Make tools and jigs for wood turning

Wood turners are tool "junkies." There is the dream that given the perfect tool we will make the prefect cut. If we only the tool of Gee Whiz the wood turner we too could be just as good. Of course that implies that we also need 20 years of practice with that perfect tool, just like Gee Whiz has, but that will not stop us from getting the tool. Price on the other hand, can stop us cold.

Yet most lathe tools are not hard to make for someone who works in a typical home shop. Take a look at your turning tools. They have a handle, a shaft and a cutting or scraping tip. Sometimes the tip is an integral part of the shaft, sometimes it is added on. To make most tools you need to be able to turn a handle, drill a hole, cut a piece of steel, tap the hole in the steel, and put it all together. Since tapping is no harder than driving a screw, you have probably done all this. We just have to put it all together and make a tool.

A three point tool is used like a skew but without some of the dig in dangers. Bill Jones, the third generation English turner, is a strong advocate of the tool especially in small spindle turnings.

The desire to brighten up a bowl encouraged me to make a detailing or texturing tool which is also good for banding spindles.

Some time ago the lack of cash and need for a bowl gouge reminded me of an article I had read in American Woodturner Magazine about Knud Oland. This excellent turner had designed a tool for general faceplate turning that could be easily made in the home shop and encouraged others to do so. The Oland tool has since become my tool of choice for faceplate work, although I have bowl gouges from 1/4" to 5/8".

For end grain hollowing a hook tool is a great idea. However for a hook tool, one needs a hook.

I wanted a swan neck tool for hollowing some forms and it does come in handy.

I also considered that an articulated hollowing tool would let me reach some otherwise awkward places.

For some time I wanted a set of Cole Jaws for reverse turning bowl bottoms but I could not justify the price, so I made a set of bottoming jaws with which I am very pleased.

A screw chuck comes in handy a lot of the time. It is an old and efficient way of holding wood on the lathe. If you have purchased a scroll chuck, it likely came with an insert for a screw chuck, but even so it is nice to have an extra.

My daughter is studying to be a missionary and travels the world. She also likes to carve so I decided to make her a travelling carver's set with a handle that takes interchangeable blades. Knowing that some people like to carve on turnings or would like to start, I took photos of the process. I was not sure whether to put the page under tools or projects, but this seems to work. If you turn individual handles, you can easily make a carving set for the shop.

Sometimes you want to turn a piece without tying up a faceplate or have ten to twelve pieces ready to go withut stopping to change faceplates for each one. In these cases, dedicated, threaded glue blocks are often just the ticket. They are simple, quick and cheap to make and easy to use.

I like to turn hollow forms. While the normal set of hollowing tools works for smaller forms, I like to use a set with an arm brace for larger ones. In fact, if I can work through a hole of 3/4" or more, I would just as soon use an arm brace for smaller pieces as well. An arm brace gives a nice control over the torque of a side cut on a hollow form. Incidentally, Solomon was right as usual, there is nothing new under the sun. After I had come up with this idea, I saw a virtually identical arm brace in a GMC publication on tips for wood turners.

Make a three point tool, it is easier to use than a skew and does a lot of the same things.

As I have noted before, one of my favorite things to enjoy in turning is to make my own tools. While there are a myriad of tools available in the catalogs, they amount to scrapers and cutters. The variety is a huge variation in tips, profiles, specialty steels and ingenious angles. One can spend a fortune on tools. However, in the past people made their own or had the local smith make them and then turned a handle. In fact, many turners such as myself either buy their tools unhandled or remove proprietary handles and make our own.

So the difficulty becomes working with metal. I was surprised to find that it is well within reach of most home workshops. The general tooling required is a drill, files, hammers, grinder, hack saw, vise, and propane torch. A drill press makes life easier but a hand model electric drill is certainly adequate. Mechanic's vises have a small anvil and a four inch or larger vise will have an anvil suitable for our purposes. For certain tools a metal tap is required but this is inexpensive and no harder to use than a screw driver.

For now I wish to describe the making of a three-point tool because I do not own one and wish to try one out. Instead of spending over thirty dollars to do so I decide to spend less than three and throw in fifteen minutes of fun. If you have not done much spindle turning, add another fifteen to twenty minutes of enjoyment.

Aside from your lathe you will need for this project

1. wood for handle about 1 1/4" x 7" (here I am using ash)
2. drill and bits to 3/8"
3. 3/8" x 5" round High Speed Steel tool bit (Enco #3837030 or similar)
4. grinder

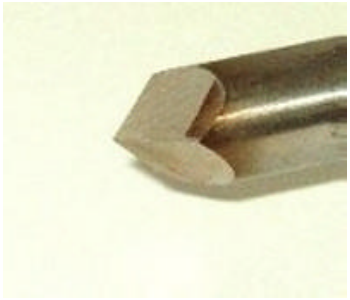
Mount the wood for the handle between centers and turn to your favorite handle shape. If you are not sure what that is, try the feel of a couple of your lathe tools and shamelessly copy the one you like. I am using my monotube lathe from Canadian Tire and turning about 2500 rpm.

I like an elongated bead tapering to the tool shaft followed by a stretched out cove to a round at the end of the handle. I do not bother with a ferrule. Sand and finish as you like but I like a handle as it comes from skew or gouge. Finishes in my estimation are unecessary for a handle unless you plan to sell it and need it looking fancy. On the other hand I had a piece of rosewood next to the lathe so I used it to rub a little band of color at the end of the handle. Part the handle from the lathe.

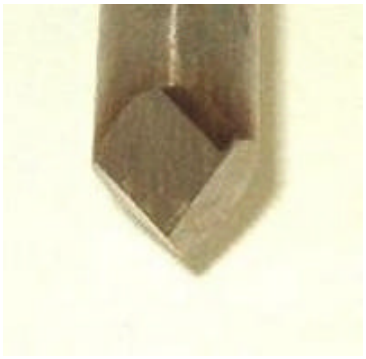
Drill a 3/8" hole in the business end of the handle. I use a jig in the drill press for this but if you hold the handle in a bench vise and take your time, a hand drill will do. About an inch should be sufficiently deep for this tool. While the temptation is to bury that tool shaft as far as possible, it turns out that many of the tools we use have from one to four inches of shaft in the handle and an inch and a half is far more common than four inches.

Press fit the tool shaft into the handle. If the fit is a bit loose, glue the shaft in place. I like a polyurethane glue but a thick CA and a shot of accelorator will let us continue quickly.

Mark three evenly space dots around the perimeter of the shaft end and a dot in the center. Let us go to the grinder. Set your grinding table to about 150 degrees and with the two of the points parallel to the ground, i.e. the surface of the wheel, grind to center. You now have one mark opposite a flat. The edges of the flat are your other two marks.

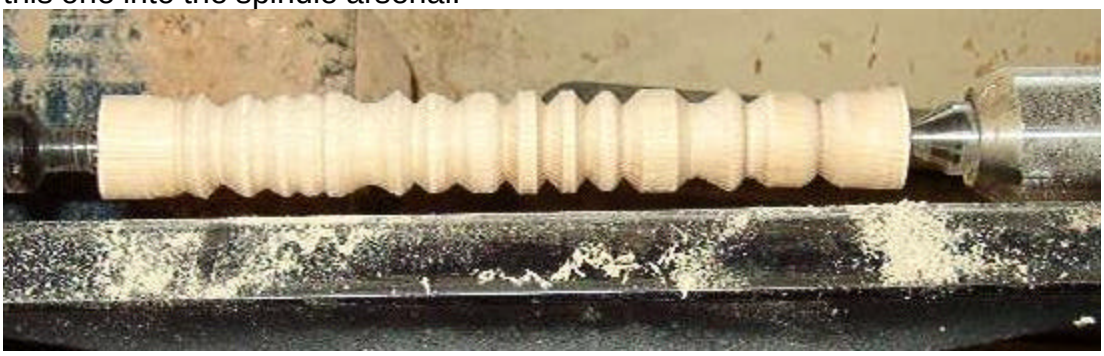


Repeat the grinding with each of the remaining sides to give a tool with a center point and three cutting edges.



Now to use the tool. Mount a piece of scrap on the lathe and round it down. I used a piece of the same block from which I cut the handle blank. Try a few beads. With a face of the tool facing up, lever the point into the wood. I found that it would comfortably cut a little way similarly to a parting tool and then it was easy to widen the "v" with little side plunges. Turning a bead seemed easiest by rolling the tool from the bottom of the "v" to the top in violation of everything I have learned in turning spindles, but it gives a great surface. Surface cuts like a skew are simple but coves are going to take a lot of practice. I will put

this one into the spindle arsenal.



Use simple workshop tools to make a detailing tool to enhance your woodturnings.

Every now and then I get the urge to obtain more shelf space by finish turning a stack of bowls. As I was doing so one morning, I found that one of the bowls was rather bland, if black cherry can ever be considered to be bland. What it needed, I decided, was a textured band around it, just below the rim.

Not having a texturing tool, I was left with three options

1. Laboriously detail the band using a cutter in a Dremel, which I have done in the past and really it is not bad, just time consuming.
2. buy a texturing tool
3. make a texturing tool

The latter option was obviously the most fun, least expensive and fastest, since the closest place to buy the tool is an hour's drive away; I had a wheel for the texturing tool since I had some replacement cutters for my star wheel dresser for the grinder; and all I had to do was fix a shaft for it and put it in a handle.

I first took a piece of scrap maple and turned a 10" handle about 1 1/2" in diameter. It tapers to about an inch at the end having left a long bead just before. I generally neither sand nor finish a handle and ignore any small tear out or chatter. They just make the handle have a better grip. Ferrules are not necessary unless you plan to sell the tool or submit it to unusual abuse.

I then drilled a 5/8" hole, 2" deep into the end of the handle. I used a jig at the drill press but a hand drill will work okay if you are careful.

Moving to the mechanic's vise I put in it a piece of cold rolled steel about 9" long and 5/8" diameter.

Using a 4 1/2" angle grinder I cut a flat about 1/2" wide and a bit above the diameter of the rod and made it about. If you do not have an angle grinder you could grind it at your sharpening grinder.

Returning to the drill press I drilled a 7/32" hole in preparation for a 6mm setscrew. A 1/4" bolt would also be fine but I started using 6mm set screws a while ago and stayed with them. I tapped the hole for a 6mm bolt.

Now the shaft was inserted into the handle and the wheel attached with a washer and bolt. Leaving enough slack for turning, a set screw is inserted to jam against the bolt much in the same manner as two nuts are used on abolt to jam one another. This is necessary as the movement of the cutter will try to back out the bolt or to drive it tighter.

I first tried the tool by roughing down a spindle and doing some textured bands.

Then to the bowl. Here it is shown on the lathe but rotated 90 degrees.

And here is the finished bowl. I think it would have taken as long to texture using a Dremel, but the next time will be faster with the tool already made.

<u>The Oland tool, my favorite for faceplate turning.</u>

<u>It is hard to catch this one.</u>

"Better than a bowl gouge, a lot cheaper to make."

For some time I have found the Oland tool, designed by the late Knud Oland, to be my favorite faceplate turning tool. While it may be purchased, it was the intention of the designer that it be easy to make in the home shop.

This is a shot of my 1/4" Oland Tool. Note that this is a working tool and nothing was done to make it fancy for sale. I turned a handle about 14" long and drilled a 5/8 hole about 2 1/2" deep into it. The shaft is cold rolled steel with about 10" extended from the handle. The tip is a 1/4" x 2 1/2" HSS cutting tool, standard in the metal lathe industry.

As you can see I have drilled and tapped for a set screw about 1/2" behind the tip. I find this sufficient to hold the tip in place although you might want to put another set screw about 1/2" behind the first. Out of habit I use 6mm x 1 set screws but 1/4" x 20 would work as well. I have also ground the end of the shaft back to give a bit more clearance for the cuts. The tip is ground to about 45 degrees and is usually more rounded than I have it

here. I like the point and a slightly longer edge to the tip. This is a cutting tool and meant to be used with the bevel rubbing.

I hope this helps as you try to make your own Oland tools. The skills are basic to wood working. You need to be able to turn a handle, drill a hole, tap that hole, drive a screw and sharpen. Since tapping a hole is little different than driving a screw, the procedure should be well within the capacity of any wood turner.

At the end of March I found myself turning a flowerpot out of red maple, finished size to be about 7 1/2" high by about 10" diameter. As I worked my way in two things were clear: a hook tool was needed to clear the wood and my 1/2" shafted hook tool was going to chatter too much for this job. The answer was to make a 3/4" shafted hook tool. As the principal is the same as for the Oland, I have decided to illustrate the procedure.

The materials needed are an 18" length of cold rolled steel, 3/4" in diameter; an 18" length of 3/4" galvanized pipe or any other handle of your choice; three set screws 6mm x 1mm; hooks. I wrote an article some time ago for More Woodturning Magazine explaining how to make hooks and hook tools, but it lacked illustration.

I use a very simple jig to hold the shaft for drilling. It is one v-block fastened to a block of wood at 90 degrees. It is bolted to the drill press table support. Another v-block holds the shaft in place and is tightened with a clamp. Begin to drill with a 1/6" diameter bit and work up gradually to 3/16" or whatever is necessary to hold your bits. I use a spot of oil from time to time to ease the cutting. Back the drill out frequently to clear the metal shavings. If you have ever had a drill bit jam with maple shavings, think of it and remember these are steel.

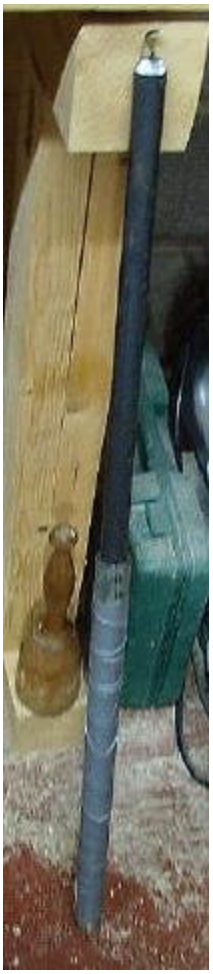
Now you need to drill for the set screw. Just hold the rod in place for the drill to cut. The set up I have here is both simple and inexpensive. The vise holds the rod steady and the clamp holds the vise. A v-block and clamps will work just as well, but I have these and it is a bit easier. Line up the drill bit carefully. Your tap should have a recommended hole size for tapping. I remove the appropriate drill from my set of bits that are graduated in 64ths, one of those sets of bits that everyone has on sale from time to time, so that I do not drill past that diameter. Work up from 1/16" again. It soon gets to be a habit.

To tap the hole you need a tap that fits your intended set screw along with a tap wrench. I use 6mm x 1mm as a standard but 1/4" x 20 is a good one as well. For these small sizes especially, a dedicated tap wrench that costs under $10.00 is a good investment. This one is a bit of overkill at this size but works all the way up to 1/2" and will work for smaller.

Tapping the hole is like driving a bolt with a wrench when the threads are covered with something sticky. Screw in a turn and back off a half turn. Do it again and again until the hole is tapped all the way through. From time to time add a touch of oil. It goes very quickly at this size. When you are all the way through, back out the tap, blow the hole clear, add a touch of oil and run the tap through a couple of times to clear the threads well. Put in place your bit and set screw.

Do the same drill and tap procedure to the galvanized steel handle about 1/2" and 1" back from the end. I am cheating a bit here as I am using the same handle that I use on my 3/8" Oland tool. The duct tape makes it a bit more comfortable for me especially on cold days.

This is the tool leaning up against the bench leg. Sometimes when I use it, especially with the Oland tip, I want to holler "Thar she blows!" and harpoon that wood.



And these are a couple of the hooks that I use. If you plan on using a commercial hook or ring, just drill the appropriate holes in the shaft. It is easy to make the shaft double ended. Drill and tap the other end and flip it in the handle.

The Oland Tool In Use

Some people object to the Oland tool because it looks like a scraper and they want to make shavings. If you have a fast connection, here are a few 30 second movies of the Oland tool in use. The first is a 1/2" Oland removing the bark from a piece of poplar. Second is the same tool rounding down the poplar and turning one end for a bead. Third we have a 3/8" Oland with swept back edges beading the other end. Please keep in mind that this is wet, stringy poplar and the viewing, on my machine at least, appears to be in real time.

To give you some idea of the utility of the Oland tool, here a few pieces which have been turned using it. Each has been mounted first between centers and roughed out, then dried, mounted to a glue block and finish turned. After sanding they have been finished with tung oil.

This ash bowl is about five inches square and 2 inches high.

This rectangular bowl in black cherry is about 10 inches long by 9 wide and three high.

Make a hook tool

While I had written an article for "More Woodturning" a while ago on hook tools, I had not taken any pictures at the time. Hopefully these will help you in your efforts to make your own. A handle and a shaft are prepared in the usual way. See instructions on Oland tools for hints. A 3/16" hole is generally needed for the hook.

These pictures were taken because I needed a hook to use at the bottom of a 9" diameter, 7" deep flower pot turned end grain. I was having difficulty getting the inside bottom cut square across as well as having trouble with the transition from bottom to side.

A hook is fun to use but takes a fair bit of practice. It is like using a bowl gouge on a spindle with the bevel rubbing but no tool rest. The rest is way out away from the cutting surface and at close to right angles with it. The shavings just fly. When the shavings curl off and you hear a "swish" you know you have it right. On the other hand, it is a good idea to make hooks in small batches. Catches can be spectacular and can bend a 3/16" piece of steel.

Here in the middle of the messy shop are the items needed for making the hook. This is simple black smithing. Do not let it phase you. It is one of the earliest trades mentioned in the Bible. People have done this for a long time. You can too. I have here a torch in a holder for safety's sake. The holder has a tenon on the bottom which is held in the jaws of the horse. The torch has a brazing tip but a regular propane tip is fine, it just takes a tad longer. On the fire brick at right is a vise grip holding an annealed masonry nail and a sparker for lighting the torch. A hammer is on the left.

A word about the metal used. I use 2" masonry nails because they are a cheap and easy source of high carbon tool steel. They come hardened and need to be annealed. Just heat them to red hot with the torch and rest them to cool slowly. That is it. Done. I use a fire brick to rest them on to cool but any fire proof surface will work.

This is a standard 5" mechanic's vise with a piece of 3/16" rod held in the jaws; more on that later. The flat part at the back is called an anvil and that is exactly what we will use it for.

Holding the point of the nail in the vise grips, heat the head and shaft red hot, hold it on the anvil and hit it with the hammer. Continue to turn and hit it, heating it as necessary to form it to the shape of the nail on the right. The head was not cut off. It is faster to heat and hammer it flat.

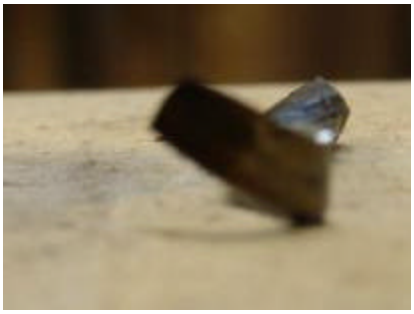
Now to the grinder. I want a hook with an inside bevel for the particular cuts I am about to make. An outside bevel is usual and the one I use the most. As you look at the nail with edge up ward, for an outside bevel grind it on the left, for an inside grind it on the right. Here it is ground on the right. I first grind the edges straight, then the sides flat, then the bevel to about 45 degrees.

Now, about that steel rod upright in the vise. Incidentally, a nail about 3/16" in diameter will do as well. Do not have the head above the vise, just a clear, unobstructed shaft. Heat the flat end of the hook to be in the torch to red hot and use a pair of pliers to bend it around the steel rod.

Give it another heat just behind the hook bend it with the pliers to a little less than 90 degrees.

The hook has to be hardened and tempered before use. Heat it red now and plunge it immediately into a bucket of water. Use at least a gallon. This hardens the steel but makes it brittle so it needs to be tempered. Incidentally, I have changed to a regular torch head and a tank that is almost out of fuel. I find a light flame easier to use when tempering such a small piece of steel.

Now for the tricky part, tempering the steel. This is not hard, just tricky and if you blow it, just reheat to red and plunge it into the water and start again. First, you need to see the steel well. Grind or sand it to shiny. I use a 3/16" chain saw sharpening stone in a Dremel. It is also what I use to sharpen the hook as I use it in turning.



This is a bit of a dance. Take your time. Touch the hook to the flame and remove it. Look at the hook. Steel oxidizes quickly in the presence of heat. If you have seen a tool blue when grinding, that is oxidation. We do not want to get to blue but to straw. Touch and look, touch and look. As soon as the hook turns straw, plunge it into the water and swirl it around. Look at it. If it looks straw or bronze, great. If not, heat to red, quench in the water, polish and try again. No harm done.

It remains to cut the shaft to about 3/4" long and insert it into the shaft. I used a set of bolt cutters but whatever works is good.

It is the one on the left. Incidentally, it did the cuts I needed, but I still prefer an outer bevel for most hook work.

Making the swan neck tool.

I recently tried a few methods of making a swan neck hollowing tool. A while ago I had made one of 3/8" diameter, but I wanted one of 1/2" diameter to reduce chatter in vessels over 5" in depth. I began with a piece of 1/2" cold rolled steel and prepared a sketch of the desired tool. The first couple of inches I wanted straight to facilitate the drilling of a hole for the cutting tip. I also planned to have the tip in line with the center line of the handle.

The sketch was transferred to a block of maple and cut out on the bandsaw

. I dropped it into my bench vise and squeezed it into the form. The vise was easily repaired. There is a lot of pressure required for a cold bend like this.

As I had a six ton hydraulic jack on hand I decided to try it with a home made press. So far the budget was really nothing except the length of rod. I splurged on a length of 3/4" all thread and some nuts and washers. I had some square steel tubing on hand but I could have used galvanized pipe and later used it for pipe clamps or for tool handles. The make up of the press is pretty self exp lanatory from the pictures

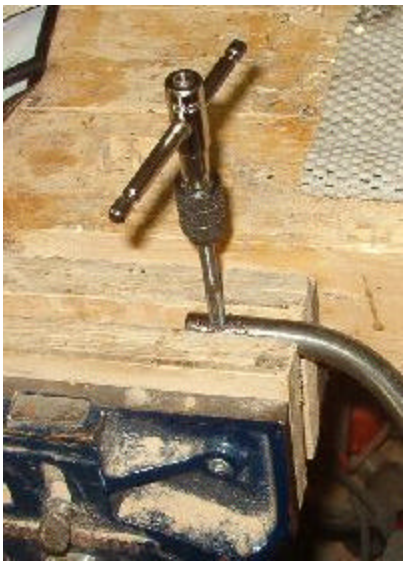
In goes the steel and the jack is slowly raised for the first bend. Some careful positioning and the second bend is accomplished. Then I checked it with my sketch and realized a bit of tweaking was needed. I decided to bend it a bit at the point where the arrow directs.

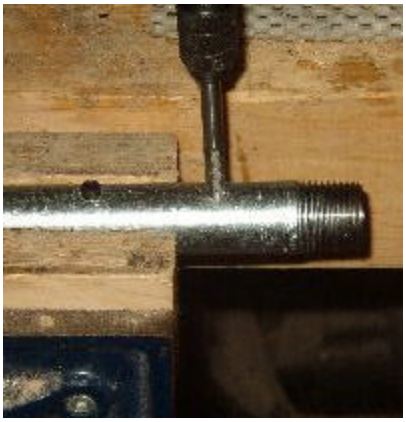
. I fiddled a bit with the blocks first to make them easier to handle and was ready to go.

Now that looks much better. Next I go to the drill press and drill for a 3/16" square bit, my common size for hollowing tools. The hole needs to be about 9/32" and the easiest way to drill it is to start about 1/6" and creep up on it in small increments.

Rotate 90 degrees and drill a 13/64" inch hole to tap for a 6 x 1 mm set screw or adjust for the set screw of your choice

Tapping the hole is a lot like driving a screw by hand. Back up a half turn now and then to clear shavings from the tap. All that remains is to turn a handle to fit. I like about a 15" shaft with 12" extending from the handle and about a 16" handle. As an alternative, a piece of galvanized or black pipe with a couple of set screws allows a heavy handle that lets you adjust the length of shaft. I like to wrap the end of the handle with cotton cord for comfort in. a cold shop.





So all that remained was to put the tool in the handle, install a cutting bit, sharpen and try it out. It worked well. Next I have to make an armbrace for it and see if I like that.

The armbrace turned out to work well although it will take a bit of getting used to as I use it.You really need a short bed lathe or one with a swivel head to use this I think. The pictures are pretty self explanatory. There is a 3" x 1/2" galvanized nipple which has been drilled and tapped for a couple of set screws, a 90 degree 1/2" elbow, a 2" x 1/2" nipple, a 90 degree 1/2" elbow and a 12" length of 1/2" galvanized with 1/2 of a 4" ABS couple screwed to it with self tapping metal screws. I think it took longer to think of it than it did to make it

I was asked if I knew of an easy method in the home shop for making a hollowing tool with an easily adjustable angle of tip. After a fair amount of thought I must admit that I looked at the tool rack at a scraper handle I had made a while ago. Embarrassingly I had the tool

and method in front of me. I had used a grinder to put a flat on the end of the tool and drilled and tapped for a 6mm x 1 bolt. One washer and a cutting tip and voila. I think a 5/8" swan neck tool with an adjustable tip is called for.

Make an articulated tip hollowing tool

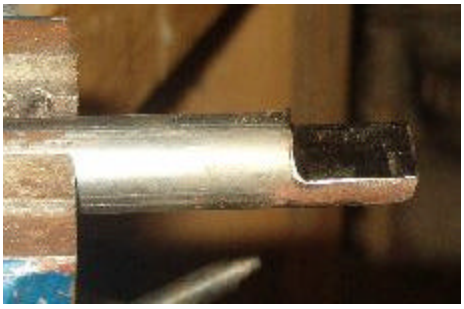
One of the difficulties I have run into as some of the hollow forms I have been turning have gotten a little more complicated, is the reaching into certain areas, especially around the rim. I concluded that I needed an adjustable or articulated hollowing tool. The following is what I have come up with, although it is subject to a bit of tweaking. It seems to be working well.

First of all I hunted in the scrap bin and found a piece of 5/16" steel. 1/4" would have done but I work with what I have. It is mounted in a vise and marked to cut off a piece about 3" x 5/8" . I used an angle grinder but a hack saw would do fine if a bit slower.

Next I mounted a piece of 5/8" cold rolled steel rod and measured to cut off about 10".

That piece goes back into the vise ready to have the end ground to a receiving platform. Again I am using an angle grinder but if you do not have one, it could be ground on the grinder.

Here are a couple of shots of the receiving platform ground to about the half way part of the rod and about 7/8" long.



The rod and bar.

The bar is cut to 2" long and the ends slightly rounded.

Now to the drill press where the bar is drilled on each end, one to 13/64" to receive a tapping for a 6m x 1 bolt and the other to 15/64" to receive another bolt without tapping. Your bolt may vary in size so drill accordingly. The receiving platform on the rod is drilled to be tapped.

The bar and rod are tapped as necessary.

The parts ready for assembly. From the upper left, a 3/16" cutting tip, 6mm washer, 6mm bolt, articulating bar, 6mm bolt, shaft.

Assembled upper and lower view.

Finally, here it is mounted in a home made arm brace, ready to be used. Any hollowing tool with the cutting tip so far from the angle of rotation will have a lot of torque so an arm brace helps to give control.

Not able to leave well enough alone, I made a few changes. First of all I made a shorter arm and then changed from hex cap bolts to a pan head for the cutter and flat head for the arms. I also countersunk for for the flat head screws. Here is, starting from the upper left, the cutting tip, washer, pan head screw, flat head screws, short arm, long arm, and shaft.

I now have several options: long arm, short arm, both arms



Make a set of jaws for your chuck to turn off the bottoms of bowls.

As I tend to turn about six or eight bowls in a row and then let the finish dry to later finish the bottoms, I decided I needed, or at least wanted, a quick way to do the bottoms. One Way makes a great set of large jaws for my One Way chuck, but the price is beyond me. So I made one. To start with I took a piece of 3/4" plywood about 14" on a side and drew as large a circle as I could on it.

A little geometry and it was divided into 4 quadrants.

A little more geometry and each quadrant was divided into thirds, complete with an easily corrected error.

Starting from the center. the trisectors were marked each inch for holes to hold the bowl hold-downs, beginning with the 3 inch mark.

With one of the jaws carefully lined up, holes are marked for drilling.

Then to the bandsaw and the circle and jaws are cut ready for drilling.

After drilling 1/4" holes for the hold-downs and 8mm holes for the jaws, there are four jaws ready to go.

They are mounted to the chuck slides with 8mm machine screws.

And then placed on the bowl lathe. Next for the hold downs.

Making a Screw Chuck for your lathe.

A screw chuck is a very old and very handy way to hold a lot of things on a lathe. Begin with a glue block, here a little over 3" capacity.

Knock the corners off on the band saw (not necessary but nice) and mount to the lathe.

Turn it round with a slightly concave face and a dimpled center.

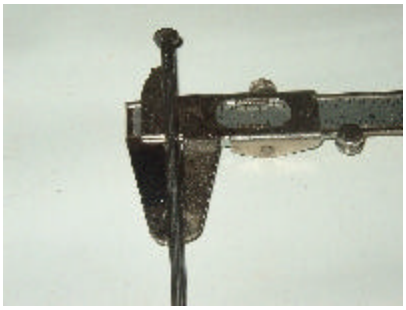
At the drill press, drill for a tight fit of a #14, 1 1/2" long sef tapping sheet metal screw.

Insert the screw.

I like to cut off the tip with a Dremel or similar. The chuck is typically used with a pre-drilled hole and the point is not necessary.

Make a carving set to use on your wood turnings

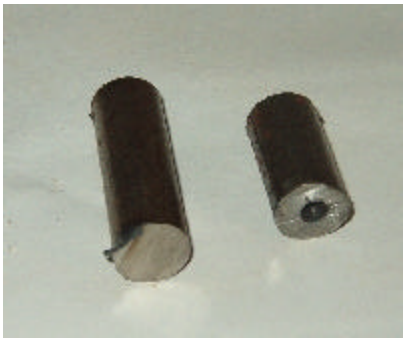
My daughter likes to travel and she likes to carve, so I decided to make her a traveling carver's set. The idea was to have a handle with replaceable blades covering things from knives to chisels. To begin with I chose to have a 1/2” insert to hold the tools in place so I measured the diameter of a 4” concrete nail and found it to be a bit less than 3/16”.



Then I drilled a 3/16” diameter hole 1” deep into the end of a 1/2” diameter, cold rolled steel rod

and cut the rod to 1” long.

I cut another piece of the rod to 1 1/2” long. If you use an angle grinder to cut the pieces as I did, they will be hot! Handle with care!



Choosing a piece of hardwood for the handle, in this case bird's eye maple, I drilled a 1/2” diameter hole in the end to a depth of 1 1/8".

The 1 1/2” piece of steel was inserted in the hole in the handle and mounted in a Jacob's chuck on the lathe. If you do not have a Jacob's chuck a hole could be drilled in a wood block in a face plate and the steel pressed into place. It serves as a mandrel to keep the hole centered in the turning.

Bring up the tail stock for support

and turn the handle to a comfortable fit. Normally I like unfinished tool handles but this being a present, I used some turner's polish to finish it.

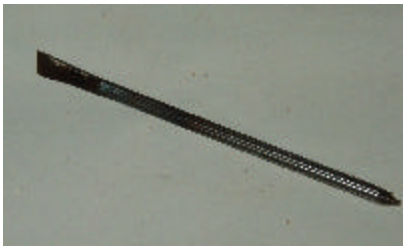
The handle is removed from the lathe and mandrel

and the insert pressed and glued into place.

Using a v-block, drill for a set screw through the wood and the insert.Tap for the set screw.

The handle is done and now for the blades. I annealed several concrete nails with a torch. Just heat them to red hot and allow them to cool slowly.

Again using the torch the ends were heated to red hot and hammered flat.



The cutting edges are then hardened by heating each tool to red hot and immediately quenching in water. After each edge is polished so as to be able to see color changes, they are tempered by heating with the torch to straw color and immediately quenched in water to stop the color change.

Each was then cut, ground to various carving shapes and sharpened. Here from left to right are a couple of knives, the handle with allen wrench for the insert and a chisel blade inserted, a carver's skew, a coupe of straight chisels which may be reground at the carver's convenience, a round chisel and a bent round chisel. If you are making individual tools, the insert can be omitted of course and the tools inserted into individual handles.

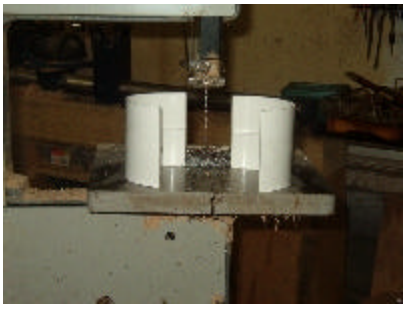
Make an Armbrace for Hollow Turning

I like to turn hollow forms. While the normal set of hollowing tools work for smaller forms, I like to use a set with an arm brace for larger ones. In fact, if I can work through a hole of 3/4" or more, I would just as soon use an arm brace for smaller pieces as well. An arm brace gives a nice control over the torque of a side cut on a hollow form. Incidentally, Solomon was right as usual, there is nothing new under the sun. After I had come up with this idea, I saw a virtually identical arm brace in a GMC publication on tips for wood turners.

Making the arm brace is trivial work. For a set of two you need

a. 1 24" length of 1/2" galvanized pipe
b. 1 4" pvc coupling
c. 4 1/2" galvanized elbows
d. 2 1/2" galvanized 3" nipples
e. 2 1/2" galvanized 4" nipples
f. 4 6mm x 1 set screws
g. a tap and handle for 6mm x 1
h. 4 #12 x 3/4" self tapping sheet metal screws

Set the pvc coupling on end and run it through the band saw to give 2 arm rests.



Cut the 24" nipple in two to give 2 12" arm extensions.

From one end of each of the 4" nipples, drill

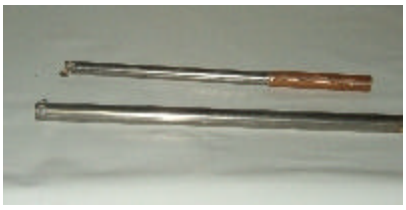
and tap for the set screws at 1" and 2" from that end.

Drill 2 holes in the the arm rest

and mark the arm extension at about 10" from the threads to take the self tapping metal screws. Drill the holes

and fasten on the arm rest.

The general problem with this is that the pipe that is easily available to me does not quite fit my turning tool shafts. It is a bit too small for a 5/8" and a bit too large for 1/2". I drilled it out for the 5/8" and shimmed the 1/2" with copper pipe, grinding it away until I had a fit.



Incidentally, for the limited expansion needed to make the 5/8" shaft fit, an ordinary 5/8" spade bit will work in the galvanized pipe. Wear hearing protection and take your time but it will work. As always, safety considerations are your own.

Insert the set screws and assemble tightly the extension to an elbow to the 2" nipple to an elbow to the 4" nipple. You do not want these to rotate under use so tighten hard. Some thin CA trickled into the joints can not hurt.