Turning a Platter
With Kirk DeHeer

I like to use a Woodworm screw with a large set of jaws as backers. With this set-up it is like attaching a 5 inch faceplate without putting in a bunch of screws. This saves time. (Fig 1)

Fig 1

Many turners say that they have the screw come out of the chuck. I have a selection of screws shown (Fig 2) if properly installed the screws can not come out of the chuck.

Fig 2

Here is a Oneway screw in a Vicmarc chuck. Yes they can be used that way. The flats on the screw should be in line with the backing jaws. (Fig 3)

Fig 3

Next we want the jaws to be in the groove in the screw. (Fig 4)

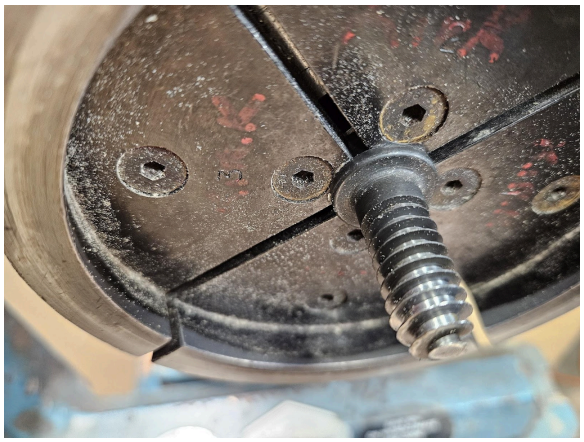

Fig 4

Before we get any further we need to know how big to make our spigot. (Fig 5)

Fig 5

I like to measure the jaws with them closed and then divide that in half to set my dividers. (Fig 6)

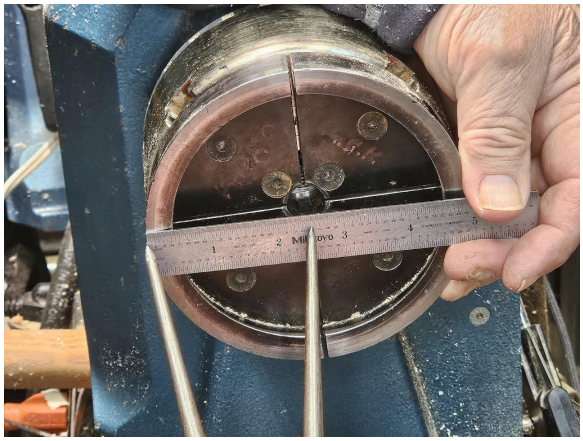

Fig 6

It’s time to drill the appropriate drill hole. I use a hand drill with a collar on the bit. I don’t want the hole deeper than needed for the screw because this blank is only 2” thick. (Fig 7)

Fig 7

Let's take a look at this blank before we mount it to the lathe. (Fig 8 and 9 and 10)
(Fig 8) shows the blank as it was processed with the X in the center for the compass.

Fig 8
(Fig 9) Shows the opposite side of the blank.

Fig 9

(Fig 10) shows the heartwood and sapwood contrast. If I use the original X mark I will have both heartwood and sapwood on the rim of the platter and sapwood in the bottom of the platter. This is not the best way to display the wood. The darker color of the sapwood adds visual weight. Visually it is better to place that in the bottom of the blank.

Fig 10

We need to find the center on the opposite side of the blank. One way of doing this is to use a compass and mark 4 marks 90 degrees from each other (Fig 11)

Fig 11

This will give us a rough center. We can now drill a hole at the center of the small square. (Fig 12)

Mount the blank onto the screw. I do this with the lathe running at a speed **less than 350 rpm.** It's a bit like feeding a horse. Keep your hands open, don't **grip the blank.** At the slow speed and with your hands open the lathe will just take the blank out of your hands. If you are uncomfortable mount the blank with the lathe off by locking the spindle and turning the blank by hand. Either way make sure that you have the blank tight against the chuck jaws. (fig 13)

Fig 13

Make sure that the blank is tight to the chuck jaws. As noted before I am using a larger set of jaws this will add much needed stability to dampen vibration as we cut the back of the platter.

Fig 14

Let's look at bowl gouges. The gouge doing the majority of the work is a ½" flute ⅝" bar parabolic flute bowl gouge with a 50 degree nose bevel and the control leg set on the Veri-grind at 23 degrees the wings are pulled back ⅝" (Fig 15 and 16) Notice that I have placed a red line in the bottom of the flute and green lines on the side. Remember when cutting with the bowl gouge you should not be able to see the red line.

Fig 15

The micro bevel helps in several ways(Fig 16) First, the sharper angle secondary bevel is sharpened first with a coarse grinding wheel in order to remove material *fast!* and leave less material to grind with the finer wheel extending the life of the finer wheel. And perhaps the most important reason is that it doesn't leave as deep of compression marks on the inside of a bowl.

When sharpening any tool, keep your hands away from the wheel. (Fig 17) I chock up on the tool and jig, keeping my hands free of the wheel if the tool should slide off the wheel. I like to keep my elbows close to my side.

Fig 16

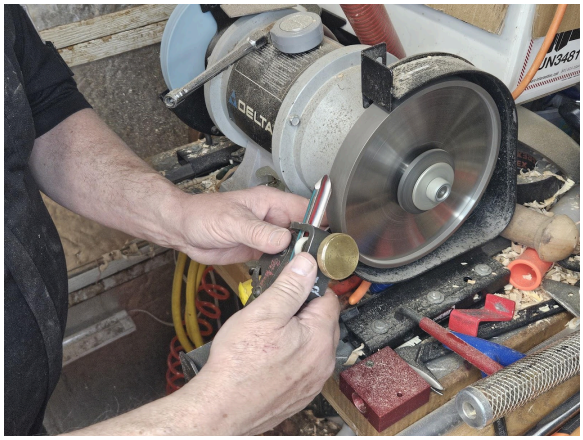

Fig 17

Now that we have a sharp tool, lets consider what speed should we turn the blank at. We have already inspected the blank for loose bark or wood and also determined that the blank doesn't have cracks, checks, or defects,like bark inclusions. These things can get you seriously hurt! The emergency room costs more than a good piece of wood. Dale Nish taught that a good formula to set the lathe speed is the RPM X Diameter of the blank should be between 6000-9000
In this case we have a 12” diameter blank if we turn at 500 then 12 X 500 = 6000 and 12 X 750 = 9000 with that in mind our speed should be around 500 to start, **if the lathe has the mass to run the blank and be stable.** With a max speed of 750 RPM. This is a good guideline. If your lathe vibrates or bounces at 500 you need to turn the speed down. It is not safe to have the lathe bouncing.

Our first cuts will be to true up the top of the blank. We want to know how high the piece can be before we shape the bottom. To do this we start with the tool rest facing the top of the blank and the top of the rest at standard tool rest height. Note: as a reminder, standard tool rest height is when the tool is held level on the tool rest the cutting edge is at the centerline. We are using a slicing peel cut. Start with the flute slightly open and the handle down about 45 degrees. (Fig 18)

Fig 18
Once you have the first inch of the top cut true. Note: there is no need to cut the entire top surface at this point. (Fig 19)

Fig 19
The next step is to cut the rim of the platter. This will give us the diameter of the platter. (Fig 20)

Fig 20

When making this cut I start at the top of the platter and cut toward the bottom. That way if I have fibers blow out they get cut when I shape the bottom. (Fig 21)

Fig 21

Also shown in (Fig 22) is torn endgrain. It is very important that this cut is clean! It is the final diameter of the platter and it would also be difficult to sand out. In order to cut this clean I have several options.

1. Sharpen the tool. You may have recently sharpened but you don't have the sharpest edge possible.
2. Downsize the tool. A smaller tool removes less wood therefore it doesn't put the same stress on the wood as a larger tool does.
3. Lubricate the cut. Try putting some wax on the trouble area. Then get your smaller gouge and sharpen it before trying to cut.(Fig 22)

Fig 22

Make sure that you have removed all bandsaw marks from the blank. We don't want to find them at a later time when they will be much more difficult to deal with. (Fig 23)

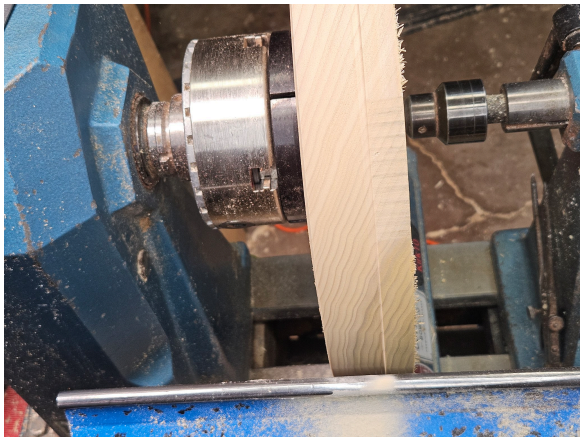

Fig 23

Moving to the bottom of the platter. Start by cutting a foot ring. On a Platter we want a base that is 50-70% the diameter of the blank. One other consideration is the size of the chuck jaws we are using. The jaws we are using here are 5” closed with 1” of wood for support from the jaws pushing out. I want a foot ring 6 plus inches in diameter. And cut in about a ¼” (Fig 24)

Fig 24

Cut the foot ring clean. (Fig 25)

Fig 25

The foot ring should be slightly cut deeper toward the center. (Fig 26)

Fig 26

Split the remaining wood from the foot ring to the rim in 3rds in (Fig 27) I am using a golden mean caliper to find 1/3rd from the food ring. And 2/3rds from the line to the outside edge. (Fig 22)

Fig 27

Mark a line ½ inch from the top down on the rim. Note: don't push the pencil in hard, you might need to sand this line out. (Fig 28)

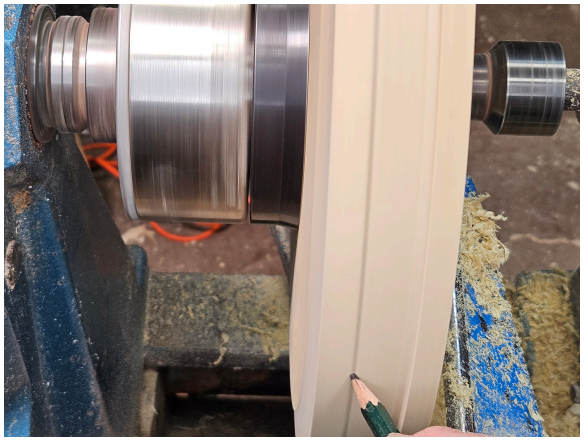

Fig 28

Cut a cove from between the lines. (Fig 29)

Fig 29

This should leave you with a shape similar to this. We need to smooth out the ogee curve. Ogee curves tend to look better stretched out rather than compressed. (Fig 30)

Fig 30
Your platter should have a shape similar to this. Note: the ½" line is a guideline to ensure that I leave a rim. I can cross it if I need to in order to get a pleasing shape. (Fig 31)

Fig 31
Cut in the spigot by cutting slightly deeper as you go toward the center. Note: I don't cut deeper than ⅛" (Fig 32)

Fig 32
Cutting from the center to the chuck spigot straight across. This will form a spigot ⅛" deep. This is enough for my chuck jaws to grab and I want to be close to the closed diameter of the jaws. This will give me the best bite from the jaws. I use a small scraper to finish the spigot. A skew or gouge could also be used.
Next cut is a bevel riding cut just under the surface of the ogee curve. From the foot ring to the rim. (Fig 33)

Fig 33
As the cut gets deeper at the bottom of the cove, the cut is stopped, the gouge turns over and cuts a straight line or fillet to separate the ogee. (Fig 34)

Fig 34

The cove next to the foot ring can be difficult to sand. Because the heel of the gouge compresses the fibers and leaves compression marks. I am going to put a fillet cut in to break up the line and make it easier to sand. (Fig 35)

Fig 35

Clean up the opposite side and blend the ogee into the fillet. (Fig 36)

Fig 36

This should leave a nice shape and a clean surface ready to sand. I use a 3” disc on a power sander. On a piece this size. work through the grits. Key points to remember when sanding.

1. Always start with a coarser grit than you think you need.
2. Never skip grits.
3. Always sand against the rotation of the piece.
4. Treat your sandpaper like someone else is paying for it. Don't try to get every bit of life out of it. Worn out 120 grit is not 180 grit. You will leave scratches in your turning if you over use sandpaper.
5. When you replace one piece of paper in a series, replace all the paper in the series.
6. Buy quality paper. Poor quality paper costs more in time and poor quality finishes than good quality papers.
7. Use the same manufacturer and type of paper in a series. Just because two papers come from the same manufacturer doesn't mean they will work well together. Some grits might be sharper than others.

Once sanded you can start your finish process if you like. On this piece I have started with a burnishing wax I have made

and will finish with an oil / varnish off the lathe. (Fig 37)

Fig 37

Now that the back of the platter is complete. Remove the platter from the woodworm screw and remove the woodworm screw from the chuck in preparation for mounting the platter using the spigot. (Fig 38)

Fig 38

When I place the platter in the chuck jaws I like to line the grain up with the gap of the chuck jaws. I believe this spaces the pressure from the jaws evenly on bias grain. As opposed to pushing on all endgrain or sidegrain. I believe that this gives a better hold. (Fig 39)

Fig 39

With a gap no wider than ¼" between the jaws, there is a lot of jaw contact in the spigot. Note: make sure that your platter is secure in the chuck. If it is not, fix the spigot now. Bring the tailstock up to help support the platter. (Fig 40)

Fig 40

Shaping the rim, this piece has an asymmetrical bead with 1/3rd sloping to the outside and 2/3rds sloping to the inside. Having the rim slope to the inside pulls the eye to the inside. Likewise if the rim is pointing toward the outside the eye goes toward the outside. In this case we are trying to show off the wood ,so the rim slopes toward the inside. The rim is shaped using a shear scrape toward the outside. This will thin the rim. That is why it was left ½" thick at the start. (Fig 41)

Fig 41
Forming the other side of the bead by turning the tool over for a bevel riding push cut towards the center, and starting at the top of the bead 1/3rd in. The rim on this platter will be about 1/3rd of the radius.(Fig 42)

Fig 42
Removing the wood from the bowl of the platter, I like to use a slicing peel cut, working from the rim of the bowl toward the center getting deeper with each cut. Never pulling back toward the rim in the cut. This will present the gouge directly into the endgrain and will create a violent catch that is very dangerous. (Fig 43)

Fig 43
This is a very efficient way to remove the wood from the bowl of a platter, because the platter is flatgrain. This is not the way to hollow a deeper bowl. With a deeper bowl there is a much higher risk of hitting endgrain. (Fig 44)

Fig 44
This is a spot where a heavy scraper could be used to refine the curve in the bowl of the platter. Choosing the right scraper, the French curve scraper shown on the left has a much tighter curve than the Radius scraper on the right. It is better to use a scraper that has a radius similar to the curve in the bowl. If we choose to use the French curve, we are most likely to leave more ridges than the larger Radius scraper (Fig 45)

Fig 45

When using any scraper, lift the tool rest so that the tool handle is pointing down hill. The higher the handle is raised the less aggressive the tool becomes. (Fig 45)

Fig 45

One of the tradeoffs that we have to consider when using a scraper is that they might lift grain. In this piece of softer density wood (Tulip Poplar) It is very common to have the grain lift (Fig 46) many turners like to use Negative rake scrapers. Not shown. Because they are less aggressive than traditional scrapers. It was not considered for this piece. Because of the soft density of the wood. Negative rake scrapers work best in hard density woods.

Fig 46

It can be good practice to use the scraper to get a pleasing curve (Fig 47)

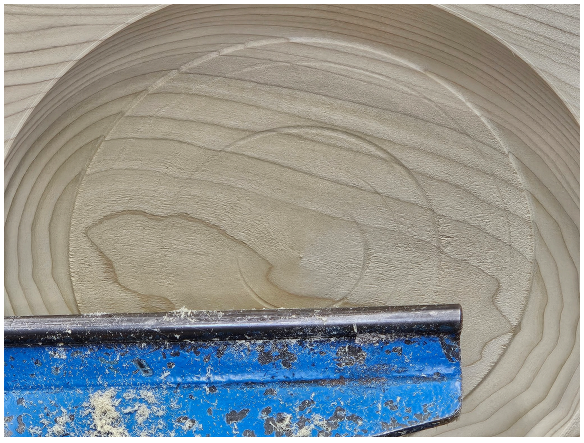

Fig 47

And then follow up with a gouge for a clean cut. Since this is all flat grain, a traditional ground bowl gouge AKA “Bottom feeder” is the preferred choice. (Fig 48)

Fig 48

As the gouge cuts toward center, it is good practice to end the last cut just off center and leave a nub. If the cut goes to center the gouge could go past center and create a divot, or tear out the grain at the center of the blank. (Fig 49)

Fig 49

The platter is now ready to sand. Follow the sanding rules presented earlier. I sand with a 3 inch disk. Treat the rim and the bowl as two separate items. Don't roll the sandpaper over the crisp line created with the gouge between the rim and the bowl. (Fig 50)

Fig 50

Stay away from the center of the bowl with coarse sandpaper grits. Leave the nub and the rim for now. (Fig 51)

Fig 51

Once the platter is sanded to 220 grit. It is time to carefully sand the nub and sand to the center, but not past the center. If you sand past the center you will leave a small dish in the center. It is also time to sand the rim. Rock the paper back and forth on the rim, creating a slight curve. The bowl should have a gentle curve without a dip in the center. (Fig 52)

Fig 52

Start to apply the finish with the same steps you used on the bottom of the platter. (Fig 53)

Fig 53

Stand back and admire your work.(Fig 54)

Fig 54

Notice that the darker colored heartwood is in the bottom and not on the rim as planned.

If you have made it this far, I have a confession. It was cold in my shop when I photographed this platter. Always use safe turning practices, be extra careful if you have long sleeves, also please don't tell my wife that I was wearing a new hoodie when I did this, and that the reason I help with the laundry is to hide the evidence.