

Skill building with bottle stoppers



One of the skill building projects we use in our turning classes is the bottle stopper. While I usually do not have a bottle of wine around long enough to require a stopper, these do make a good beginning project that results in a finished article to prove to your significant other that you really are learning something.

You can only do bead and cove sticks so long. Bottle stoppers are a good way to put those new skills to use in a low stress fashion. They are quick, easy and inexpensive. We use cutoffs from more advance projects so even though the wood may be exotic, the cost is low. The balance of the supplies required are wood dowels and pre-drilled corks.

Depending upon the intended end user, stoppers can be quite elaborate. Bases can be stainless steel, chrome, plastic, cork, or even multi-purpose with included corkscrews or bottle openers. More elaborate tops might use cast acrylics, cabochons or synthetic materials. For our classes we use a simple, inexpensive, system of wood dowels and corks with cutoffs from other projects.



There are many ways to make a stopper, some much more complicated than others.

For beginning turners, the bottle stopper exercise introduces a number of concepts useful in spindle work: solving problems in work-holding, safety while turning, design, finishes and of course, beads and coves.



For the turning blanks we use cutoffs from the scrap bin. These are cut into approximately 3 inch by 2 inch by 2 inch sizes, with the end grain faces as parallel and flat as possible. Using a drill press, a 3/8 inch hole is centered in one of the end grain sides, approximately – inch deep. This could also be done with a Jacobs chuck in the tailstock and the blank in scroll chuck. Glue a 3/8 dowel into the hole using Tightbond or similar wood glue leaving

enough dowel to fit the cork to be used. The dowels we use are 2-1/2 inch long and ribbed to allow for glue to distribute. The blanks can be prepared in advance for each member of the class to choose. The dowels are typically a tight enough fit in the 3/8 hole that they can be also turned immediately (it may be necessary to tap them into the holes with a mallet). To make sure the dowel is secure if the blanks are to be used right away, CA glue could also be used.



To turn the stopper, the blanks can be held in the headstock with the dowel end in a Jacobs Chuck but this has some basic problems: 1. Jacobs chucks are not designed to grip wood dowels, the jaws crush the dowel as they are tightened. 2. Most Jacobs chucks are not threaded for a drawbar so the chuck has a tendency to work it's way out of the headstock if the tailstock pressure is reduced. 3. With the jaws of the chuck tight against the blank, in order to provide the most support, hitting the metal with your gouge is virtually guaranteed. We use simple wood collets to solve these issues.

The collets are made from cutoffs (notice a pattern here?) of whatever wood is available. Most often we use a softwood, like pine, 3/4 inch thick, in cross-grain orientation. A 50mm tenon is cut on one side and a 3/8-inch hole drilled through the center. The top of the collet is cut to match the wide part of the corks to be used to provide a template, usually 7/8-inch or 22mm diameter. The final step is to bandsaw a slot from the outside edge, through the center and into the opposite side just past the edge of the cork template on the top. This saw kerf will allow the collet to close upon the dowel inserted into the 3/8-inch hole when the chuck is tightened around

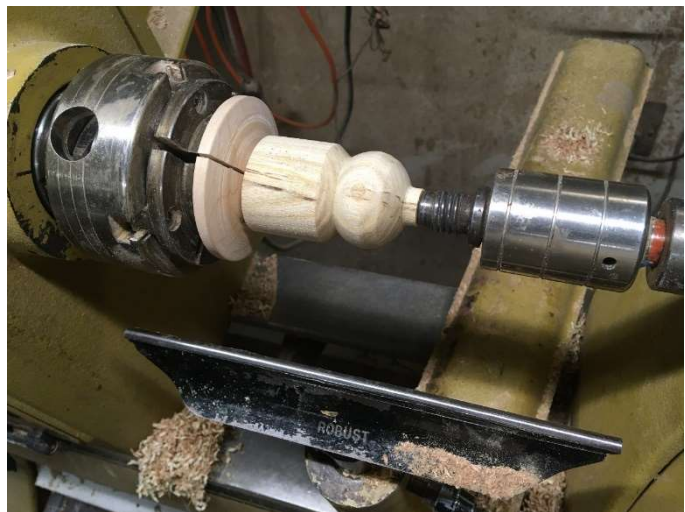


the tenon. The sawcut should be oriented to align with a gap in the chuck jaws to allow for proper closure. The sawcut can be either along the grain or cross grain. The cut along the grain seems to be stronger but both seem to work. If the collets break when tightened, which they often do, they will still hold the dowel, they just aren't as convenient to store. Making and using a collet like this is a useful skill. They can be used to secure projects of many sizes and configurations. A wood collet will not mark the work-piece as readily and can easily be customized.



To use the collet, insert the dowel into the collet until the stopper blank seats against the collet. Tighten the chuck. Bring the tailstock up to support the free end of the blank. This will create a small dimple in the end of the blank from the point on the live center so approximately $\frac{1}{4}$ inch of the blank will have to be removed at the end of the turning.

With the tailstock applying pressure to force the blank against the collet, and the scroll chuck tightened to close the saw kerf and secure dowel, turning the stopper can begin. This is a spindle project at this point, the design is based upon beads and coves with possibly a few burned or incised lines. Leave a $\frac{1}{4}$ to $\frac{3}{8}$ -inch tenon at the tailstock end for support. At the base, use the collet as a guide to prevent the design from being smaller than the top of the cork. Before removing the tailstock sand and finish the stopper. Walnut or Danish Oil, friction polish, or just plain wax all work well here.



With the finish applied it's time to remove the tailstock and attack the small tenon at the top of the stopper. This tenon should first be cut close to the finished size with a flush cut saw. This will prevent the cells from tearing out of the top creating another hole to deal with. The final cuts can be done on the lathe with a spindle gouge, making sure to apply pressure toward the headstock with the bevel. Alternatively, the remainder of the tenon can be removed with a sharp carving gouge or chisel, off the lathe. Sand and complete the finish.

The corks, available from Packard, Craft Supplies and others, are predrilled for the 3/8 inch dowel. Apply a small ring of wood glue to the end of the dowel and begin pushing the cork onto the dowel. Rotate the cork to distribute the glue evenly. Stop pushing the cork before it fully seats to make sure that the glue will not push out when it seats. If there is too much glue, use a folded paper towel to remove the excess before the cork is fully seated. Once the cork is glued it is usually necessary to refine the end with the sander to even out the cork and dowel.



Open a bottle of your favorite beverage and enjoy.

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