

Make Your Own Whittling Knife

By Scot Lang

One of the most satisfying aspects of my carving career has been the fulfillment of my desire to make and use my own carving knives. The feeling I get when I create a nice carving is doubly enhanced by the knowledge that I used my own homemade custom whittling knife to create it. Through some trial and error, I have come up with a process by which almost anyone can create Their own whittling knife from materials found at the local hardware store without all the metallurgical knowledge needed to create the blade. Herewith is a description of the supplies, equipment, and method I use to create a custom whittling knife.

Supplies

Knife blade: I get my blade stock from the local hardware store in the form of power jigsaw blades. Several types will work, but my most preferred blade blank is a 17 tooth per inch metal cutting blade. A two pack costs under \$5.00 (at least the last time I bought them.)

Wood for the Handle: After some research and experimentation, I found that my hand works best with true one inch thick wood. Most finished “one by” hardwood boards are about $\frac{3}{4}$ inch thick. This will work for most folks, but after squeezing a ball of modeling clay in my hand and finding my most comfortable fit, it was more like the one-inch size first mentioned. The length of the wood blank can vary depending upon the hand size of the user. I find my preference length to be 5 $\frac{1}{4}$ ”. Almost any hardwood (except basswood, or other “soft” hardwoods like box elder, etc.) will work. Some good choices are oak, walnut, maple, and hickory. Woods to stay away from are any soft woods like pine, redwood, etc. unless they have been stabilized with acrylic, and any woods that are toxic to work with or may cause an allergic reaction.

Brass rivets: I usually use 1/8” round brass stock which is available at most local hardware stores. I cut the rod into 1 $\frac{1}{4}$ ” lengths. Other types of 1/8” stock, and even 1/8” brass or other tubing can be used for a distinctive look.

Wood Putty: I use Quikwood brand epoxy wood putty, also available at the hardware store. This comes as a roll in a columnar plastic tube. One simply cuts off a portion of the roll and kneads it together until it is one uniform color. It hardens in about fifteen minutes so there is adequate working time.

Wood finish: My favorite finish for my knives is cyanoacrylate glue. It produces a hard, thick finish that is extremely durable. However, it is difficult to work with, so a much easier finish would be any type of varnish or tung oil finish

Wood for the scabbard: After you’ve created your masterpiece custom knife, you’ll want to protect it with a nice scabbard. I usually make mine out of balsa wood or basswood, then harden it with a cyanoacrylate glue finish.

Cyanoacrylate Glue: I use the glue to cement together the two halves of the blade scabbard, as well as coating the scabbard to harden it.

Equipment

Drill press and drill: It is not required to have a drill press, but it helps immensely. The biggest reason is so the holes you drill for the rivets are nice and perpendicular. Also, it is safer than drilling the holes by hand with a drill. The handle and blade can be properly clamped so there is no danger of injuring the off hand. If one doesn't have a drill press, make sure to use a vise to hold the work. No need to wind the tendons and ligaments of your off hand around the drill bit after you've punched through the handle into your hand! As for the drill bit, I use a 1/8" cobalt drill bit. It can be utilized for drilling the rivet holes in the blade, as well as drilling through the handle.

Scroll Saw or Bandsaw: Again, it is not required to have a scroll saw or a bandsaw, but it helps immensely. Handles can be cut out using a vise and a coping saw, but a straighter edge and a huge time savings can be realized with the use of a bandsaw or properly sized scroll saw.

1/8" round file or diamond file: The file will be used to resize the rivet holes in both the handle and the blade when fitting all the pieces together,

Flat metal-working file: I use a file I picked up in the chainsaw section of the local hardware store. Its main purpose in life is to file down the chainsaw guides if one has sharpened the chainsaw more than a few times. It's a nice hard file that will work well when working on the metal-cutting blade blank.

Hammer: I use a small ball peen hammer to set the rivets. All that is needed is a gentle deformation. Otherwise, it is possible to overdo things and split your handle.

Metal cutting hacksaw: Used for cutting the brass rivets.

Back saw: The backsaw is used to cut the channel for the blade into the handle. Make sure the backsaw you use has enough height between the teeth and the spine to accommodate the length of the tang (the portion of the blade that is covered by the handle.)

Vise: I use the vise for several operations. First, it holds the brass stock when cutting the rivets. Then I use the vise to hold the handle when cutting the channel for the blade tang. For folks attempting this project without a drill press or bandsaw or scrollsaw, the vise is essential to hold the wood when cutting out the handle.

Knife for shaping the handle: A sturdy blade will be necessary for boasting out the wooden handle.

Wood file and sanding paper: A fine wood file or diamond file will be necessary to smooth the tool marks out of the handle, and the sanding paper will be needed to remove the marks made by the file.

Diamond sharpening stone: My go-to sharpening stone is a two-grit diamond sharpening stone made by Sharpal. One side is a medium grit for shaping and the other side is a fine grit for sharpening the blade. One can use just about any stone for shaping and sharpening, but

I've found that the diamond stone is the quickest and cleanest way to shape and sharpen without running the risk of overheating the blade and taking out the temper.

The Process

Working the Blade

The first thing I do is file off the teeth of the jigsaw blade using the flat metal working file. I usually leave about 4 or 5 teeth at the base of the blade so the putty will have something to wrap around and adhere to. File the teeth completely flat so there are no lines left on the edge. The next step is to take the blade to the drill press and drill two 1/8" holes in the tang. The holes should be about 1/4" to 1/2" apart. Check the holes to make sure the brass rivets will fit into them. If not, use the round diamond file to ream the holes until the rivets fit. That's about it for the blade work for now, but keep it handy because you'll need it to size and fit the other components.



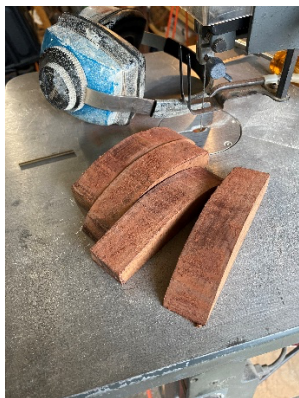
Left: Whittling blade stock, also known as Jigsaw blades. **Center:** Filing down the teeth. **Right:** Drilling the rivet holes.



Left: Blade blank with teeth filed down and rivet holes drilled. **Center:** filing the rivet holes for test fitting. **Right:** Test fitting the rivets.

Working the Handle

My best shape for a handle is what I call a crescent. The flat part of the crescent runs along the back of the knife and the convex edge becomes the belly of the handle. The distance between the flat edge and the apex of the belly is about 1" to 1 1/8" tapering to a point at the bottom of the handle, and tapering to approximately 1/8" to 1/4" wider than the blade at the blade. Once the shape has been cut out, place the blade on the side of the handle with the remaining teeth down far enough so they will be hidden inside the handle. Mark the holes for the rivets. This is where the old adage "measure twice, cut once" really comes into play. Make sure your blade is parallel with the length of the handle. It is very easy to get it off just a smidge, causing the blade to come out of the handle at an odd angle. Check and double check! Once you're sure of your markings, drill your holes using the drill press and the cobalt drill. You can test fit the blade on the side of the knife by partially inserting the brass rivets in the holes and setting the blade down over the partially inserted rivets. If it doesn't seem like its fitting together, use the diamond file to clean out and open up the holes in the wood until the rivets slide into the wood smoothly, and the blade will fit over the rivets. Mark the back of the blade tang on the wood on each side of the handle. This will become the reference point for the distance to cut down the center of the handle with the back saw. Mark a centerline down the length of the handle on both sides and the hilt. Mark the end of the tang circumferentially around the handle. Put the handle in the vise and use the back saw to cut down the centerline to the mark for the end of the tang. Clean out the holes again, and use the 4 or 5 remaining saw teeth on the blade to clean out the kerf left by the back saw until the blade will fit well in the kerf and line up with the holes in the handle. Test fit the blade and the rivets in the handle and adjust with the round diamond file until everything fits well. Set aside the blade and the rivets. On the back of the handle, draw a tapering line from about 1/8" away from the kerf to the side of the handle at the tang mark on each side. Use the same length to mark the butt end of the handle, and make the same marks. With the whittling knife, remove the wood on the outside of the tapered lines. Round the edges from the middle of the side of the knife to the centerline. Smooth out the tool marks in the handle with the flat file. Sand the file marks out until the whole handle is smooth and even.



Left: Scroll saw and hardwood handle blanks. **Center:** Poplar blanks. **Right:** Marking the rivet holes.



Left: Drilling the rivet holes in the handle blank. **Center:** Rivet holes drilled and back of tang marked. **Right:** Centerline and tang mark drawn.



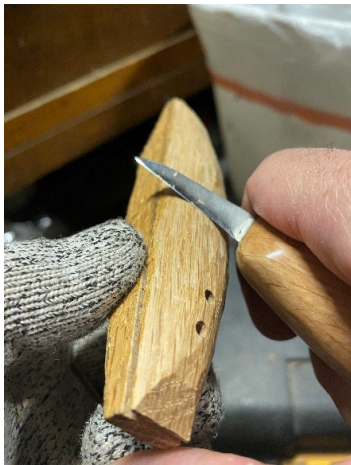
Left: rivet holes drilled and back of tang marked. **Center:** Cutting the kerf for the tang. **Right:** Cleaning out the kerf with the blade blank.



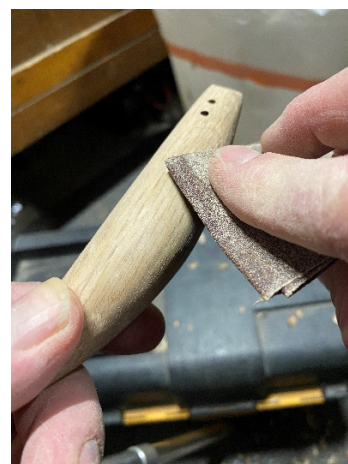
Left: Blade fitted into handle and first rivet test fitted. **Center:** Cleaning rivet hole before test fitting. **Right:** Rivets and blade blank successfully fitted to handle



Left: Centerline and taper lines drawn on belly of handle. **Center:** Center line and taper lines drawn on back of handle. **Right:** Tapers boasted in.



Left: Rounding the handle from centerline out to side. **Center:** One half of handle roughed in. **Right:** Handle completely roughed in.



Left: Smoothing out tool marks with flat wood file. **Center:** Handle with tool marks removed. **Right:** Sanding out the file marks.

Assembly

After smoothing the handle and making sure all the parts fit well, it is time to cement the blade blank into the handle. Cut a ½" slice of KwikWood epoxy putty and knead it until it is a uniform color. Jam the putty into the kerf on the handle. Use the blade blank to push the putty all the way down to the rivet holes and fill the entire kerf. Push the blade blank into the putty from the blade end of the handle and align it with the rivet holes in the handle. Use the 1/8" round file as an alignment tool by sliding it into the rivet holes through the blade blank and out the other side. Slide the rivets into the rivet holes so that a bit of the rivet protrudes from both sides of the handle. Push the putty around the blade blank and fill the entire kerf, leaving small hump over the top of the kerf. Lay the handle down on the anvil portion of the vise and tap the rivets with the hammer several times. This will expand the rivets so that they form a tight seal with the rivet holes. The putty will harden in about fifteen minutes, so make sure you complete the assembly within that time.

After the putty hardens, use the flat metal-working file to file down the rivets until they are smooth and flush with the handle. Use the knife to cut off the excess putty over the kerf and around the blade blank. Use the sandpaper to smooth out the entire finished surface of the handle.



Left: Cutting the Kwikwood. **Center:** Kneading the putty. **Right:** pushing the putty into the kerf with the knife blank.



Above: Blade pushed in and rivets installed. Notice that the putty completely covers all parts of the kerf.

Applying the Finish

After double-checking the smoothness of the handle, apply the finish of your choice to the handle. My favorite finish is medium thickness cyanoacrylate glue. If you're game for a little crying and a lot of sanding, you can try it yourself. Simply take a bottle of medium thickness cyano-acrylate glue and gently squeeze it out on the handle, starting at the blade end and applying it evenly over the entire surface of the handle. Clamp the blade blank into the vise with the handle downward below the jaws of the vise. Make sure to have really good ventilation because the glue will cause eye and throat irritation. Also, place a piece of paper towel or other absorbent shield under the handle of the knife to catch the drips. As the glue dries, it will become rough, uneven, and bumpy, and generally look terrible. Don't fret, this is normal. After the first coat dries, use the flat file to smooth off the bumps and lumps, but don't get too aggressive or you'll file right through the finish. Better to leave areas unfilled than to file too much and blow through the finish. Lightly sand the entire handle to prep the surface for the second coat of glue. Follow the same process of smoothing and sanding after the second coat dries. Apply successive coats of glue and follow the filing and sanding process until you are satisfied that the handle is completely covered and smooth. Usually I use two to five coats depending on the wood used for the handle, and when the limit of my patience for the process is reached. After the last coat is smoothed, use successive grits of sand paper from 300 to 600 and up to 1200 grit to shine up The handle. Finish by using 0000 steel wool to give the handle a satin finish.

An alternative finishing method for folks who find the handle too slippery with finish on it is to burn in a checkering pattern and use one coat of superthin cyano-acrylate glue to seal the handle.

It is important to put the finish on the handle BEFORE shaping and sharpening the blade. The reason is that the shaping and sharpening process produces black metal filings that will impregnate themselves into the wood causing it to look dingy and stained unless it is finished first.



Left: Applying Cyano-Acrylate glue finish to the handle. **Right:** Handle completely coated with first coat of glue.

Shaping the Blade

Begin by deciding how long you wish the blade to be. Most whittling blades run between an inch to about an inch and a half. Since this is your custom knife, you get to decide! I've made specialty blades for chain carving that run up to two inches so I can reach deep into carvings to relieve wood between links. Once you've made your choice, cut the excess metal off the end of the blade by scoring the blank and filing on the score with the corner of the metal file. File most of the way through the blank from both sides. The excess can then be snapped off using two sets of pliers. Use the flat metal file to file the back of the blade blank to the desired shape. This process favors a straight-edged drop point shape. A rounded edge might not have the entire edge in hardened steel.

Once your desired knife shape is attained, use the coarse grit on the diamond stone to set the bevel of the blank. Move the blank along the stone in the same motion and at the same angle you would use to sharpen any other knife. Use the same number of strokes on each side. This is where the real patience of a woodcarver is needed. It will take some time to remove the metal required. When you can no longer see any shininess on the edge of the blade, you are ready to sharpen the knife as you would any of your other knives.



Left: Shaping the back side of a blade on a Sharpal 325 grit diamond stone. **Center:** A flat metal file can also be used. **Right:** rough shaping the bevel with flat file.

Make a Scabbard

You'll want to protect your custom knife with a scabbard. I make my scabbards from basswood or balsa wood, but any wood will do, even the wood you used to make the handle. Cut two pieces of wood about $\frac{1}{4}$ " thick and about an inch wide and a half inch longer than your blade. Draw the outline of your blade on one side. Make a stop cut along the line made by the back of the blade. Carve From the edge line toward the stop cut. Check the depth of your cut by laying the knife in the outlined area. The idea is to relieve the area until your knife lays flat to the surface of the wood. Bear in mind that it's not a lot of wood that needs to be removed. Only the thickness of the blade itself, usually about $\frac{1}{16}$ ". When you have it flat, glue the two pieces together, making sure they are aligned with each other. The ideal fit is tight, but not so tight that it is hard to insert or remove the blade from the scabbard. Glue the two halves of the scabbard together with wood glue and clamp. After the glue is dry, use the whittling knife you just made to round and shape the scabbard as desired. You can get really fancy if you like, or stay with a utilitarian rounding and sanding. Just be sure to draw the outline of the knife lightly on the

outside of the scabbard when rounding to be sure you don't cut into the interior. Once your scabbard is shaped, seal and finish it with a single coat of superthin cyano-acrylate glue.



Left: Scabbard marked on a piece of 1/4" balsa wood, and stop cutting the outline of the back of the blade. **Center:** Shaving from the blade edge line to the stop cut. **Right:** Checking the flat fit.



Left: Both scabbard halves with the blade pocket cut into one half. **Center:** applying the wood glue. **Right:** Clamping together.



Left: Rounding the scabbard. **Center:** Scabbard rough carved and ready for sanding. **Right:** After sanding, burning in flat diamond gripping surface to match knife handle.



Applying cyano-acrylate glue to seal and finish the scabbard.

I hope you have enjoyed this short how-to paper, and I hope it will inspire you to make many custom whittling knives to use in your carving endeavors!