

Spinning Top

Art Wurfel

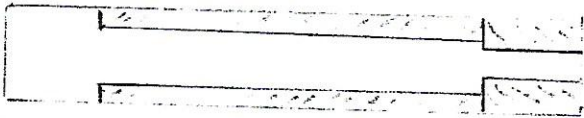
Based upon my experience with my grandkids, these things are fun toys for all kids from about 3-10 years. They're also fun to make and leave room for a lot of creativity.

All you need to manufacture these is basic tools and a lathe. I found a couple of things worth considering:

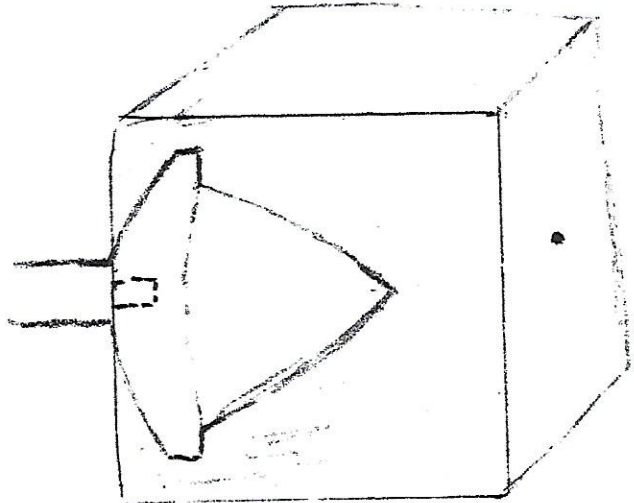
1. Cherry and Maple are the best - for strength, finish, and turning. (I used misc. scrap)
2. Glue-ups are fine for the body and mixing woods gives a unique look
3. 2 ½ wide by 2-2 ½ deep is a good start size but overall the top works best if the finished body is a bit wider than it is deep.
4. You can make the whole thing from a solid piece, but turning the shaft section will mean clearing out a lot of wood, so I made that separate as shown in these manufacturing plans.

Components:

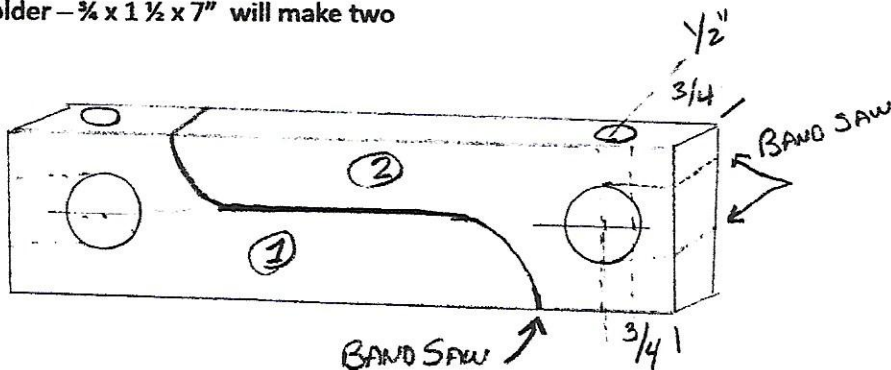
Shaft - ¾ x ¾ x >4" block



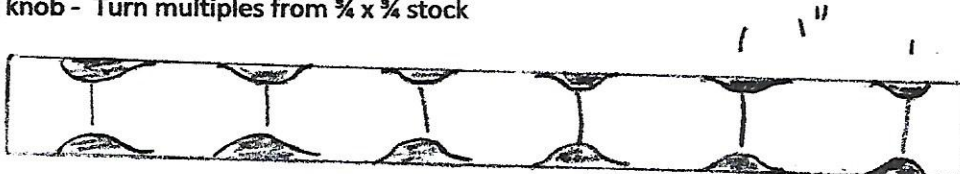
Body - #3 above or your choice



Holder - ¾ x 1 ½ x 7" will make two



String knob - Turn multiples from ¾ x ¾ stock



Manufacturing Process

Warning! I am a completely self-taught mini-lathe operator with only the basic (gouge/skew/parting) tiny tools. All were originally purchased to turn pens and I surely do a lot of things "wrong".

Prepare the BODY for turning on the lathe by locating the center on each end.

Drill a centered $3/8$ " hole $3/4$ " deep on what will be the top side. Center-punch the bottom for the tail stock. I then penciled a circle on the Body and cut just outside of it on the band saw – saves the chore of knocking off those edges on the lathe.

SHAFT: Prepare centers on both ends for mounting in the lathe. On the tail end, turn a $3/8$ " tenon $< 3/4$ " long (test for insertion into the body). Turn the remainder to approximately $5/8$ round at this point, and leave at least $1/2$ " of the head stock end for later re-mounting on the lathe.

Glue the Shaft into the Body and let the glue set.

Remount into the lathe and begin shaping the body to your preference. I found it easiest to:

1. work the body to rough shape
2. Turn the shaft down to $1/2$ " (now everything is in smooth balance on the lathe)
3. Use a parting tool to curve/taper the top of the body from the outside down to the shaft (multiple passes required). I found this is necessary to assure balance and it adds to the appearance as well.
4. When you are shaped and have the point down to about $1/4$ " from the tail end, do the sanding and confirm with a caliper that the shaft is a bit less than $1/2$ " (so it will fit easily in the holder).
5. Finishing the tapered point and parting it from the waste at the tail end is a bit tricky (go slow with a sharp skew).
6. Hand sand the point, and drill a $1/8$ " hole in shaft for the string - about 1 " from the body. Good idea to counter sink that a bit to make it easier to insert the string.

HOLDER: I made two at a time out of the $3/4$ x $1 1/2$ x 7 " stock. It's pretty simple:

Drill the $1/2$ " hole for the shaft, bore the $3/4$ " hole for the string opening, cut it out on the band saw then finish by routing, sanding, etc. I also used a large counter-sink on each end of the $1/2$ " hole to clean up the looks and make it easier to put the shaft in there.

PULL KNOB - I just turned multiples about 1 " long from $3/4$ " stock then drilled a $7/64$ " hole for the string.

The string I used was the braided stuff like what is used for plumb line. Singe the ends, knot one end so it won't pull through the knob, and I found dipping the other end about $1/2$ " in paint stops it from coming unwound under use.

FINISH: I like using spray can laquer for this kind of stuff because it's tough and dries fast. I use a thin wire to hang the top from a long string, spin it, then spray while its rotating. Same for the holders and knobs.