

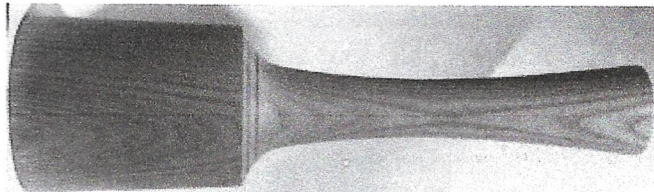
TURNED WOOD MALLET

R. Pikul Dec. 7 2013 updated: Feb. 10, 2017

Wooden mallets are usually used in carpentry to knock wooden pieces together or apart, or to drive dowels or chisels. A wooden mallet will not deform the striking end of a metal tool, as most metal hammers would, and it also reduces the force required to drive the cutting edge of a chisel.

A decent mallet can be an ideal project to help develop spindle turning skills while making a tool that is very useful in a woodturner's shop where it can be used to:

- Set a drive centre into a piece of wood without damaging the end of the Morse taper
- remove a turned piece from a sticky cup chuck, gently tap off a box top that has seized while being fitted
- There is nothing better than a comfortable mallet to drive a chisel or carving tool.



This is the mallet design I like to make. It has a standard 3" (76mm) diameter head (tapering to 2.7" (69mm)), 10" (254mm) long and is easy to turn out of a single piece of inexpensive hardwood. The handle shape is made to stay in your hand, even when gripped lightly. Mallets end up being used for all kinds of purposes that tend to wear out the head's striking surface.

Not to worry, just make another one!

TO MINIMIZE YOUR PROBLEMS AND TO AVOID WASTING WOOD, READ THE ENTIRE ARTICLE (twice?) BEFORE STARTING!

Materials and tools required:

Wood: Generous 3" x 3" x 12" (76 x 76 x 305mm) piece of hardwood. You can use a branch, but the pith should be straight through and centered. If the pith is off to one side, then it should be over half the head diameter away from the inside of the bark.
NOTE: If you wish to use a blank that is exactly the finished length you must have a 'finished' surface at both ends and be willing to accept drive and live centre marks on your piece.

Finish: I like to finish the wood with polymerized linseed oil. Not for looks, but to keep the handle easy to clean. A finish is not a requirement, the mallet will function fine 'naked'. Don't use a varnish finish, it will start chipping off during the first use.

Tools, suggested list: roughing gouge, spindle gouge, 3/4" (19mm) skew chisel, parting tool, calipers (that can open to 3" (76mm)). You could also use some of the new carbide type scrapers for finishing cuts, or use standard scrapers for finishing head and handle surfaces with shear scraping. Note: if you do not have calipers, make individual gauges for each different diameter by cutting slots in hard cardboard (like a cereal box) that match the individual diameters.

- Drawing: the drawing included with this article is 'actual size'. To have a copy that you can directly scale from, simply check off the "print actual size" box when printing this article or the drawing page.

Turning procedure:

(my way - adjust to fit your methods and tools)

1. For safe turning, ensure that the wood blank has cleanly cut, parallel ends that are at right angles to the length. This will minimize the chances of having the drive or live centres popping out when making deep cuts or experiencing a catch.
2. Find and mark the centres that you will use at each end, and, using the turner's awl that you made from a previous WGO project.
3. Make a deep mark for the drive and live centres. If you are using a spur drive centre, there are two ways to set it in place. The most common is to place the blank on a solid bench or on the floor and drive it into the blank with a wooden mallet - oops, you don't have one yet - so use an ugly piece of wood :) Another method is to use a saw to cut grooves for the spur drive to sit in, this is recommended when turning heavy or green wood.

DO NOT hammer any blank into a drive centre that is mounted in your lathe's head stock! This can seriously damage your lathe's bearings and/or also 'lock' the Morse spur drive into the head stock, making it difficult to remove.

4. Mount the blank on your lathe, mallet head at the head stock end. Excessive force on the tail stock is not recommended, it's better to check and reset the tail stock centre one or more times when turning rather than place unnecessary stress on the wood and lathe head stock

5. Turn the blank round, to the head's maximum diameter.

6. Using a copy of the actual size drawing as a template, mark off the transition points indicated on the blank. Centre the mallet on the blank to allow for removing material at each end. Alternately, You can use the mallet end as 'finished' from the blank, it will have your drive centre marks remaining, but this will not affect the mallet's performance.

7. With a parting tool and calipers, groove down to the dimensions at each transition point.

8. Make parting tool grooves at each end to less than the maximum diameters. Suggest 2" (50mm) at the head end and 1" (25mm) at tail stock end.

9. Accurately turn the end of the mallet's head to the final dimension (roughing, spindle or bowl gouge). Do remove wood across the entire length of the head while you do this.

10. Without touching the end of the head (preserving the turned dimension), turn the small slope along the length of the mallet head (roughing, spindle or bowl gouge). When close to the final dimension, shear scrape with a fairly large tool (flat, 90 degree scraper or large skew chisel) to make the length free of tool marks and smooth. You should be able to have a smooth surface without resorting to sandpaper. If you end up taking off a little too much, not to worry, a mallet head that is a millimeter or two smaller than the dimensions noted works just as well.

11. Before turning the handle to final dimensions, partially finish the handle end (tail stock end) so that you preserve the location. Do leave at least a 1 inch (25mm) stub for stability while turning the handle.

12. Turn down the handle to final dimensions (spindle or bowl gouge). Take care when turning the curve under the head – KEEP YOUR BEVEL RUBBING TO MINIMIZE CATCHES.

13. Shear scrape the handle part, from the tail stock end to the start of the curve under the head (flat 90 degree scraper or skew chisel). Use very small and light cuts to remove tool marks and to finalize the shape. If you encounter a 'bump' or 'hump', lightly scrape only the top of the hump/bump, repeat until it matches the curve desired.

14. Shear scrape the curve under the head (round end scraper). Use only very light passes – you are not removing a lot of material, just the tool marks and any 'bumps'. Better to make five light passes

than one heavy that only adds to the tool marks.

15. Now, if you were really careful your handle won't need much sanding. Start with 220 grit and a light touch. If this is not enough, restart with 180 grit. If this is not enough – repeat steps 13 and 14.

16. At this point you can add any decorations such as grooves etc.

17. If you are using the pre-cut mallet end of the blank as a finished surface, that end of the mallet is done. If you have waste at that end, turn down the end (parting tool, skew chisel) to match the diameter of your drive.

8. Turn the end of the handle to about 1/4 inch (6mm), preserving the portion fitted to your live centre.

19. Turn the end of the mallet head to about 1/4 inch (6mm), preserving the portion fitted to your live centre.

20. Remove your mallet from the lathe and cut off the waste from each end, trim with a chisel or your favorite method. Here you will need to use a bit of sandpaper to smooth out tool marks.

21. Decide whether you want to put a finish on. Do not use any type of film finish (varnish, lacquer, shellac, CA glue etc) as they are not recommended for tools / handles that are gripped with your hand. I like using a good quality, polymerized linseed oil (flax oil) as it will penetrate, seal the wood, bring out the grain and protect against soiling from hand oils and dirt.

DONE! - enjoy a useful and good looking tool.

Don't worry about wearing out your mallet – you can always make another.

