Methods and Jigs for Reverse Turning Bowls
By John Lucas

There are many ways to hold bowls and hollow vessels so that you can turn the bottom. In this document I will cover many of the ways of reverse chucking or holding a bowl.

Jam Chuck

The simplest method is often called a jam chuck. This is just a piece of wood, larger than your bowl, attached to a faceplate. You turn a depression in the wood the same size as the bowls lip. This will align the bowl and drive the bowl with friction. Bring the tailstock up to hold the bowl in place. You can turn most of the foot this way leaving a small tenon. After you remove the bowl from the lathe you can carve away the tenon.

Sometimes you can force the bowl in the opening with a jam fit and you will be able to remove the tailstock for turning. This depends on the shape of the bowl of course. Some bowls will not stay on a jam chuck without additional support.

You can often use this disc of wood several times by turning different size grooves for the bowls. When you cut it down to the point that the screws from the faceplate are close simply true up the surface and glue another scrap of wood on top.

Tape Chuck

A tape chuck is the same as a Jam chuck except you use tape to secure it to the jam chuck. This can be a surprisingly strong way of holding the bowl depending on the shape of the vessel. I use painters masking tape first and if I'm worried about the tape breaking I use either Duct tape or Nylon strapping tape over the masking tape. The advantage of this system over the plain jam chuck it that you can remove the tailstock.

Donut Chuck

A donut chuck is similar to a jam chuck. You start with a large piece of wood on a faceplate. Then you make another piece of wood with a hole in the middle. The two pieces are bolted together with long bolts. The bowl is placed inside the donut so the bottom protrudes through the hole. Aligning the bowl is easier if you turn a series of lines in the bottom piece of wood. This gives you a way to center the bowl before you snug up the outer ring.

The bolts can be a little dangerous. To limit the problems I use all thread rod and extend as much rod as I can through the back of the chuck. This keeps the rod out of my turning area. You can also reverse turn hollow vessels with this system. Simply replace the bowl turning all thread with longer pieces to accommodate the hollow vessel.

Home made adjustable chuck

I made this chuck to handle a variety of different or odd shaped bowls. I attached a large circle of wood to a faceplate and trued it up. Then I turned some rings in the front to help align the bowl. I cut slots in the piece to accept some homemade jaws. The jaws are just pieces of wood cut to 45 degrees. I glued cork to the 45 degree face and then

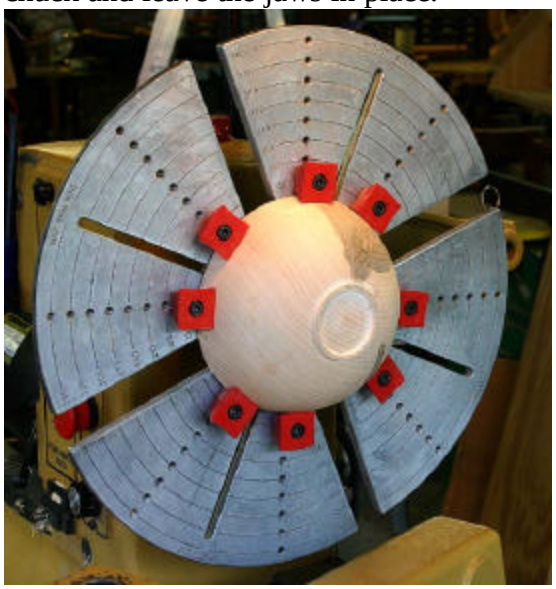
added bolts that go through the jaws and attached wing nuts to the back side. I center the bowl up and then move the jaws up against the sides and tighten them down. This chuck is especially useful for bowls that have warped a lot while drying.

I added a hole in the middle so that I could add other jigs to help hold natural edge and other bowls with odd shaped lips.

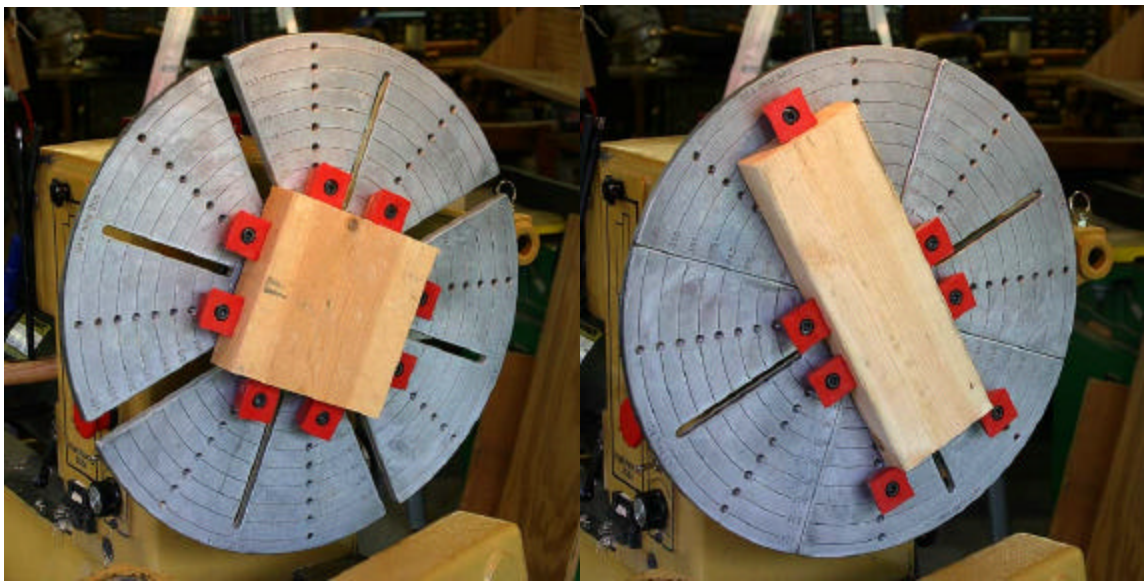
Because the jaws are independently adjustable you can hold square or oblong pieces to turn the bottom. Here is a photo of a natural edge bowl being driven by friction with the extended jig attached to this chuck.

Adjust-A-Jaws

Adjust-a-jaws and Cole jaws are large jaws that you can purchase for your chuck. They have moveable feet that hold the bowls. These are very handy and quick to use but you have to remove the jaws from your chuck all the time, or possibly buy an additional chuck and leave the jaws in place.



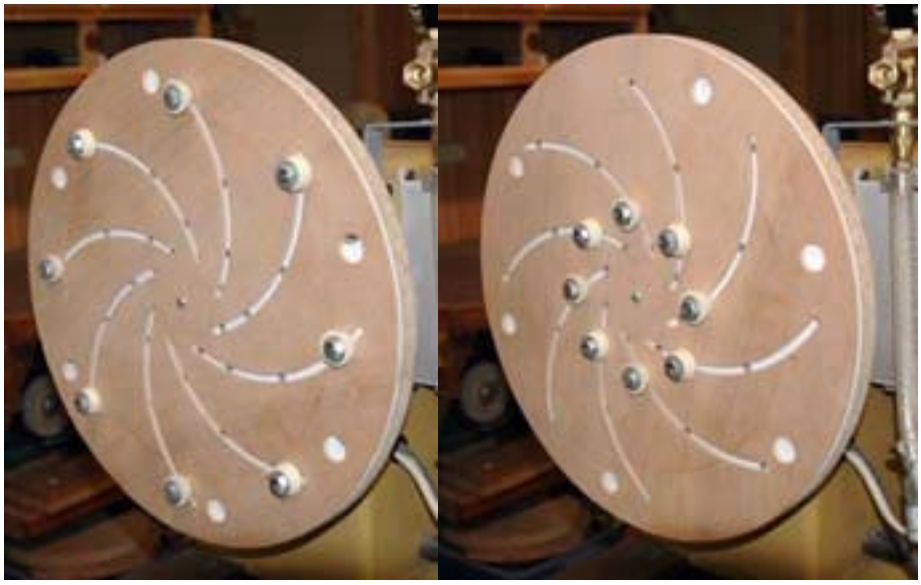
Because the buttons are easily positioned in different holes you can hold odd shaped piece for turning.



One disadvantage of these chuck jaws is the wrench. They don't come with an extended wrench to tight the jaws and the T wrench that comes with the chuck won't work to tighten the jaws. I have these installed on a Vicmarc chuck which uses a standard allen head. You could easily use a ball end allen wrench on this chuck but I simply welded an allen wrench onto a longer rod so the T handle would clear the jaws.

Longworth Chuck

The longworth chuck is a very handy reverse turning chuck that can be easily built if you have the skills. There are plenty of plans on the web, just do a search for Longworth chucks. The Longworth chuck is a self centering chuck. As you rotate the 2 parts of the chuck the jaws move up or down the curved paths and center the bowl.



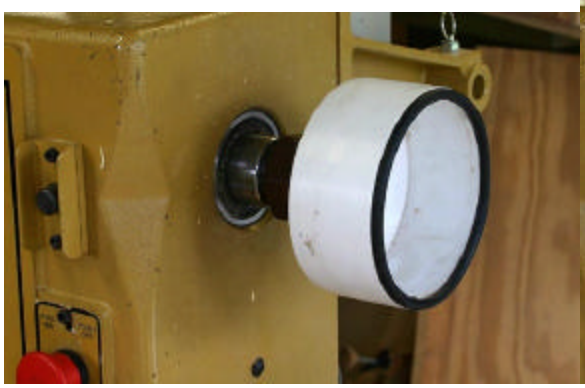
Here is a shot of the Longworth chuck in use. It is well worth your time to build one of these.

Vacuum Chuck

The vacuum chuck is fairly recent invention to woodturning but has been around for years in other applications. A vacuum chuck holds the wood with the pressure of the atmosphere by removing air from the inside of the bowl. This produces a pressure of 14lbs per square inch. Don't worry about the math. What this means is that smaller bowls will not be held as strong as large bowls. You need to purchase a Vacuum pump and various devises to conduct the vacuum from the pump through the headstock to the bowl. This only works with bowls that do not have holes such as cracks, knots with holes or large worm holes.

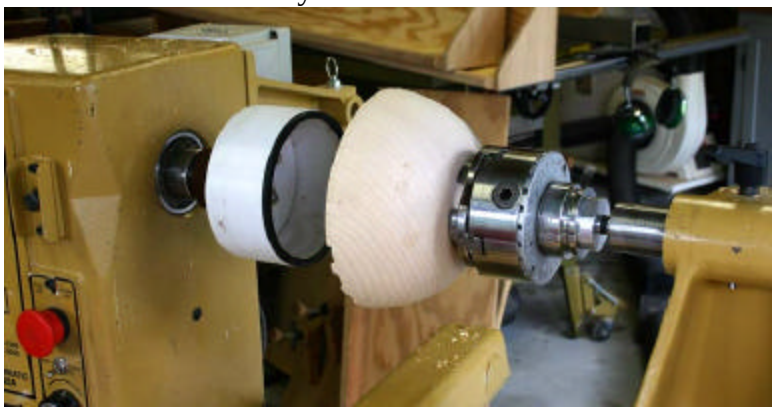
You can buy all the parts but it's fairly easy to make your own chucks.

These are all homemade chucks. They have a rubber seal on the lip of the chuck to seal the vacuum from leaking.



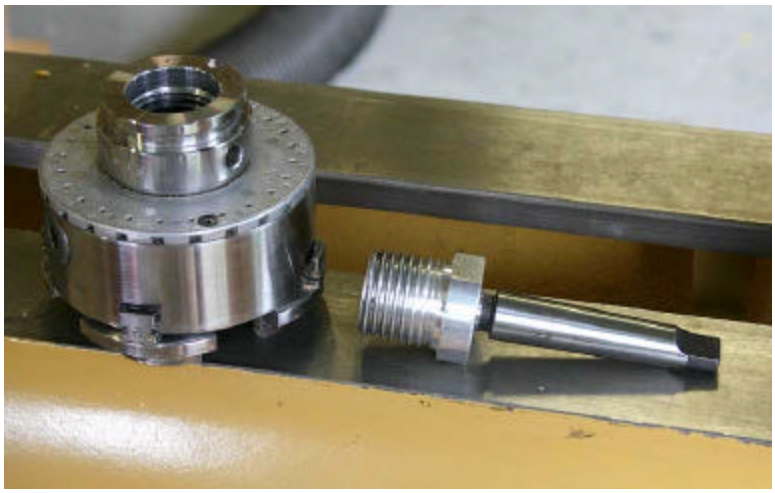

Here is a view of one of the chucks. The second shot is with a bowl attached.

One problem with vacuum chucks is centering the work. There are a couple of attachments that allow you to mount the bowl and chuck on the tailstock.

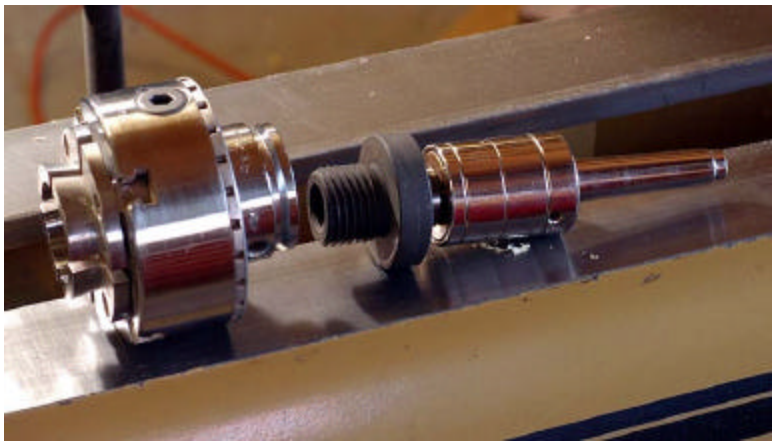


You simply mount the bowl and chuck on the tailstock adaptor and then slide the bowl up to the vacuum chuck. Then you turn on the vacuum pump and then remove the chuck from the bottom of the bowl.

Below is a photo of the reverse adaptor from www.bestwoodtools.com. This adaptor has threads for your faceplates or chucks on one side and a #2 morse taper on the other side.



Oneway also sells a threaded adaptor that fits on their tailstock. It screws on the Oneway live tailcenter and then screws into your chuck.



Reverse chucks give you many options for turning the bottom of your bowls, vessels and platters. Here are some examples of what you can do with reverse chucks.

The one on the left shows some details turned into the bottom. The one on the right was a bowl with no foot at all that I turned as a commission piece for an artist.