

TURNING COLLECTION PLATES

Templates Ensure Identical Pieces Nest Together

WES JONES

I RECENTLY DECIDED TO PUT MY WOOD-turning skills to work and make a set of collection plates for my church. Our old brass plates were getting pretty disreputable looking and it was going to cost approximately \$100 a piece to replace them. Since a collection plate is essentially just a platter, I thought I would take on the job and save our church some money.

The first thing I did was make up a prototype and show it to our church committee to see if they were interested. There's no use getting geared up for a big project, if it's not going to be well received. Maybe they would rather budget \$800 for a new set of 8 brass collection plates. Fortunately (or maybe unfortunately, depending on how you look at it), they loved the prototype and were excited about the project. They wanted to know what the plates would cost and when they could have them. I told them that if they would buy the material, I would donate the labor. I also told them that they would have to be patient and give me two-to-three months to do the job.

Design Considerations

By the time that I knew this project was a go, I'd had a couple of weeks to think about it and had come to the realization that there were a few important details to be worked out. Making

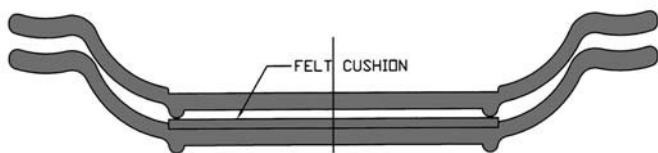


Identical platters pass the stacking test, nesting together perfectly. And they are easy to grasp. Photos and drawings by the author.

a generic collection plate was pretty easy. But making a "set" of collection plates means they have to be as identical as possible. When they are stacked together, any slight variation between them will be glaringly obvious. Secondly, for them to stack properly, they must "nest" together. In other words the outside of one must fit into the inside of the one below it. And again they must be as identical

as possible, so that they will stack interchangeably. To make this work I went to the computer and drew a section profile of my proposed design using my CAD (computer aided design) program. Then I took the section profile and positioned it above a copy of the profile to see if they would nest together. Sure enough, they didn't fit very well together. But after a couple hours of adjustments to the design, I

SECTION VIEW OF COLLECTION PLATES



To ensure the plates stacked properly, the author started with a drawing, then made templates.

developed a profile that looked good and nested together properly, as shown at the bottom of the previous page.

Another detail had to be addressed at this stage. I wanted to put a felt cushion in the bottom of each collection plate. This is usually done to quiet the sound of kids dropping coins into the plate and would add a finished, professional-looking touch. After some investigation, I found what I was looking for at Cokesbury, a church bookstore and supply company in Nashville, TN. (800 672-1789/ website is www.cokesbury.com.) They have felt cushions or pads available in a number of colors and diameters, embossed with various religious symbols.

Well, things were coming together, but I was still worried about making each collection plate close enough to my computer designed shape. I'd made table legs in the past using calipers and a ruler to duplicate a design. But table legs don't have to nest together. They don't even get mounted next to each other. The answer for the collection plates was to use templates. I made hardboard templates of the upper and lower surface profiles, bottom right, previous page. This way as I turned wood away, I



Wes Jones trues up the plate blank in his shop.

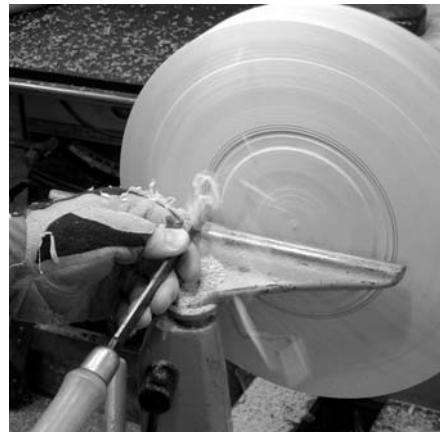
could hold my template of the profile up against the workpiece and see where additional wood needed to be removed. The lower template can be made in two pieces so that one side can be used without the tailstock being in the way. The templates have to be made full-size and very accurately.

Many different woods could be

used to make collection plates. I usually use green wood for faceplate turning, because it is free or very cheap. But because of the need to minimize warping and to make sure the plate dimensions didn't change after turning, I decided to spend the money for kiln-dried wood for this project. I also wanted to avoid gluing-up boards, so I had to find a piece of lumber that was a full 2-in.-thick and a little more than 12-in.-wide, with no serious defects. Mahogany would have fit the bill, but I wanted oak or ash to match the woodwork in our church. After calling every lumberyard in town, I found a nice piece of ash and was ready to start turning.

Turning the plates

The first step was to cut the board into square pieces. The center of each piece was marked and then cut round on the bandsaw, using a home-made circle cutter. The pieces were cut a little oversize, so that they could be trued-up on the lathe. Next each piece was drilled on the drill press for



After mounting the blank on a screw chuck, the author trues up the bottom and cuts a recess for a scroll chuck, above left. Next he removes some of the excess wood under the rim, above right.



Now the author begins adding details and decorative touches, such as ribs and grooves, above left, then uses his template to check his progress in shaping the piece, above right.

mounting on the lathe with a screw chuck.

When the piece was mounted, the edge was trued-up and turned down to exactly 12-in.- diameter, as shown in the photo above. Next, the surface (which will become the bottom of the collection plate) was trued-up and flattened, as shown on the bottom of the previous page. A recess was turned for the scroll chuck. At this point I turned away some of the excess wood on the underside of the rim, but this step is not really necessary. Be sure and make a small indentation in the exact center of the plate to facilitate lining up the piece on center later.

The workpiece can now be reversed and gripped in the chuck. Face off the top surface of the piece, removing as little wood as possible. Begin turning away the inside of the collection plate. It may be helpful to add a pencil line showing the diameter of the "bowl" in the center of the plate, as well as any ribs or grooves in your design, above left. Now hold

your upper template up to the workpiece to see how you are doing, above right. Take a little more off and check with the template again. Remember you can't afford to take off too much wood anywhere. The design is fixed and cannot be altered if all the plates are going to be identical. This process of turning and checking with your template will go very slowly on the first piece, but you will be pleasantly surprised how you will speed up on the subsequent pieces. When your profile matches the upper template and you have smoothed out all the little ripples, you are ready to sand. This upper surface of the collection plate should now be completely sanded, ready for finish. I prefer to finish my pieces off the lathe, so that I can apply multiple coats of penetrating oil over a period of days. If you prefer to finish your pieces on the lathe, finish this surface at this time.

Now you have a decision to make. You can complete this piece by reversing it and turning the lower surface. However, I chose to turn the

upper surfaces of all eight collection plates before doing the lower surfaces. I believe it helped me to be more consistent to do all the upper surfaces in sequence and then to do all the lower surfaces in sequence. But, suit yourself.

To do the lower surface, the workpiece can be reversed on a vacuum chuck, if you have a vacuum set-up. If not, put a piece of foam padding over a faceplate and position the upper surface of your workpiece on it. Bring up the tailstock and apply sufficient pressure to hold the workpiece securely. Either of these methods will work. By placing the small indentation you made previously in the center of the plate onto the point in the tailstock center and then clamping the workpiece to the headstock, your piece should center up nicely.

Now turn away wood to make the needed underside profile of your collection plate. Using the lower surface template, check periodically to see where more wood must be removed. When you are satisfied with the



After turning all the concave sections, Jones uses a vacuum chuck to mount the piece on the lathe and turn the exterior, above left. Again, the template is needed to ensure shape is accurate enough for all the plates to nest together.

shape and all the little ripples have been smoothed out, sand the lower surface as you did the upper surface previously. If you are applying finish on the lathe, sign your piece and

apply the finish.

Finishing Touches

After you remove your workpiece from the lathe, you may need to remove the small nub from the center and do some hand sanding if you used the tailstock to hold the plate in place. As soon as you have 2 or 3 plates completed, now is your chance to stack the pieces together and insure that they nest properly. Since the felt pads have not been installed yet, the plates may be a little wobbly on each other. Lay a felt pad between each one in the stack.

Now if the collection plates stack nicely, we can all give a "collective" sigh of relief. (Sorry, about that!)

Since my set of plates was not finished on the lathe, my next step was to sign all the pieces with a wood-burning pen with a small tip.

I used Minwax Antique Oil to finish my collection plates. I applied it liberally to the lower surface of all the plates and then wiped it off with a soft cloth. Two hours later I turned

them all over and applied a coat of oil to the upper surface. The next day and on subsequent days I repeated this process until I had four coats of finish on both the lower and upper surfaces.

Then I applied a coat of carnauba wax, except where the felt pads would be attached, and buffed the plates. The final step was to apply the felt pads. I used four dabs of silicone adhesive to bond each cushion.

If you want to tackle an interesting woodturning project that will benefit your church, making a set of collection plates is a challenging and satisfying project.

Wes Jones is 56 years old and lives in Lawrenceville, GA (northeast of Atlanta). He has been an amateur woodworker all his life and a serious woodturner for 6 years. Wes is a mechanical engineer and retired in 2001 after 31 years in the communications industry designing fiber optic apparatus. He is a member of the AAW and an officer of three AAW chapter woodturning clubs in Georgia.



The platters are finished with Minwax Antique Oil and carnauba wax.