

NEXT LEVEL SPIN TOPS



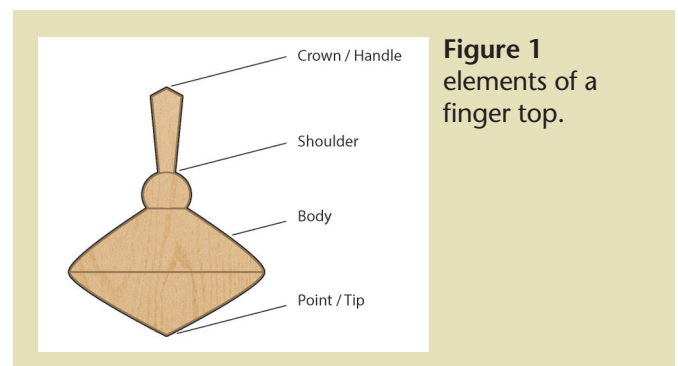
BY LINDA FERBER

ILLUSTRATIONS BY ROBIN SPRINGETT

What makes a wooden top spin? A rotational force applied to the handle converts potential energy into kinetic energy. The top spins in an upright position, around a vertical axis. The principle of angular momentum holds that the top would keep spinning indefinitely if no other external forces acted upon it. Here's where we push the limits of our top design to see which design elements can be manipulated and still achieve a spinning top. Spinning, but perhaps a little unbalanced, or as I like to call them—wobblers.

Tops are made up of four basic parts (**Figure 1**). The underside of my wobblers (where the body transitions to the tip) and the handles are recognizable to anyone who has turned a traditional finger top. Where my wobblers depart ways with tradition is in the shape of the bodies. I would recommend turning a good handful of traditional

finger tops before tackling wobblers. This will also help you appreciate design proportions and how subtle changes in form affect spinning characteristics. I will walk you through my general approach to turning tops before moving to the specifics of wobbler tops.



For guidance on turning a basic spinning top, check out these videos.

tiny.cc/EchterTop



Turning a Spinning Top with Glenn Lucas



tiny.cc/LucasTop



Turning a Spin Top





Wood selection

A seasoned hardwood with straight grain and uniform density works best (no cracks, knots, or bark inclusions) (**Photo 1**). Tight grain maximizes strength, an important factor when adding carving. My favorite woods are native to my area—birch, maple, cherry, and walnut. Exotics, too, will often yield excellent results. Your blank should be about 2" (5cm) square with a length of 2-1/2" to 3" (6cm – 8cm).

Prepare the blank

Spinning tops are an exercise in spindle turning, so mount a suitable blank between centers with its grain parallel to the lathe bed. Bring the blank to round using a spindle roughing gouge. Use a parting tool to create a tenon on the tailstock end of the cylinder (see sidebar).

Three principals for a good tenon

1. Determine the depth of your chuck jaws. The tenon needs to be slightly shorter than this depth so that it doesn't bottom-out.
2. Shape the tenon to match your jaw profile, either straight-sided or dovetailed.
3. The shoulder must be perpendicular to the axis of rotation and cleanly meet the top of the tenon—this is where most of the grip strength lies.

Mount the blank in your four-jaw chuck and true the cylinder using a spindle roughing gouge. Until you have turned a bushel of these, it's a good idea to mark out your blank with key transitions points (**Photo 2**). This will be your roadmap as you shape the blank.

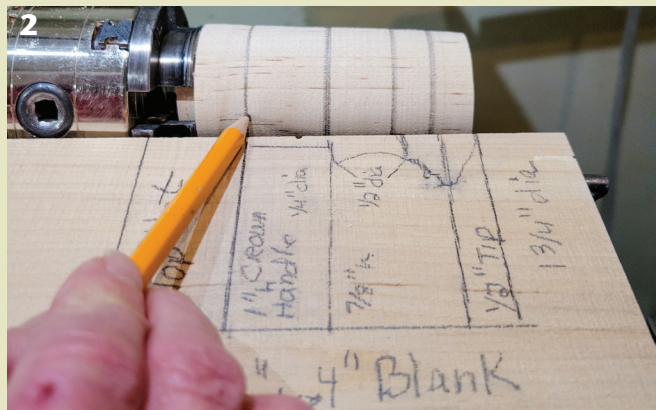
Turn the tip (lower body)

The tip is a critical component for good spinner. The underside of the body should be slightly concave, transitioning to a rounded tip free from tearout. I try to get as clean a cut as possible so the very tip itself needs minimal—if any—sanding, which can deform the tip. This section of the form, from the waist to the tip, should be between 1/2" - to 3/4"-long. Complete the lower body by sanding through 400-grit abrasives.

Turn the upper body and shoulder

Referencing your pencil lines from the story board, shape the upper body section. Keep in mind—and this is more of a design concern—that keeping the center of gravity low will improve the top's performance. Many of my designs feature the principal design perched on the lower body, so I make sure to round the edge of the transition between the lower and upper body. A combination of a 1/2" (13mm) spindle gouge, skew,

Select and prep a blank



Select a straight-grained blank, bring it to round, transfer your key design locations.

and parting tool to make controlled cuts will yield a good surface and build your skills and tool control.

The shoulder

The shoulder transition between the body and the handle can be integrated into the wobbler design. For example, the doughnut looks good with a slight chamfer; the mouse, a bead that becomes the nose. If you choose a bead for the transition feature, use a spindle gouge to start the cut at the top of the bead with the flute fully open. Cut through an arc to the side with the flute on its side by the end of the cut. Repeat this motion on both sides for a nicely rounded bead.

The handle and crown

The handle needs to be long enough to be easily snapped with your fingers to drive the spin—I find about 1-1/2" (4cm) to be about right for my wobbler designs. The handle should be relatively thin, with a diameter under 3/8" (10mm).

Many top makers take pride in the fact that their tops spin equally well on their tip or crown. If that is your goal, the crown should terminate at about the same angle as the tip. Allow room between the crown and the top of your chuck jaws to work safely, and provide material for making your parting cut.

PROJECT: Next level spin tops



Make your parting cuts to the left of the crown to minimize any tearout from the final parting-off of the wobbler. Clear material on one or both sides of your cut so that the parting tool does not bind. You can part the top into your waiting off-hand, or make the final cut with a Japanese saw with the (lathe off) and then hand-sand away any torn grain or excess material.

Sketch the future

The top section of the body is where most of the creative design opportunities lie. I like to start by sketching ideas, then assign dimensions to the elements (**Figures 2, 3**). Make sure, though, that you retain the basic elements of a spinning top, otherwise you may end up with a static sculpture to prop on a shelf. Experiment with my designs if you like, then discover your own twists and spins.

After selecting a wobbler design, create a fullsize storyboard to guide your turning. The storyboard can be a piece of cardboard or thin wood, anything to allow transferring measurements at the lathe.

The tooling and approach to turning a wobbler is substantively similar to a conventional top—that's why it's good to get several of those under your belt first. Because wobbler bodies are larger, you need to retain some support during shaping, so don't reduce the handle area too much at this stage. Just remove enough material to provide access for your gouge. Having two calipers, one set to the diameter of the body and the other set to the diameter of the handle, (or another critical measurement of your choice) saves time during the turning process.

Painting

Embellishing a wobbler often involves painting. I like to apply paint with the wobbler on the lathe as I've found this produces an even surface and crisp edges. I apply paint with a standard paint brush with the lathe spinning at a very slow speed. If your slowest lathe speed is too fast and produces splatters, turn the lathe by hand. I protect my lathe bed with a magnetized vent cover I purchased at a big box store, but a rag or a piece of scrap dimensioned lumber will also work.

With the lathe turning slowly, rest the brush handle on the toolrest and gently touch the wobbler with the loaded paint brush, moving the brush over the area to be painted. Keeping the brush loaded with paint helps with even application. After the paint dries, refine the edges (if necessary) using a skew or sandpaper.

Whether turning a spinning top for a child or a discriminating top collector, an appealing appearance

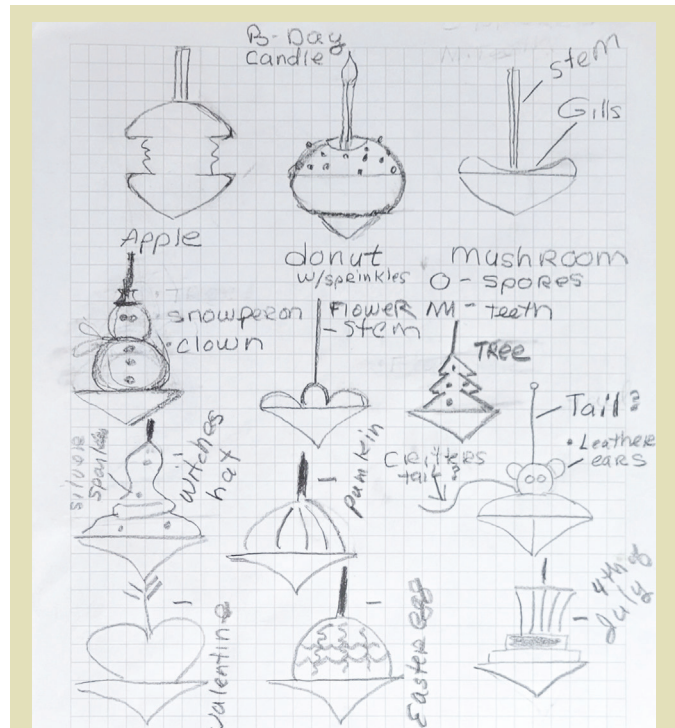


Figure 2 To design your own wobbler top, start with some informal sketches.

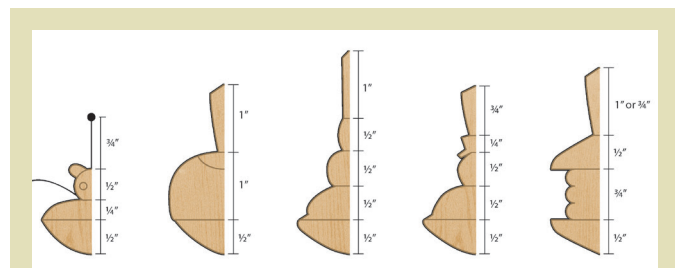


Figure 3 Elevate your sketches to designs with dimensions for each element. From left to right: mouse, doughnut, tree, snowman, apple.

and bit of whimsy with textures and colors are fundamental. The sketching and planning phases are essential. Even with the wobblers your pride as a woodturner is linked to getting as long a spin as possible.

Impart as much energy as possible to the spin of the top. Spin the top so that it starts spinning as close to vertical as possible. Heavy tops tend to spin longer than light ones. The goal is to create something that evokes smiles and laughter. ■

Linda Ferber retired from her position as AAW's Program Director. She is the founding editor of Woodturning Fundamentals.



Wobbler

GALLERY

With a seasonal theme in mind, I decided to turn some Christmas tree wobblers with snow covered branches and a few ornaments. I added a snowperson to the collection, featuring a ribbon scarf. A drop of cyanoacrylate (CA) glue keeps the ribbon in place. Adding a bit of Golden Gel Medium to the white paint adds texture to the body. Scribble carving with a ball diamond burr adds texture. I recommend a couple shades of white. Maybe a touch of yellow snow at the base for a little realism?



Sprinkles on a doughnut are irresistible, and when these wobblers spin, these catch the light and sparkle. I selected brown paint to look like chocolate (mix two shades of brown with a touch of black). I use artist quality paints (e.g., Golden) for the best finishes and intense colors. Multiple paint colors add depth and texture to your work. Blending red and white paints evokes strawberry frosting. Beige, off white, and white paints can be mixed for vanilla frosting. Texture is created with Gel Medium. Sprinkle on colorful seed beads while the paint is still wet, gently pushing them into the paint.



The mouse wobbler is a surprisingly simple design and easy to turn. What makes the form successful is a little felt for ears, a bit of yarn for a tail (glued to the body is best for balance), and black beads for eyes.

For the Uncle Sam hat, you can hue to the traditional red, white, and blue with a bit of pyrography for stars, or go your own way with colors. Elongating the hat improves the top's balance. This could also work for a St. Patrick day themed hat.