

MARBLE-TIPPED SPINNING TOPS

BY TIM HEIL

It turns out that a marble is a perfect pivot point for a thumb top. Plus, the marble's mass keeps the top spinning longer. Completing this project is much like making a traditional top, but with a few added steps.

Mount a blank

I start with a 2" × 5" (5cm × 13cm) blank. Any hardwood will suffice; I have a piece of maple salvaged from a broken baseball bat. I mount the blank between centers and bring it to round. Starting with a round blank as I have, this requires only a quick pass with a skew chisel, but if you're starting with a square blank, a spindle roughing gouge will be the tool of choice.

Turn a tenon on one end of the blank to mount in a scroll chuck (Photo 1).

Shape the blank



Bring a blank to round, cut a tenon on one end and mount the blank in a scroll chuck.

MORE ON THE TOP

For more on finger top design, see Roger Zimmerman's 2012 American Woodturner article, "Top o' the Mornin'," linked below. You can also watch Eli Avisera demonstrate top turning in the video linked below.

tiny.cc/SpinTop

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Fit the marble

The marble I've chosen has a 3/4" (19mm) diameter and I want it embedded half that distance into the base of the spinning top. I use my lathe with a drill chuck with a 3/4" Forstner-style bit. I use blue tape to mark the hole depth at 3/8" (10mm) (**Photo 2**). After drilling the hole, test fit the marble (**Photo 3**). The marble should fit snugly but should not require force to seat. If the marble gets stuck in the recess, try applying a piece of tape to its surface to help pull it out.

Shape the spinning top

Remove the drill chuck and re-install the live center (**Photo 4**). Begin to shape the underside—or belly—of the top. I like to go for a gently convex form. Feel free to experiment with other shapes, but if the material around the marble recess is too thin it will be susceptible to breaking. The convex shape helps lower the top's center of gravity, which in turn leads to better performance.

I use a sharp 1/2" (13mm) detail gouge for shaping. A sharp tool will leave a smooth surface that won't need to be sanded. Make light, deliberate cuts for a mark-free surface. A roughing gouge, skew, or bowl gouge will also work in place of a detail gouge.

When I'm satisfied with the belly shape, I move to shaping the top of the body. Experience tells me that if the top side is wide and close to the ground the top will spin for a long time and run smoothly. The goal for the top of the body is to shape it so it looks visually pleasing in relation to the bottom.

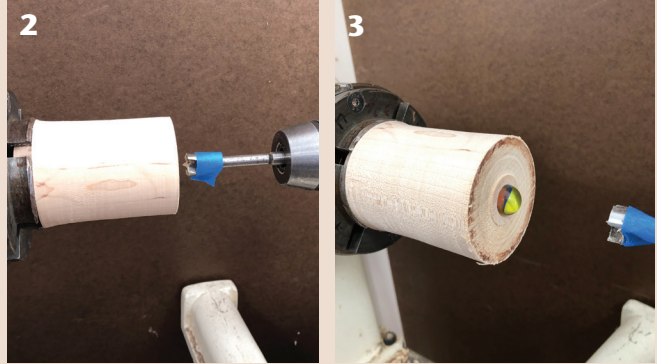
Embellish

When I'm satisfied with the belly shape, I add some design pizzazz with a chatter tool. I start by cutting two grooves that will be the borders for the chatter work. Then I use wire to burn the grooves and thus give them more definition (see sidebar) (**Photo 5**).

BURNING WITH A WIRE

A wire burner makes a clean line yielding a fine detail in the wood. To burn a line, I place the wire in the cut groove; as the wood spins friction does the work. For safety, I run the lathe in reverse with the tailstock in place when burning. Should the wire catch, the direction of rotation will pull the wire tool away from the turner, rather than launching it towards the turner.

Drill a marble recess



Use a Forstner-style bit in a drill chuck to cut a recess for your marble. The recess should be half the marble's diameter and the fit should be snug.

Shape the belly



With the tailstock for support, shape the underside.

Embellish



Add burn lines with a wire. A shopmade burning tool is easily made with a short section of wire (a guitar string works well) with beads for handles. Never wrap the wire around your fingers or hands.

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It's time to chatter the bottom of the belly (**Photo 6**). This is the fun part because the chatter pattern happens by chance. And, if I don't like the look of the chatter marks, I can simply cut away the surface and chatter a second or third time.

A chatter tool can create stunning patterns on end grain (**Photo 7**). The flexible blade vibrates (or chatters) when applied to spinning end grain resulting in a unique pattern (see sidebar).

I always highlight the chatter marks with a permanent marker. It's an exciting step that adds definition and charisma (**Photo 8**). I test three different ink colors on the scrap section of the blank to see what color looked best. In this case, I chose orange because of how it blends with the wood and burned outer lines. I slow the lathe speed down and apply the pen from small-to large-diameter.

HOW TO USE A CHATTER TOOL

Raise the toolrest so that the point of the chatter tool touches the wood below the center line. With the wood spinning, move the tool point from smallest diameter to largest diameter. Photo 6 shows placement of the chatter tool framed by burned-in lines.

Embellish



Add chatter marks between the burn lines. The author uses colored pens to highlight the chatter work. Apply the tip of the pen to the wood and slowly rotate the blank by hand or on the lathe's lowest speed setting. Note the color bands on the blank where the author experimented with colors.

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Shape the stem



Shape the stem

The goal is to have the stem just long and thick enough to allow me to give the top a swift twist between my middle finger and thumb. If it's too long, the top will wobble as it slows. If it's too thick, I won't be able to get a solid pinch for that swift twist. As I shape the stem, I stop the lathe often to see how it feels pinched between my finger and thumb. The stem is a subtle but important functional design element for a successful top.

I start shaping the stem with a detail gouge (**Photo 9**). As the stem gets thinner and farther from the toolrest, I use a parting tool for final shaping. I turn the handle of the parting tool at a slight angle so that the cutting edge slices the wood cleanly instead of scraping (**Photo 10**). I leave a bit of texture on the stem for a better pinch grip.

When I like what I see and feel, I part the top with a detail gouge (**Photo 11**).



Use a detail gouge to remove the bulk of the waste material around the stem. The author switches to a parting tool for final shaping, presenting the tool edge for a slicing cut, rather than scraping cut. Return to the detail gouge to part the top.

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Glue in the marble

Use an adhesive compatible with both glass and wood to fix the marble into its recess. Be absolutely sure the marble cannot be removed by a child, as it could become a choking hazard.

Finish

You could, of course, sand (but not your colored chatter marks) and apply any number of finishes, from friction polish to an oil finish to spray lacquer (test to make sure your finish of choice is compatible with any color you applied). I like the natural look and feel of a top when it does not have a finish, so I skip the sanding dust and the volatile organic compounds. I use cyanoacrylate glue or a two-part epoxy to hold the marble in place (**Photo 12**). Apply the adhesive carefully and sparingly to avoid squeeze-out. ■

Tim Heil was introduced to woodturning in junior high school woodshop in 1966. He joined the AAW and the Minnesota Woodturners in 2002, and that put his woodturning skills in high gear. His favorite wood is curly lilac.

Avoid choking hazard

KidsHealth.org advises, "Toys should be large enough—at least 1-1/4" (32mm) in diameter and 2-1/4" (6cm) in length—so that they can't be swallowed or lodged in the windpipe. A small-parts tester, or choke tube, can determine if a toy is too small. These tubes are designed to be about the same diameter as a child's windpipe. If an object fits inside the tube, then it's too small for a young child. If you can't find a choke tube, use a toilet paper roll tube."



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