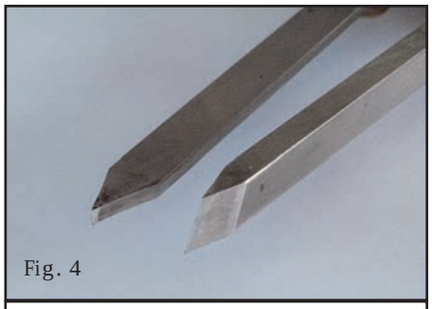

Fig. 4

In essence, a parting tool is a skew chisel ground straight across with the other aspect ratio. Presented as it should be, it works and cuts like a skew.

Fig. 5

Though native woods can be spectacular in larger turnings, the orientation and size of pens make nearly all the features disappear, and highly figured exotic woods create much more interesting pen turnings.

Fig. 6

You are drilling end grain for the most part; a sharp drill that is used with the material appropriate speeds and feeds will do the job.

lathe there is right down to nearly the smallest there is that will accept a pen mandrel.

If you don't have a lathe, I suggest choosing a lathe of the size you want with electronic variable speed, No. 2 Morse tapers on both ends, and a 1" x 8 headstock thread. Regardless of the lathe you end up with, don't ever lose sight of the fact that there have been, and continue to be, nicely created pens made on the old *Rockwell* Beaver lathe.

TOOLS

What kinds of chisels are necessary for turning pens? Well, if you are already a woodturner, you should know that it doesn't matter, and if you are new to turning, understand that it still doesn't matter. Pens can be turned with a 3/4" roughing gouge, a 1/8" parting tool, a carbide tool, or anything in between. Don't get duped into buying some collection of tools because you were told that you NEED them.

Penturning is a misnomer because there isn't a lot of turning in a pen. You spin the blank around and knock off the corners until you get to the bushing dimension. Sand, finish, assemble, and move on. I say this not to offend penturners, but to explain to newcomers that the woodturning in a pen is minimal. Just about any tool you can find—from a sharpened screwdriver to a bench chisel—will turn pens, provided that it is sharp and is presented to the work properly. Do I recommend using screwdrivers? Not at all! I'm just trying to drive home the point that the magic isn't in the tool; it is in the hands of the user. I suggest repeating those two sentences every time you feel like shopping. You are far better off investing in a class on the proper sharpening and use of woodturning tools than buying a tool that you can't sharpen properly, and can't or won't use in the correct manner (see Figs. 2, 3, and 4).

For now, get a standard size roughing gouge or parting tool; learn to sharpen it and use it correctly, and you'll be able to turn just about any pen out there. As an alternative, there is a host of carbide cutter tools either made specifically for pens or certainly suited to turn them. I've tried them all and they do work, so pick what suits you, but don't let yourself be convinced that you need a set of tools or mini-tools; pick a tool, any tool, learn to keep it sharp, and master it.

SHARPENING

A treatise on sharpening might be a great topic, but space prohibits it here. To be a good woodturner (or penturner), sharp tools are a necessity. How you get there can take many paths. You can join those with the carbide-tipped tools, and reorient or replace the cutters as needed to keep a sharp edge in play. Barring that replaceable cutter method, you'll need to sharpen tools. It isn't

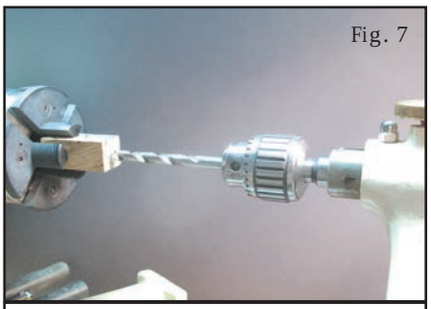

Fig. 7

I can't think of a better drilling device than your lathe.

Fig. 8

A drill press will also get the job done and you certainly can use a pen drilling vise, a machinist's vise, a block of wood, or as shown, a quick clamp to hold the blank.

difficult and it isn't voodoo as many believe. Sharpening is fairly similar to woodturning except that the material comes off the tool instead of the wood on the lathe. The same process is used on the grinder—anchor, bevel, cut. (*Note:* A future column will be dedicated to sharpening.)

Fig. 9

Gluing tubes into the drilled hole can be accomplished with a number of adhesives.

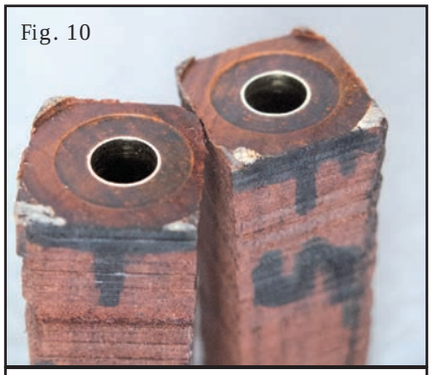
Fig. 10

The wood needs to be faced perpendicularly back to the edge of the tube, and no farther.

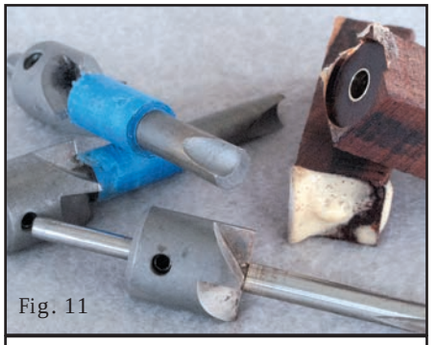
Fig. 11

One method that works very well at facing the tubes is using a "pen mill."

PEN STUFF

Up to now, our discussion has been generic, so let's get to the pen stuff and talk about the basics of pens. In a nutshell, wood is glued around a piece of brass, the extra wood is eliminated until it matches the rest of the kit fittings, and then everything is press-fit together—absolutely simple. That being said, there are some things that can be done to help you create pens that are above the norm. We'll use the base level 7mm kit as an example, but accept that almost all holds true for the other styles of kits as well.

Among the items you usually have to buy is the kit itself. Though there are many vendors who have kits to sell, there are only a few sources for the materials. Most retailers either have kits made in the Orient to their specification, or they are reselling kits from the biggies who are buying in large quantities from their sources in the Far East. As with anything, you can overpay, but when you buy smart, price is usually a good measure of quality. Again, overlooking any excessive profit margin, a kit selling for $2 cannot be expected to be of the same quality as the same style kit selling for $7. The fit, finish, plating, core components, or something is driving the price differential.

Wood or alternate materials are usually purchased. The local species, though wonderful for a platter, bowl, or other large turning, usually doesn't exhibit much interest or beauty in small turnings, such as a pen—especially because the spindle orientation doesn't show off exciting figure, such as birdseye maple, quilting, or other chatoyant features. To make a pen "pop," you will need some exotic or figured wood that has been dyed or stabilized or both. Dyeing will make the grain jump out at you, and the stabilization (impregnating with plastic) will make the pen blank turn similar to plastic and take a high-gloss finish (see Fig. 5).

At this point, we've got a lathe, a sharp tool, a pen kit, and a pen blank. Let's walk through the making process, and note the items that might make your job simpler and more controllable.

DRILL A HOLE

You'd think something as simple as drilling a hole would be a noncontroversial topic—not so. Depending on what faction you fall into, drilling a hole borders on political discussion: do you use a drill press, a bench vise, a lathe, a drilling vise, a long quill travel or trickery with a short quill travel, or a 118° or 135° or brad point. My recommendation is a sharp drill of the appropriate size with reasonable speeds and feeds. Use the lathe to hold the blank and drill with a drill chuck in the tailstock, or use the drill in a pistol drill holding the wood in a vise, or use the drill press holding the blank in anything that will hold it. Just get it done. Drilled reasonably and glued properly, not a soul will know how it was done unless you spill your secret (see Figs. 6, 7, and 8).

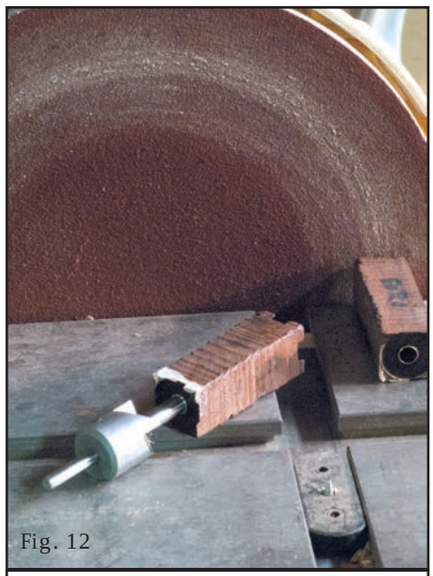
Fig. 12

In contrast to the pen mill—which pilots on the tube—you can freehand the facing on a disk or belt sander, although I recommend against this.

GLUE IN THE TUBES

Another one of the argument starters among penturners is what glue to use. I have my favorite, but I answer, "It really doesn't matter." Any of them will

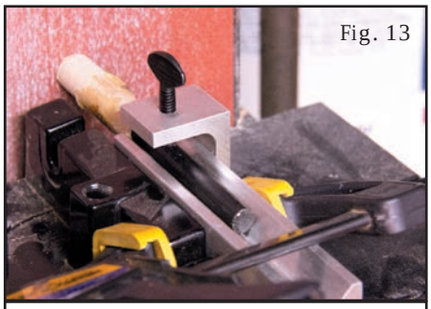
Fig. 13

If you intend to sand to face the blanks, perpendicularity to the ID of the tube can be achieved using a commercially available sanding jig or the homemade equivalent of it.

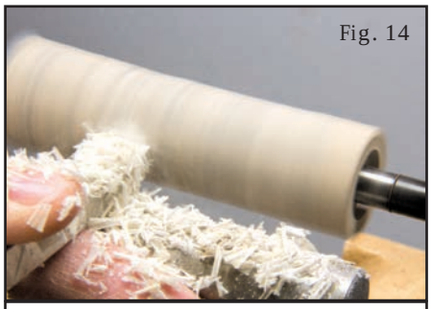
Fig. 14

For those who would prefer to purchase their sharp edge rather than grind it, any of the carbide cutter tools can be used to turn pens.

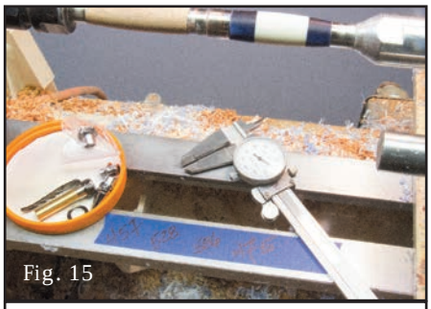
Fig. 15

Bushings can get you close to where you want to be, but for the best fit, you will probably want to measure the actual parts being used and make your turnings match those parts.

work well. The keys to any adhesive bond are universal: clean surfaces, sufficient tooth, and appropriate gaps. When making pens, use any of the traditional adhesives, ranging from epoxies through cyanoacrylates to polyurethanes. Any failure of the bond will nearly always trace back to preparation, not the adhesive itself (see Fig. 9).

GET READY FOR TURNING

If there is anything that will be unfamiliar to a woodturner with no penturning experience—or for the newcomer—it is the importance of facing the pen blanks. The importance of perpendicularity can't be stressed enough. Facing the pen blank so that the wood surface is precisely at the end of the brass tube will allow for the best interface to the rest of the components and the proper stack up of dimensions for the finished pen (see Fig. 10). There are ways to get there using a disk or belt sander, but I am a fan of the "pen mill" (see Fig. 11). This simple and modestly priced tool can be used in the drill press or a pistol drill, or on the lathe. Because it pilots on the ID (inside diameter) of the brass tube, there is little chance of any variation from perpendicularity. I'm sure that you can appreciate the potential for problems if working freehanded at the sander (see Fig. 12). There are certain kits and other occasions where I'll choose a sander, but when I do, I use a jig that will pilot on the ID while I sand (see Fig. 13). Even with the sanding jig, I find that there still is the potential for more error; therefore, I use it when necessary, but not as a first choice.

TURN, TURN, TURN

As noted above, pen blanks can be turned with nearly any tool in the box, other than perhaps a scraper; any of the cutting tools, whether they are carbon steel, high-speed steel, or carbide cutters, will get the job done (see Fig. 14). Follow the instructions that came with the kit you are using and turn things down to the bushing sizes. Later on, you'll probably want to learn how to use calipers and measure things, but for now, get the wood down to the bushings for the proper sizing (see Fig. 15).

SANDING AND FINISHING

The better the cutting, the less need there is for sanding. If


Fig. 16

The better the preparation of the blank to accept a finish, the better the finish will turn out because any flaw of any kind will be highlighted under the finish.

Fig. 17

From the myriad of finishes available, pick one or two (at most) that you like and master them.

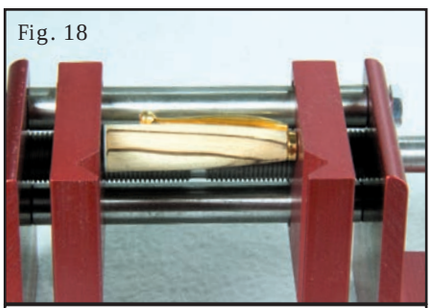
Fig. 18

There are some wonderful drilling fixtures that also serve as assembly presses.

you believe that sanding is preparation for a finish rather than a cover-up for poor turning, good for you. Do your best at turning and then sand to feather things together, to get to that final size on the bushing, and to prepare for the application of a finish. There is no magic here—it's just good woodworking and woodturning skills, and the better the surface preparation, the better the potential for a great finish (see Fig. 16). The newcomer to penturning will often start with waxes and friction finishes on their pens because they are quick and easy to apply. They are not very durable, however. Because a pen lives in a terribly abusive environment, I recommend that you quickly learn to apply a cyanoacrylate glue (CA or superglue) or lacquer finish. Either method is easily learned and far more durable (see Fig. 17).

FINAL STRETCH

So far, pretty easy, eh? The trickiest part is putting the tubes inside the blanks and facing things properly; everything else is fairly straightforward. Now with the parts completed, it is time to press everything together. There are some very fine drilling vises on the market that will work superbly to do the press fits (see Fig. 18). These vises allow for adequate force, yet offer some semblance of finesse. If you have one, by all means use it. If not, the bench vise, a quick clamp, or the lathe will work well to press things together (see Fig. 19).

Fig. 19

Though a drilling vise or a pen press can be used to assemble a pen, so can a quick clamp, if the rubber bumpers are removed to allow the plastic faces to contact the pen parts.

CLOSING THOUGHTS

This quick overview of the penmaking process isn't intended to be anything more than a teaser to show you how easy it is to get into penmaking (see Fig. 20). Each of the points of this column is enough to fill an entire chapter if it is elaborated on. If you have access to back issues of *Woodturning Design* magazine, you can review the past 23 columns that discuss everything from inkfill selection to finding inspiration. If you don't have access to the back issues, my past columns can be found on my website at www.kurthertzog.com/demos.htm. There is also a master listing of all the *Woodturning Design* magazine articles that is searchable at www.woodturningdesign.com/issues/issue_index.pdf.

I'm certain that you'll see how addictive penmaking can become. You can go from being a novice turner to making a finished pen in less than an hour without breaking a sweat, and entry-level penturning brings a large number of people into the woodturning arena. My "newbie into woodturning" scenario might seem simplistic and it is; Cub Scouts can be taught how to do this in a morning and they can all go home with pens. That said, you can spend the rest of your turning life expanding and trying to "master" the penmaking process—there really isn't an end point, just the journey!

Fig. 20

These are various pens that are built on the 7mm kit bodies. Once bitten by the bug, you'll be off and running, searching for ways to make your pens special.

Kurt Hertzog

A professional woodturner, demonstrator, and teacher, Kurt Hertzog enjoys the continuum of woodturning, from making his own turning tools to photographing his finished turnings.

Kurt is a regular feature columnist for both *Woodturning Design* and *Woodturning* magazines, one of the five Council Members of the Pen Makers Guild, and a member of the Board of Directors of the American Association of Woodturners.

Kurt's work has been featured in the American Association of Woodturners "Rounding The Corners" Exhibit, and he has been published in *Woodturning Design*, *American Woodturner*, *Woodturning*, *Pen World*, and *Stylus* magazines. You can see his work on his website at www.kurthertzog.com.