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American Association of Woodturners

# Pepper Mill

It's a new grind  
By Nick Cook



I have never been much on projects that come in the form of kits—it just seems to be a little less creative than starting from scratch. But, the recent demand for custom pepper grinders has made the idea more intriguing.

Once you figure out the sequence of steps to make them efficiently, pepper mills are really not that difficult. I've found that the 10" mills are a nice size to work with and everyone seems to prefer it to larger or smaller ones. You can, of course, vary the shape widely from the basic mill I describe here.

Before you start turning, order your mechanism. I have tried many manufacturers, but Chef Specialties makes my favorite reliable stainless-steel mechanism. It also sells a polycarbonate salt mill, which prevents corrosion. (Packard Woodworks and Crafts Supplies sell these as "deluxe" mechanisms in the \$12 range.)

The following directions apply to the 10" Chef Specialties mill. Refer to the information sheet that is supplied with your mechanisms for specific requirements.

## Prepare your stock

To get at least two blanks from each strip, I make my slabs about 24" long. I also turn the mills from solid cherry and hard maple. I purchase 3" x 3" x 36" blanks from a local supplier. (You can find them on the Internet at [www.hardwoodweb.com](http://www.hardwoodweb.com).) The blanks for 10" mills—either laminated or solid—are cut to 12" lengths. This allows plenty of room for tenons at both ends and a parting cut to separate the top from the bottom.

For laminated pepper mills, glue up large slabs of a variety of 3" stock milled to random thicknesses. After the glue dries, make the first cut at a slight angle. Make the remaining cuts using the fence of either the tablesaw or a bandsaw. This is a technique I learned from Rude Osolnik when I assisted him in laminating and cutting of rolling pin blanks.

Locate and mark the center of each end of the blanks, then use an automatic centerpunch to make a dimple. Rough-turn the blanks to round cylinders with a tenon at each end. Size your tenon

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to fit the jaws of your scroll chuck. In addition to the tenon at each end, make a parting cut to separate the base portion from the cap of the mill (Photo A). For ease of drilling from both ends, add a tenon to the top of the base section; this eliminates the need for a drill-bit extension.

Make the base section 8" long plus a  $\frac{3}{8}$ " tenon on each end; the cap will be approximately 2" long when completed.

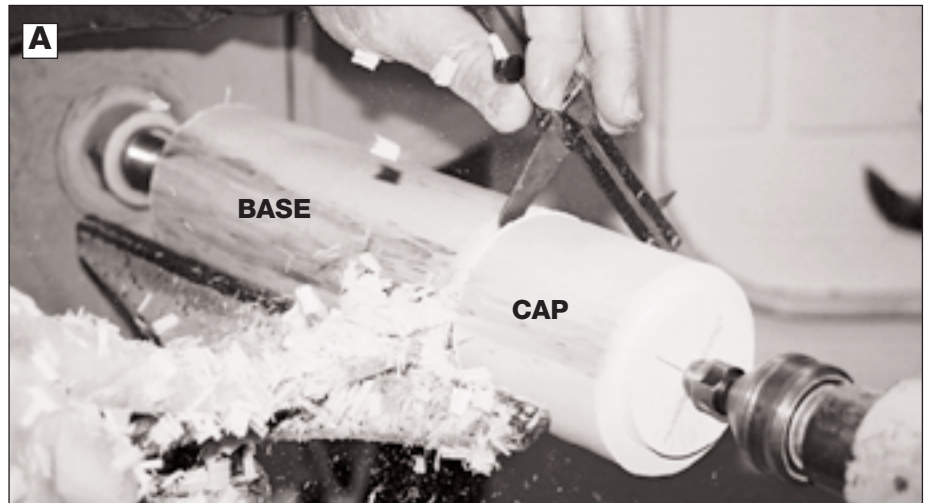
### Drill routine

Once separated, mount the top of the base section in a scroll chuck with the bottom facing the tailstock. Drill the first recess in the bottom of the stock with a  $\frac{15}{8}$ " Forstner bit in a Jacobs chuck. The recess should be approximately  $\frac{3}{8}$ " deep beyond the tenon. With a  $\frac{11}{16}$ " bit, drill a second hole  $\frac{5}{8}$ " beyond the first recess.

To drill the bottom of the base, tighten the base top in your scroll chuck. Mount an extra long 1" bit in the chuck and drill as deep as possible in the base of the mill. You must go slowly (lathe speed of 500 to 700 rpm) and back the bit out frequently to remove the shaving and prevent overheating.

Remove the base section from the chuck and re-chuck it with the top facing the tailstock. Make sure the blank is centered and make a finishing cut across the top end of the base section. Complete the 1" hole through the base (Photo B). Remove the base from the chuck and set aside.

Mount the cap section in the chuck using the tenon on the top



end. Turn a 1" tenon approximately  $\frac{1}{2}$ " long on the bottom end of the cap, then make a finishing cut from the perimeter toward the tenon. The tenon will fit into the 1" through hole in the

base to align the two parts. It should fit without being too tight to turn freely. Next, drill a  $\frac{1}{8}$ " recess in the end of the tenon with a  $\frac{3}{4}$ " Forstner bit; this step makes it easier to center the turnplate.

Drill a 1/4" hole all the way through the cap of the mill.

The next step is to remove the cap from the chuck and mount a waste block (I prefer poplar) to turn a jam chuck. The jam chuck should be 1 5/8" diameter and about 1 1/2" long. Make a finishing cut across the end so the stock fits squarely against the recess in the bottom of the base of the mill.

Before mounting the mill on the jam chuck, test and size the mechanism. I press the spring bar into the recess, and then insert the two halves of the mechanism and the shaft through the base of the mill (Photo C). While holding the parts in place, place the cap on the top of the base and make a mark on the cap at the center of the threaded portion of the shaft. This marks the finished length. Now, remove the mechanism.

### Shape the mill

Depending on the final shape, you may wish to turn the cap and base separately. However, I find it faster and easier to turn the whole mill at once. Separate pieces require more turning time, but allow you better access for finishing the top of the cap.

Either way, cut off the tenon on the bottom end of the base. I do that with the mill mounted in the jam chuck with the cone center in the tailstock.

To turn them together, mount the base on the jam chuck, insert the tenon of the cap into the through hole of the base, and use a cone-shaped live center to hold the assembly together (Photo D).

To turn them separately, make a second jam chuck. This time, turn the chuck with a recess to fit the tenon on the bottom of the cap. Then press it into the chuck and turn to the desired shape.

### Final dashes

After shaping the mill, sand with 150-, 180- and then 220-grits. My favorite finish for most utilitarian items is urethane oil. You can apply it right on the lathe and build it up to a high-gloss finish. For a satin sheen (my preference), cut back the gloss with steel wool.

After the finish dries, assemble the mechanism. Attach the turnplate in the recess on the bottom of the cap. Press it in place, and drill 3/32" drill pilot holes to prevent the screws from splitting the wood. Screw the turnplate to the cap and set it aside.

Turn the base upside down and insert the spring bar in the recess in the bottom. Press the female portion of the grinder mechanism into the spring bar. Slide the male portion of the grinder onto the shaft and then the spring bar, and slide the shaft through the female mechanism and the spring bar.

Place the retainer bar over the assembled mechanism, line up the holes, drill pilot holes, and screw in place. Slide the cap over the top end of the shaft and screw on the top knob. Finally, tighten the knob to adjust the grind.

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