

Thin Stem Turning

by Alan Carter

It is said that you can never be too rich or too thin. I've never been either, but I can show you how to make goblet stems as skinny as a fashion model on a diet. All it takes is some straight-grained wood, a little patience, and a few sharp tools, including the roughers and finishers from *Easy Wood Tools*. The thin shaft demonstrated in this article is about 1/16" in diameter. It's possible to make it even thinner, but the line has to be drawn somewhere.

I use the tools from *Easy Wood Tools* extensively in my turning, both for roughing and fine detail work. The roughers make quick work of turning a square blank down to a cylinder, and they also make it easy to get the tapers I want for the thin stem process. The finishers are ideal for turning these thin stems, because they put very little stress on the wood. Since only a small portion of the circular cutter engages the wood, it's easy to control the cut. Less wood is taken off with each pass, thus controlling the amount of lateral stress placed on the turning. This is especially important as a turning gets thinner and has less wood to support it. The square shank keeps the tool flat on the tool rest, maintaining the cutter at the proper angle to the wood. As a result, catches are almost nonexistent and it's much easier to make smooth sweeping profiles. The sharpness of the carbide edges also eliminates much of the required sanding.

The first step is to mount a turning blank in a 4-jawed chuck. The size is up to you, but I usually start with a piece about 1-1/2" square by 7" or so long. Since the diameter of the stem's base is determined by the cross section of the blank, give some thought as to how big you want to make it, based on the size of the goblet or vessel supported by the stem. The tailstock end should have a dimple in the center to line up the live center.

Tighten everything down and turn a rough cylinder.

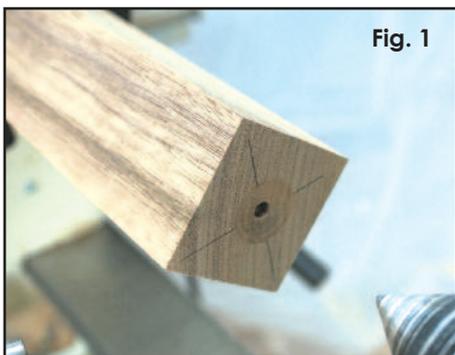
SUPPLIES

Wood: maple turning blank or wood of choice – one piece 2" square x 6" to 10" long
Tools: lathe; 4-jawed chuck and live center with cone point; Jacobs chuck with Morse taper and 1/8" twist drill bit; assorted lathe tools, including 3/8" spindle gouge, 1/8" parting tool, skew, and *Easy Wood Tools* rougher and mini-finisher*
Assorted grits of abrasive paper
Epoxy
Wax
Finish of choice

**Available from Easy Wood Tools,
2601 West 4th Street, Owensboro, KY 42301;
phone: 270-903-4270;
website: www.easywoodtools.com.*

Please refer to all manufacturers' labels for proper product usage.

Remove the live center and replace it with a Jacobs chuck and a small drill bit. At this point, the cylinder is still fairly thick, so it should run true without the tailstock support. I turn a small tenon on the end of the goblet head or vessel, and drill a corresponding hole in the stem to attach the two (see **Fig. 1**). The tenon is usually 1/8" or 3/16" in diameter and about 1/8" long—just enough to provide a foothold to glue the two pieces together and have them centered.



The blank is mounted with the hole and recess in the end.



Turn the blank with the tapered cone at the end.



Shape the end cup with a small skew.



Fig. 4
The end with the completed cup is shown.



Fig. 5
Work down the taper with the easy finisher, supporting the tool behind the wood.



Fig. 6
Sand a completed section, supporting the stem to prevent flexing.



Fig. 7
The stem is about halfway turned.



Fig. 8
The stem is turned and sanded at its final length.

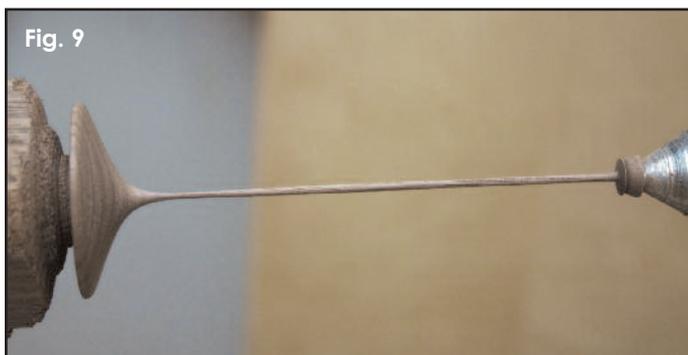


Fig. 9
This is the completed stem prior to parting off.



Fig. 10
The finish is applied to the stem.

Once the hole is drilled, turn a small recess in the end to match the curve at the bottom of the goblet. This will allow the vessel to seat properly with no gap showing. You may have to adjust the depth and curve of the recess, so it's best to make the goblet head or vessel before making the stem. It doesn't have to be a perfect match. I use epoxy to glue the two parts together, so any gaps are inconsequential.

Making the goblet head first also lets you establish the length of the stem so that the two parts work together and

the proportions are correct.

Remount the live center and bring it up to the end of the blank. You want the center to snugly engage the hole, but don't force it—you should be able to stop the live center from turning with just a little finger pressure. If you apply too much pressure, it can cause the wood to flex too much later on as the turning gets thinner. A little wax applied to the end of the center will help keep it from binding as well. The live center will stay in this position until the turning is completed, and it's this support that helps



Fig. 11

This is the completed stem with the vessel mounted.



Fig. 12

This tapered goblet box has a straight stem.



Fig. 13

This enclosed goblet with a finial also has a straight stem.

keep the stem from whipping around as it gets longer.

Turn the blank to a rough cylinder and taper the last 3" or 4" (see **Fig. 2**). Keep as much mass in the cylinder for as long as possible to avoid flexing as the diameter is reduced.

Start shaping the end of the stem. A small cup is needed to support the vessel, and it should be longer than the hole you drilled, so there's enough support without it breaking off (see **Fig. 3**).

Once the end cup is shaped, start removing material from the cone to create the stem (see **Fig. 4**).

Work your way from right to left, taking shallow cuts and supporting the tool behind the wood if necessary. Don't try to cut too much wood out at once, especially as you work down the stem. Take gentle sweeping cuts, making the completed portion of the stem consistent in diameter.

Having your finger behind the wood helps control the depth of cut and keeps the cutting action smoother (see **Fig. 5**). I usually have the lathe running at about 2500 rpm

at this point, so don't use too much pressure unless you want to burn off your fingerprints. The small finisher is ideal for this, because it will remove wood lightly and cleanly, avoiding catches and producing a very smooth finish.

As you progress down the stem, taper the blank every inch or so to reduce the diameter, but maintain a substantial thickness upstream, so to speak, to prevent undo flexing. You can use the easy finisher throughout this process, carefully slicing off thin layers of wood (similar to a deli operator making shaved ham). It may seem as though it takes awhile to get the results you want, but as the stem gets longer and thinner, the last thing you want to do is rush and try to hog out too much wood. (Hogging is best enjoyed in baby-back form slowly cooked on a charcoal grill, not butchering a tender piece of maple with ham-handed aggressive cutting—okay, no more porcine metaphors; I promise.)

Sand as you go, working through the different grits. Support the abrasive paper with your fingers on opposite sides to prevent flexing. Finish-sand each section before



Fig. 14

This "flying saucer" box is also supported by a straight stem.



Fig. 15

This multispecies goblet has a more ornate stem, but was turned the same as the straight ones.

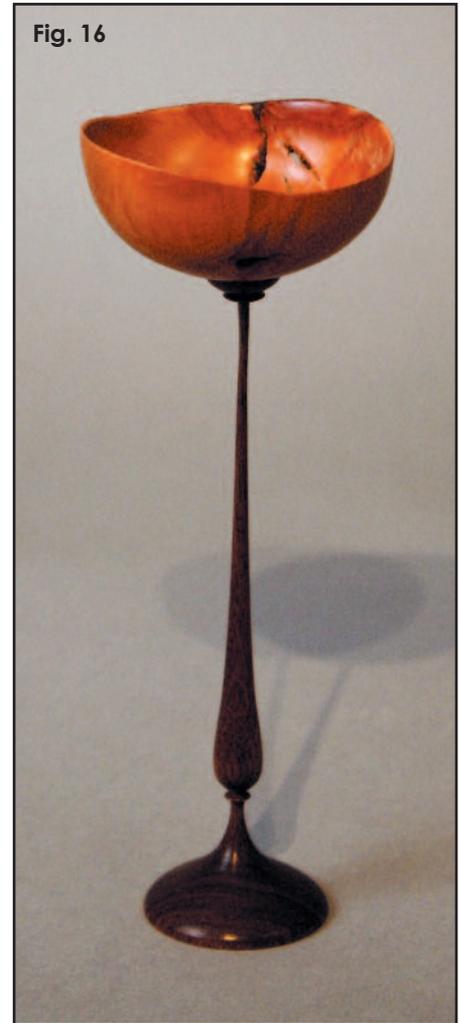


Fig. 16

This larger, open-form goblet also has a more ornate stem.

moving on (see **Fig. 6**). This is especially important as the length of the stem increases and there is less material to support anything. You can actually use the abrasive paper, rather than cutting tools, to make the stem a bit thinner if you wish. Just keep an eye on the piece, so that it doesn't get so thin that it won't support anything (see **Fig. 17**).

Continue shaping the stem, removing wood from the blank gradually (see **Fig. 7**). Take care not to overly flex the completed stem section. Continue down the stem toward the headstock, sanding as you go. Keep the stem as straight as you can so that it remains a very thin, straight-sided cylinder. Use your fingers as well as your eye to avoid any dips or bumps in the stem.

Continue until you get the stem as long as you want, or until your courage wanes and it's time to call it quits (see **Fig. 8**). Remember to sand as you go and don't use too much pressure on the completed stem section. Notice that the tailstock is engaged at all times.

I use the *Easy Wood Tools* mini-finisher to shape the

base, because it's easy to make a smooth, flowing cut. The circular cutter gives the profile a natural curve.

Use a parting tool to partially cut through the completed stem below the base, maintaining enough solid wood connection at this point to facilitate final finishing (see **Fig. 9**).

This stem was done mostly with the *Easy Wood Tools*. I also used a skew and a small spindle gouge at the upper end to shape the supporting cup and begin the thin stem shaft. After a 1/2" or so, virtually all the cutting was done with the *Easy Wood Tools* mini-finisher. At this point, give the stem a few coats of your favorite finish and let it dry thoroughly (see **Fig. 10**). I find it's easier to finish the stem while it's on the lathe, because of its delicate nature.

Once the finishing is completed, cut off the stem. Cut it with a concave surface on the underside so that the base will sit flat and not rock. Leave the tailstock engaged until you almost cut through the underside of the base. Back off the tailstock, cradle the stem loosely in your hand, and part it off. If you leave the tailstock engaged, the

fragile stem may break when the base is parted off. **Fig. 11** shows the completed vessel mounted on the thin stem just turned.

ADDITIONAL POSSIBILITIES

The stems can be either straight-sided (as in **Figs. 12 to 14**), or they can have additional elements, similar to the way finials are designed (see **Figs. 15 and 16**). Just don't get too carried away, or the piece will droop under pressure (such as **Fig. 17**). Nobody really wants to see that—so I guess you can be too thin after all!



Fig. 17
Marry the stem thickness to the weight of the goblet form to eliminate droop!



Alan Carter

After spending more than twenty years as a professional artist painting urban landscapes, and a decade designing and building custom contemporary furniture, Alan Carter now has turned his attention, so to speak, to a different type of creative effort. His focus now

is on a more sculptural and less functional body of work, featuring, in some capacity, elements turned on a lathe. Many of his pieces are turned in their entirety, but others combine the two disciplines of turning and woodworking to allow him to create vibrant and unusual sculptures that have a strong dynamic presence. Having a shop full of woodworking tools allows Alan to design and fabricate pieces in a wide variety of shapes and textures.

Alan welcomes your questions and comments, and can be reached by e-mail at apcarter@sbcglobal.net. To see more of his work, please visit his website at www.alancarterstudio.com.

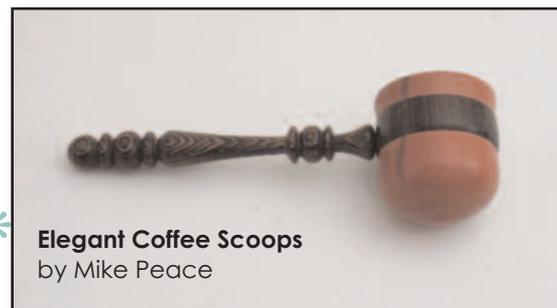
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