SHOP-MADE CHATTER TOOL

(A wood end-grain enhancement device)
(With special emphasis on handle making)

By: Gary C. Webster, Sr.

DISCLAIMER: The information contained in this file was compiled from on-line research and personal input. I do **not** claim all the contents to be of my own ideas. I have seen what many others have done in their approach of their own version of a shop-made chatter tool. I have merely taken these into consideration, combined with my own refinement, to produce what I personally consider to be an effective tool with an appearance that the maker can be proud of with a very minimal investment. This information is intended to be educational in nature, assisting those who may wish to make their own chatter tool. It is by no means conclusive. The OVWG and I assume no responsibility for any manner in which this information or the tool may be used or for the welfare/well-being and safety of the user. It is the responsibility of any and everyone who may use this information to observe all safety guidelines in regard to equipment use for production thereof and in the actual use of the tool itself. PERSONAL PROTECTIVE GEAR should be used at all times when making and using any tool.

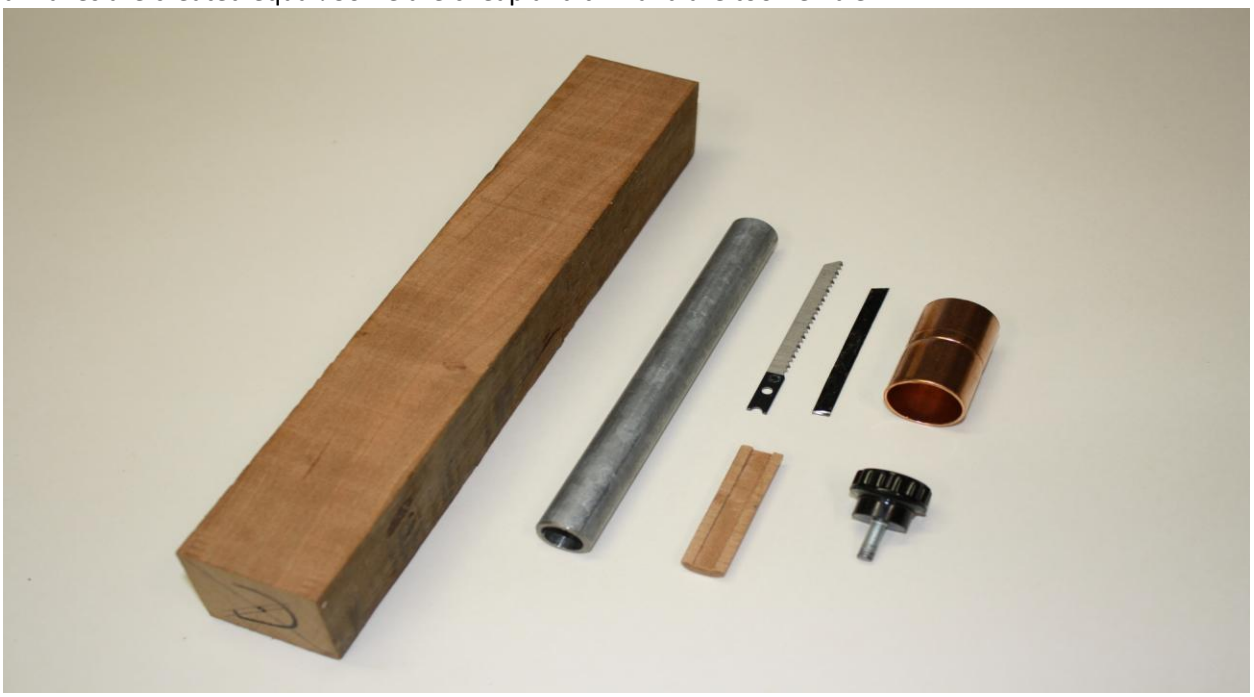
BASIC FUNCTION: The chatter tool is to be used for end-grain enhancement only. It is not effective on side grain. There is a learning curve when using the chatter tool. The pattern possibilities are endless. This is determined by several things: blade stiffness, blade length, tip grind, pressure applied to work surface and lathe rpm. I have noticed best results when rpm is **well** above 1,000. If the tool is not chattering (a high-pitch sound), (I call it screaming!), then it is not performing its intended purpose. I generally keep the tool rest parallel to and about 1½ inches or slightly more from the surface to be chattered. I also engage the blade tip to the work surface just slightly below center line. There are some artists in woodturning who chatter their work extensively. I suggest seeking out their publications for more detailed and illustrated use of chatter tools. (AVOID EXTREME PRESSURE OF THE BLADE ON WORK SURFACE. THESE TYPES OF THIN BLADES HAVE TENSIL PROPERTIES AND WILL BREAK UNDER EXCESSIVE PRESSURE! **PROTECT YOUR EYES!!!!**

CHATTER TOOL: PAGE TWO

MATERIALS LIST:

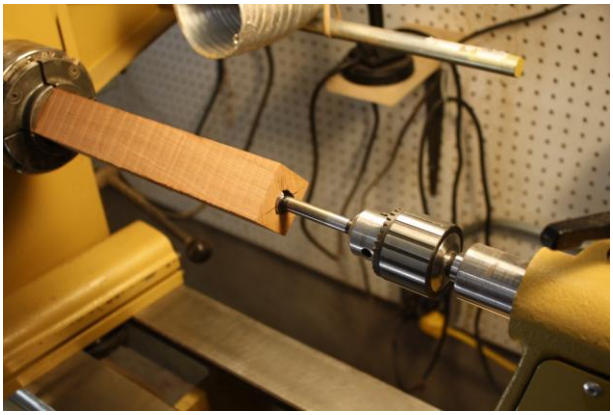
For this tool you will need the following items: (with the exception of the wood, most items can be purchased at a local hardware store)

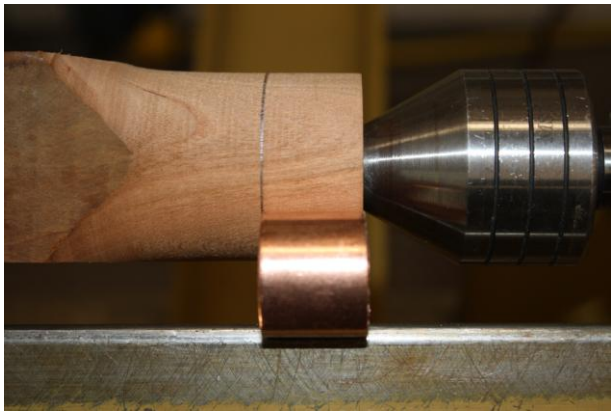
1. Wood for a handle; a piece about 10 inches long and 1 ½ inches square (1 ¾ square would be better as the diameter toward ferrule end should be 1 ½ inches; this would give you some working room when turning); use a hardwood of some type. I used cherry, as show here in this demo.
2. One 3/8 by 6 inch pipe nipple; I used galvanized for appearance. (A 6 or 7 inch piece with no threads will work as well; this is what I used here. I bought a long length from the local hardware store and cut into lengths to facilitate a group of about 20 from our club. It was cheaper that way. The diameter was slightly smaller than the nipple, but I compensated as shown later. (A different manufacturer, I presume). If you use the nipple, cut the threads off of one end, which will be the exposed end. (DO NOT USE CONDUIT AS THE WALL IS TOO THIN AND THE THREADS WILL HAVE LITTLE INTEGRITY!)
3. A ferrule: I bought ¾" (three-quarter inch) copper pipe couplings and cut in half. Buy the type with the rolled stop. It will give you a guide line for cutting in half.
4. A 2 inch length of ½" diameter hardwood dowel, cut in half lengthwise.
5. A knob with a 10/32 threaded stud. 32 count threads will give you a better bite. The stud needs to be no longer than about 5/8 inch long. If it is longer, cut the excess off. That will prevent the knob from protruding too far up from the pipe and possibly getting into the way.
6. Blade material. You will need something that will flex to a small degree. Spring steel is an excellent choice. Old band saw blades or thick hacksaw blades will work somewhat. Old jigsaw blades will work better as they have more tensile strength. (Carefully grind the teeth off of any blades you may choose). My choice was spring steel tines from an old leaf rake! Make sure they are of a thick nature, though. Not all rakes are created equal! Some are cheap and thin and are too flexible.



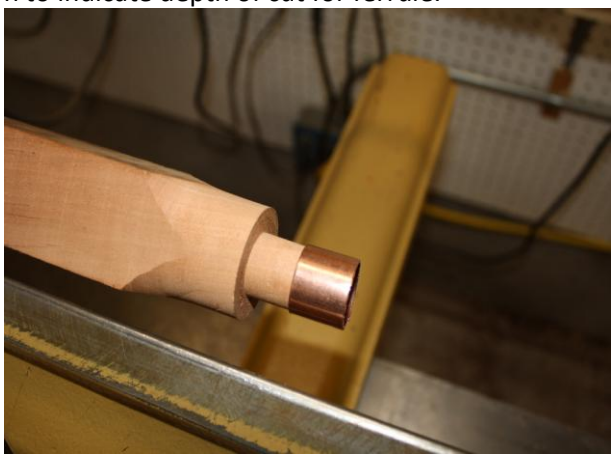
CHATTER TOOL: PAGE THREE

MAKING THE HANDLE: (These guidelines suffice for any turning tool handle)





Make a center mark on one end of the wood blank. This will be the drilling end. Loosely mount the other end into a chuck with No. two jaws. Secure an 11/16ths forstner bit into a chuck in tailstock and center on the mark and tighten chuck jaws. Drill at a slow speed of about 100 rpm, cranking the tailstock handle slowly and frequently backing out to clear chips and reduce heat build-up until a depth of 2 ½ inches has been attained. Remove drilling apparatus. Leave chuck jaws tight at this time. Mount a cone live center into tailstock and snug into drilled hole. Round off a small portion of handle at tailstock end to size up for ferrule. Make a mark on wood as shown to indicate depth of cut for ferrule.



Use a parting tool to remove material at the indicating line you just made. Size up for the ferrule using a caliper. Calculate for a tight fit. When you are getting close, stop lathe, back out the live center and do a trial fit. Doing this several times may seem time consuming, but a snug fit is desirable and provides the best integrity once the tool is assembled. DO NOT OVERTIGHTEN THE TAILSTOCK DURING THIS PROCESS, AS YOU RUN THE RISK OF SPLITTING THE WOOD. SNUG, BUT NOT TOO TIGHT. You will notice that the remaining wood only provides a thin wall at this point, but a snug-fitting ferrule and the larger diameter of wood behind compensates.

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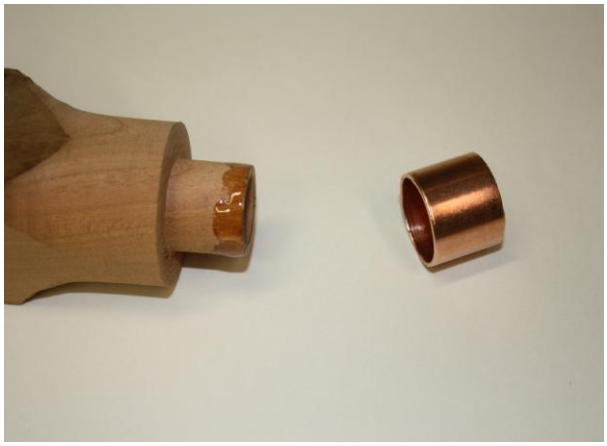
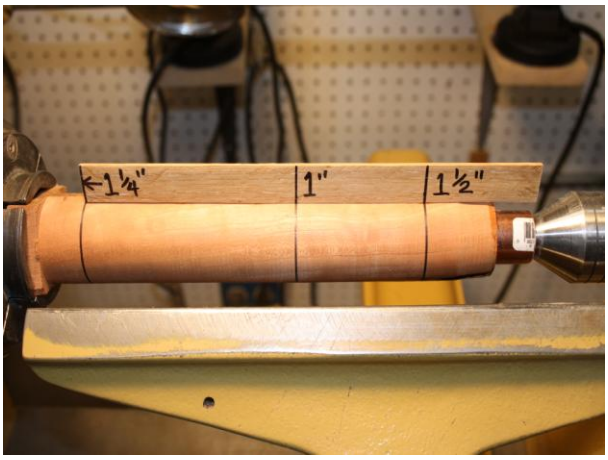
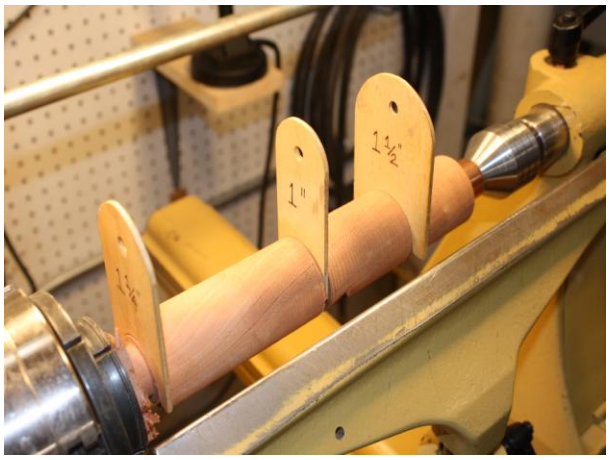
MAKING THE HANDLE, CONTINUED



Once you are satisfied with the fit, remove the handle from lathe, place a small amount of 5 minute epoxy around the outside of the tenon toward the very end and using a block of wood and mallet, drive the snug-fitting ferrule onto the tenon until it bottoms out against the shoulder. If you have accidentally made the tenon too long, take the other half of the copper coupling you have left and place onto the mounted one to continue to drive it until it meets the shoulder. Once the ferrule has been mounted, now is the time to dress up this end if you so desire. There are ways to do this while the handle is mounted on the lathe, but I would rather not go into those for safety reasons. I prefer the sanding method shown in above right photo. This is why I like to leave the majority of the handle unturned at first. This allows for a nice square surface for placement against a miter gauge on a disc sander. This cleans up the end nicely for a smooth appearance.





Remount handle in lathe and round off. Shaping the handle for a good feel and performance is next. The story stick in left photo indicates diameters to be obtained. Placement of stick is at ferrule tip. First mark on right is 2 ½" from ferrule tip; middle is app. 5" from tip & left mark is 9" from tip. I used thin cut-outs with matching diameters and a parting tool to turn to the desired diameters at the indicated points. Using these turned points as guidelines, shape the handle as you turn for a similar appearance as on the next page. (page 5) Sand the handle smooth to about 220 or 320 grit.

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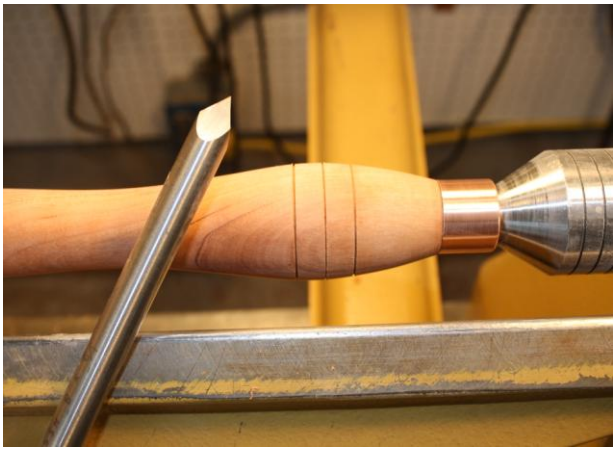
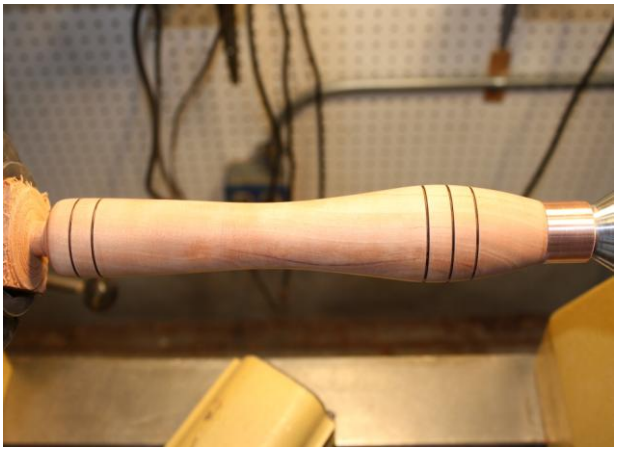
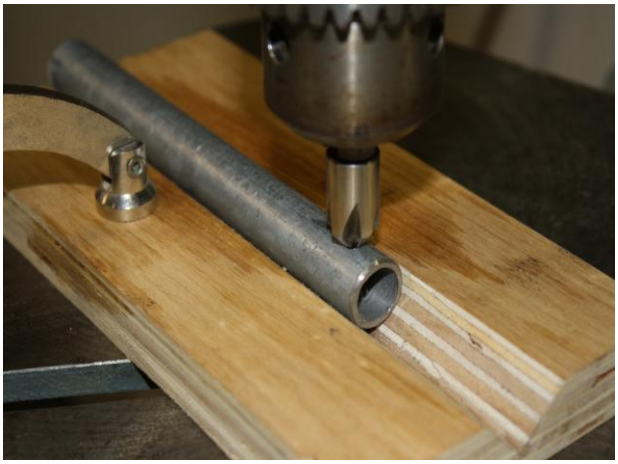
MAKING THE HANDLE: CONCLUSION





Once the handle has been shaped, you may want to enhance the appearance. One way to do this is with a burning wire. First make some small v-grooves where the burning is to take place. This can be accomplished with a skew or a point tool as shown in left photo. The small grooves will help keep the wire from wandering. Be sure tool rest is out of way and observe all the normal precautions when wire-burning. The handle may now be parted from the lathe or removed and the waste end sawn off and sanded smooth. Several coats of tung oil or similar finish will preserve and beautify the handle!

PREPARING THE PIPE:



Using a board with a v-groove sawn into it will stabilize pipe for the drilling process. Shown in photo at left the board is clamped onto the drill press table and a countersink bit is used for making an indentation in pipe about 3/8 to ½ inch from end. A carefully placed mark with a center punch will suffice. This will allow the drill bit to start without wandering off the round surface. Drill a 5/32 inch hole, making sure the pipe is positioned so the bit will evenly split the diameter of the pipe. This will help the studded knob to be centrally positioned once the hole is tapped.

PREPARING THE PIPE: CONTINUED

Secure the pipe in a bench vise with the drilled hole facing up. Secure a 10-32 tap into a tap wrench. Roll up a small piece of paper towel and insert into the end. This will soak up the cutting oil used in tapping the hole. (A clean surface is needed below the hole for a glue-up procedure later). Apply a small amount of cutting oil to the end of the tap and proceed to tap the hole. Turn in increments of about 3 turns. Back out ½ turn to break the shavings, then continue until the tapping is complete. Take a flat file to clean up the outside surface surrounding the hole and a round file to do likewise on the interior. Mix a small amount of epoxy for securing the pipe into the handle. A mixture about 2 inches in diameter should suffice. Mix in something disposable. I used a plastic coffee cup lid as shown in above right photo. Also make note of the masking tape wrapped in a single layer around about half the length of the pipe. This is to compensate for the slightly loose fit in the 11/16ths hole of the handle. I had mentioned this earlier. The epoxy bonds everything well. I have made about twenty of these tools and have had no problems with pipe/handle separation to date.

Another view at left of the handle and pipe just prior to the mating procedure. Notice again the single layer of masking tape wrapped around the lower portion of the pipe. This will promote a more snug fit. It is probably not necessary as long as there is sufficient epoxy placed on the inside walls of the hole in the handle, but it does seem to provide a little extra assurance!

CHATTER TOOL: PAGE SEVEN

SECURING THE BLADE

Top photo illustrates the half dowel and the flat-bottom groove cut into the center of the flat area. I carefully cut this groove to help keep the blade from moving side to side while the tool is in use. It is probably not absolutely necessary, but it does help. If you decide to do this, do so in a fashion that will be safe, observing all safety guidelines of whatever tool/s you may use to accomplish this. The close-up photo at bottom shows the half dowel after it has been glued into place with some epoxy. (Make sure interior of pipe is clean to promote a good epoxy bond). Position the dowel so that the flat portion is perpendicular to the knob's stud. When gluing, place the blade into the dowel's groove and tighten the knob lightly to hold the dowel in place until the epoxy sets up & cures. Your tool is now complete.

CHATTER TOOL: PAGE EIGHT

BASIC USE

Notice in the above photos the positioning of the tool in relation to the work piece and the spacing of the tool rest from said piece. This particular blade has a point grind and I angled the tool so that the majority of the flat part of the grind on the left side is engaging the work surface. Also notice that the tip of the blade is positioned just slightly below center-line. I chattered this particular piece with the lathe running at about 2,000 RPM. (photos slightly larger than others for better clarity of procedure)

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BASIC USE CONTINUED

Once the work piece has been chattered, you can highlight the effects with colored markers. (If you decide to apply a finish to the work piece, use markers that won't bleed into the finish. Test a sample to make sure). With the lathe on and using the tool rest as a steady, lightly touch the marker tip to the spinning work piece. There is a learning curve here as well! Practice! Experiment!

The photo at right: 3 colors; 3 patterns using different blade grinds. The possibilities are unlimited!

CHATTER TOOL: PAGE TEN

SUMMARY:

In summary, I must say that I am not an expert at this chattering business, but I am learning. It is fun and can add some interesting effects to your end-grain work. The above 2 inch sample medallions were chattered using this shop-made tool on the mini lathe at full speed: approximately 3,700 RPM. Avoid soft woods as the results are diminished. It is best to use hardwoods such as cherry, walnut and hard maple. The above samples actually include walnut (left center), cherry and pear. The chatter effects show up much better on the lighter colored woods. My personal preference would be hard maple. Using paint and pattern separation lines can enhance the appearance as well, as shown in upper right corner of photo. The center medallion is a bi-level! As stated earlier, there are some pro turners who are proficient at chattering their work. I suggest doing a search to find more detailed instructions & photos of the process. The main thing to remember as in any process involving power equipment is SAFETY! The noise levels produced by chattering can at times be above the recommended safe level. Protect your hearing! Avoid using extreme pressure when chattering! Metal blades of this type have tensile properties and will break under extreme pressure. PROTECT YOUR EYES! Use appropriate safety eyewear. Use dust inhalation devices when required. CHATTER AWAY! ENJOY!