EXECUTIVE SUMMARY
6" PEPPER MILLS

With Debbie & Mike Hachey

PART I: Rough Turn The Blank

1. **Select a domestic hard wood 2 3/4 to 3" in diameter about 2 " longer than the mechanism.**
2. **Mark the centers on both end of the blank. Mount between centers on the lathe with the top of the mill towards the headstock**
3. **Using the Spindle Roughing Gouge, Turn Blank Round, sizing the whole piece to just under 2 3/4" thick**
4. **True the Tail Stock end with a Spindle Gouge**

PART II: Dimension the body (Refer to Figure 1)

1. **Use the Story Stick to mark off 7 LINES with a pencil.**
2. **Starting at the Tailstock, cut the first 2 pencil marks with a skew down about 1/8". We will eventually roll a bead between these 2 marks.**
3. **On the LEFT SIDE of the 3rd pencil mark, using a parting tool, part to a thickness of 1 7/8" deep (this marks the thinnest part of the main body).**
4. **Put a tenon at the end of the work piece at Headstock, to fit the Scroll Chuck, about 1 7/8" in thickness and about 3/8 of an inch wide.**
5. **To the LEFT SIDE of the 4th line, create a tenon, between lines 4 and six about 1 7/8" deep (this encompasses the spigot and tenon).**
6. **Remark line 5 on the wood. To the LEFT SIDE of this line, part pretty deep (to about a thickness of 3/8 of an inch), as we will be parting the bottom from the top at this point. (See Sample #1)**
7. **With the lathe turned off, use a small saw, and separate the bottom from the top. I do not use a Band Saw due to the danger involved, if you must use one please exercise extreme caution.**

PART III: Drill/Hollow Out the Bottom Of The Pepper Mill

1. **Using the tenon created in Part II Step 5 above, chuck the bottom of the Pepper Mill into a Scroll Chuck; make sure it is running true.**
2. **Using a Spindle Gouge or Skew, true the bottom of the mill until it is flat or slightly concave.**
3. **Slow the lathe down to about 500 RPM's and drill in the following order:**
    a. **1 5/8" Forstner bit – only drill in about 3/8".**
    b. **1 1/16" Forstner bit – Drill in the depth of the head of the bit.**
    c. **1" Forstner bit – Drill in whole length of the bit and shaft (using**
        i. **this bit helps to properly align the long 1" drill bit).**

d. If turning a longer Pepper Mill, you may have finish drilling the 1" hole from the opposite end. (Be careful not to let the drill bit touch the chuck.) See Sample # 2.

4. While it is still in the Chuck, bring up the tailstock for support; increase the lathe speed and rough shape the Pepper Mill using a spindle gouge.
5. Rough shape the bead. Take a little off at a time from each side of the bead to help keep it symmetrical.
6. Sand and apply finish to the very bottom with your choice of finish. Make sure bottom is flat (or slightly concave) and smooth.
7. Remove from the Chuck and set it aside. See Sample # 3.

PART IV: Prep The Top of Pepper Mill

1. Mount the Pepper Mill top in a Scroll Chuck.
2. Reduce the spigot so that it fits snuggly into the bottom half of the Mill, about 1 inch. Check the size frequently, you can always take more wood off, but you can't put more wood on.
3. Using a Spindle Gouge and/or a Skew, true the bottom of the top and put a finishing cut. Sand through the grits 180 to 400.
4. Create a recess in tenon/dowel about 1/8" deep, with a 7/8" wide Forstner bit, to fit disc that will be screwed in here. Note: If the width needs to be a little wider you can use a Parting Tool or a Skew to take off the rest of the width. Be sure to have the disc handy for fitting purposes.
5. Using a 9/32" drill, drill all the way through the top.
6. Sand and apply finish to the tenon/dowel and the bottom of the Pepper Mill top.
7. Remove the top from the Chuck and set it aside for later use. See Sample # 4

PART V: Shaping The Bottom Of the Pepper Mill

1. Mount the spigot jaws on to the Talon Chuck or use a Jam Chuck.
2. Mount the bottom of pepper mill in Talon Chuck with spigot jaws. The "TOP" of the bottom is at the tailstock. The "BOTTOM" of the bottom is in the spigot jaws (expanded out)
3. With a skew or a spindle gouge, finish off tailstock end, recessing it a bit (concave). Sand and Finish this part.

PART VI: Add The Top To The Bottom Of the Pepper Mill

1. Attach top of Pepper Mill to bottom half of the Mill. Use paper towel if a tighter fit is required.
2. If a bead is desired where the two piece come together, now is the time to form it.

3. **I frequently place a 1/4" spacer with a 1 inch hole on the spigot to help keep the turning tool away from the lower body of the mill.**
4. **Round over the top half of the Mill.**
5. **Continue shaping bottom of pepper mill to desired shape.**

PART VII: Size and sand the Pepper Mill

1. **Remove the Mill from the chuck and measure the inside to ensure the mechanism will fit.**
2. **Remount the Pepper Mill and make any necessary adjustment to the length or shape at this time. If it is too long, remove some additional material from the top or drill the 1 5/8" hole a little deeper. If the mechanism is too long, remove a little metal from the shaft and peen the bottom of the shaft over.**
3. **Hand sand with the lathe running. Go through all the grits, 180, 220, 320 and 400 and 600, wiping off between grits.**

PART VIII: Applying The Finish

1. **The inside of the mill is normally left unfinished. If you decide to apply a finish, use a food safe finish such as Salad Bowl Finish, Mineral Oil or Kerf cream.**
2. **For the outside of the Pepper Mill, there are many finishes on the market but most people use a spray lacquer to finish their Pepper Mill. Since we don't have a spray booth and the fumes of lacquer are toxic to inhale, we will be using a friction polish for our finish followed by a buffed-on wax.**

PART IV: Assembly

1. **Top**
    a. **Using a 3/32" drill bit, drill a pilot hole for screws – uses # 1 Phillips Cross type screws.**
    b. **Screw in disc – should fit nicely into recess hole in tenon/dowel.**
2. **Assemble Grinder**
    a. **Put grinder on first that has the square end on it and slide it all the way down the shaft.**
        i. **Next, put on the ring with the side that has letters on it facing down**
        ii. **Then put on spring, big diameter to top.**
        iii. **Next put on clip, should fit into 2 notches.**
    b. **Put entire assembly in through bottom of pepper mill, pushing into place. Should fit nicely in 1 5/8" drill hole and rest on the 1 1/16" drill hole.**
    c. **Put top of pepper mill on and screw on.**
    d. **Next drill pilot holes in bottom and screw bracket over mechanism.**

TIPS:

- **Determine the # of revolutions for the lathe quill and write it down**
- **Measure your Pepper Mill shaft (it should be 6 inches)**
- **Create a story stick**
- **If the wood contains any wild grain or figure, use this for the bottom of the Pepper Mill.**
- **If you are trying to match the grain, you can add a man-made 1 inch tenon**
- **If using a standard drill bit extension for the 1" bit, put a flat on the shank of the drill bit to reduce the chance of it jamming in the hole.**

TOOLS USED:

3/4" Roughing Gouge	1 5/8" Forstner Drill Bit
1/2" Spindle Gouge	1 1/16" Forstner Drill Bit
Skew (any Size)	1" Forstner Drill Bit
3/16" Parting Tool	Forstner Bit Extension
Scroll Chuck with #2 Jaws	7/8" Forstner Drill Bit
Spigot Jaws for Chuck	9/32" Drill Bit
Or Jam Chuck	3/32" Drill Bit
Outside calipers	Cordless Drill
Small Handsaw (optional)	Small Phillips Head Screw Driver

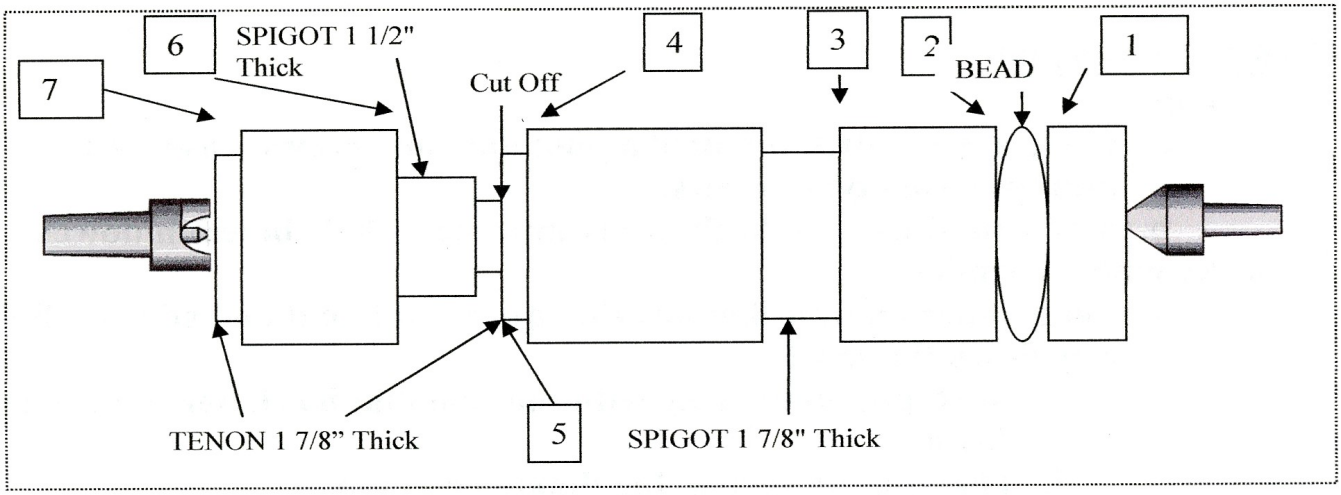

FIGURE 1

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