



N.J.B.A.

NJBA Volume 28, Issue 3 11/06/25
<http://www.njblacksmiths.org>

Upcoming Events

NJBA Future

We need members to step up and help take NJBA into the future. Just because others have been doing it doesn't mean that they have the jobs for life. When NJBA started there were more people wanting to be involved and the work load was much lighter. A few members stepping up to help can keep NJBA here. It cannot always be expected that someone else will do it or that everything should be free. Sometimes you have to work to make things happen. Years ago we held more meets and workshops because people were involved in making the events happen, many hands made light work, being involved can be rewarding!

If you want to be a director, have ideas for a meet, a meet location or a workshop, step forward and talk or contact one of the directors.

NJBA Official Address Change!
Our Address is now:
NJBA, 663 Casino Drive
Howell, NJ 07731

NJBA dues have changed!
The dues are now \$30 a year,
please renew as soon as possible
to help NJBA continue!

Holiday Party!

Sunday December 7th from 3pm to 7pm

The New Jersey Blacksmiths Association will be hosting its holiday potluck party on Sunday December 7th from 3pm to 7pm at 663 Casino Drive Howell, NJ 07731.

There will be forges lit for a chance to do some hammering and to watch your fellow smiths demonstrate.

Iron in the hat raffle (so please bring something to donate to be raffled off to support NJBA). Along with the iron in the hat raffle NJBA will be auctioning off a beginner blacksmithing tool box that will contain the basic tools needed to start your blacksmithing journey.

On top of that there will be people tailgating with tools and things for sale. This event is open to NJBA members and their family members and to anyone who is interested in joining you will be able to join NJBA at this event. Membership is only \$30 for the year you can pay with either cash or check.

Please bring a covered dish to share at the potluck meal. NJBA will be providing drinks!

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NJBA Board of Directors

Not available online

New Jersey Blacksmiths Newsletter CHANGE OF ADDRESS!

Official NJBA Address

NJBA, 663 Casino Drive, Howell, NJ 07731

NJBA's Website:

<http://www.njblacksmiths.org>

NJBA's Facebook Page:

<https://www.facebook.com/njblacksmiths/>

Open Forge Meets

Anyone 18 years or older is welcome to try their hand one time at our open forge meets. NJBA members may participate any time the forge is open. (The application form is on the last page of this newsletter)

Monday Night Open Forge, Howell, NJ
NJBA Director Marshall Bienstock hosts an open forge meet every Monday evening at 7 PM, except major holidays. (Please call ahead on holidays to make sure the forge will be open.) 732-221-3015

Participation in Hands-On Events

Participation in NJBA-sponsored hands-on events is limited to adults (i.e., 18 years or older).

This rule was effected as of December 2016, when NJBA was having problems with its insurance coverage (which has since replaced).

This policy applies to workshops, open forge meets, demonstrations, etc. This policy does not apply to open forge meets and similar events that are sponsored by youth-oriented organizations such as scouts or schools with the aid of NJBA equipment and members.

NJBA Newsletter:

njblacksmiths.org/archive/index.htm

or use the link on the NJBA web site for the current newsletter.

New Jersey Blacksmiths Newsletter

Reprinted from the MABA Upsetter

Pewter Pouring Tomahawk Handle

Submitted by Rob & Alicia Robinson

On your tomahawk handle, use a pencil to mark the areas you want chiseled out to pour pewter. *TIP:* When the head is on the handle, I will take a pencil and draw around the bottom of the head. I will ensure that a small area where the pewter is going to be poured is positioned directly under the head. This prevents a line of wood between the pewter and the head on the assembled tomahawk.

Once you have the design on the handle—Chisel out the areas where the pewter is going to be. When you dig out the areas, it needs to be fairly deep to ensure the pewter pours around it before it cools. The pewter will cool off quickly, so if the channel you are pouring it into is too fine/thin, it may not pour all the way around before it cools.



Pic above: Supplies

Pics to right: Handle with areas pewter will be poured chiseled out.



TIP: I put superglue at the tips of the scallops. When you chisel out one side of the scallop, it's not bad, but sometimes when you move to the other side, it wants to chip out. The superglue helps bind it together, preventing the tip from chipping. If it does chip, do not panic, glue it back on. Once you have it all sanded off and stained, no one will ever know you glued it back together.



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Pewter Pouring Tomahawk Handle—Continued

I like to put tape on both sides of where my pour is going to be. Doing this will raise the pewter level just slightly above the wood. If you do not do this, the pewter may shrink when it cools, and you may end up with a gap. To avoid this, I like to ensure the pewter is just a little bit higher than the wood.



When I put the tape on, I backed it away from the edge just a little bit. This allows the pewter to come right up to the edge and a little over.

*If the Pewter can find a way out, it is going to run right out onto the ground. Make sure you get the tape secure. This is especially important if you are using a material such as an antler. The tape needs to be down in all those little grooves.

Next, take a piece of paper and cut it into a long strip. This is going to be the dam, so the pewter knows where to go. Put a piece of tape down one side of the paper so that it is half on the paper & half off (on long edge). Set it over the top of the tape on the handle (see pics). Once you have your paper where you want it, add a second piece of tape to the other side and wrap it around the handle to seal the area where the pewter will be poured.



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Pewter Pouring Tomahawk Handle—Continued



Use a razor blade to create a small opening in the paper to pour the pewter. We need to reinforce this area with more tape before we pour the pewter.



I use 2 pieces of old tow strap to hold handle in vice to keep it from moving while I pour the pewter.



Before pouring the pewter, go back and make sure that you do not have any gaps for the pewter to escape. *TIP sometimes when you melt pewter you will get a scale (black specs) from the tarnish and impurities in the pewter, try to clean as much of that out of the pewter before you pour to have a cleaner pour.



Ideally when you pour the pewter it will run all the way around and pool at the top above the wood. Once you pour the pewter tap the handle a little near the pour to help the pewter work its way around the handle.



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Pewter Pouring Tomahawk Handle—Continued

Remove the tape and paper to see how the pour did. If the pewter did not make it all the way around the handle, pull it out, repeat the preparation process, and pour again. Remember that you can remelt the piece of pewter to use it again.



Repeat the process for each area. If you do scallops—make sure the wood is chiseled a little deeper so that the pewter does not cool before it makes it all the way around. You may also want to heat the pewter slightly hotter to help with the flow. You can also go a little thicker with the tape going around the scallop area to help ensure the pewter fills in all the area. Take a minute to make sure that the tape is secure where it needs to be but is not blocking the flow of the pewter. The more complex the design the greater chance for the pour to not behave.

Once you have completed all the pours and are happy with them, use a file and sandpaper to clean off the extra pewter. Stain handle, fit head, and admire your beautiful piece of work.

*TIP if the handle is round, you may need to drill a few small holes in the channel to keep the pewter from spinning.



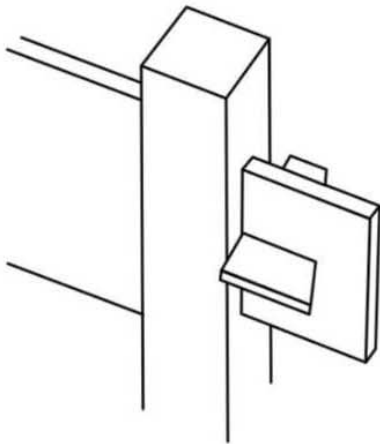
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From the MABA newsletter the Upsetter and from CBA

Double Union Joint

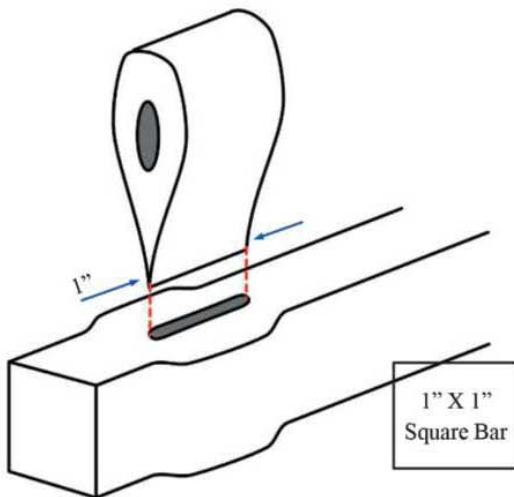
Flavio Parra, Santiago, Chile

We will make a joint in which a through-tenon is captured by an inserted wedge.



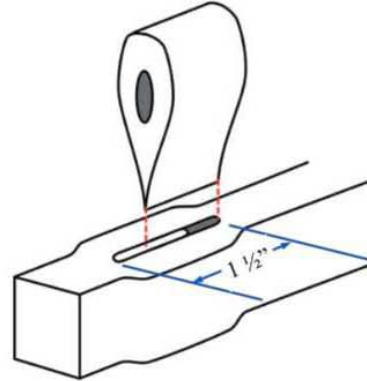
First Part: Bar

1. Use a 1" punch to create a 1" slot.

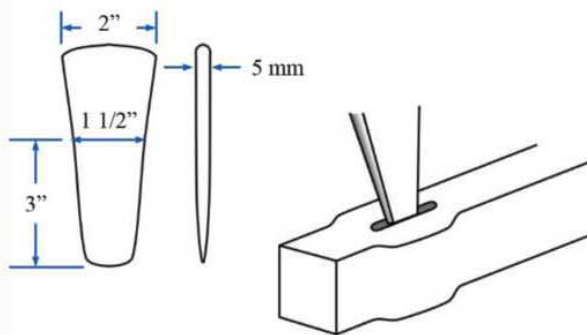


Editor's Note: In woodworking, I've seen this type of joint called a wedged-tenon joint.

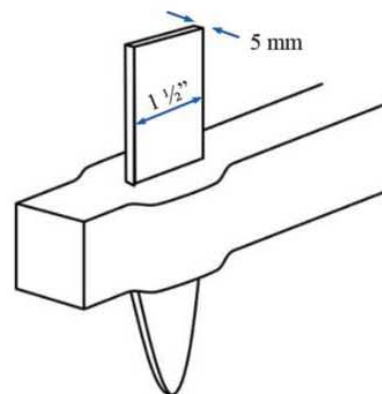
2. Extend the slot to 1 1/2" long.



3. Make a drift - a pointed plate of flat steel. 5 mm thick, tapering to a blunt point over 3", 2" wide at the struck end.



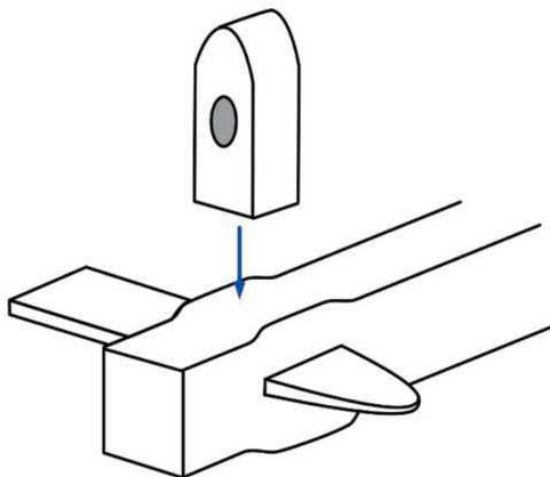
4. Drive the drift in to widen the slot to 5 mm by 1 1/2".



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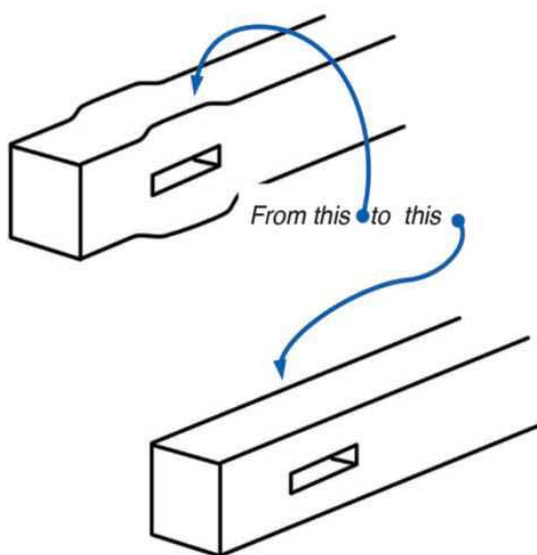
Double Union

5. Hammer on the sides to flatten, with the drift inserted.



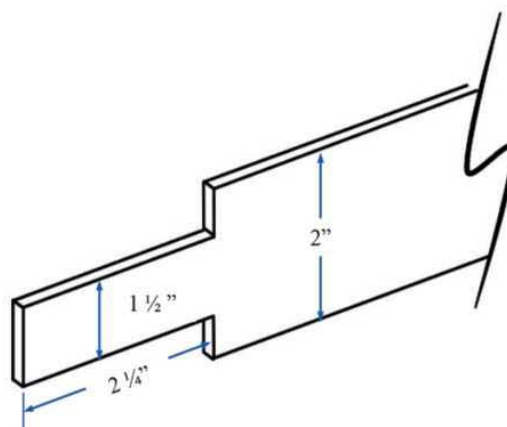
6. With the drift inserted, flatten the sides so that the bar returns to it's original 1" width.

The slot should be 5mm by 1 1/2".

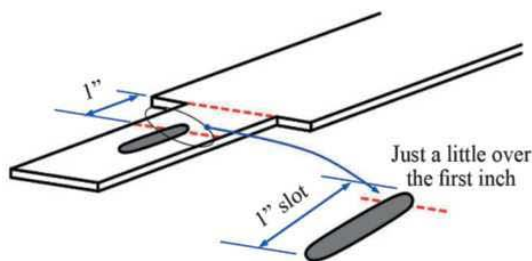


Second Part: Tenon

7. On the 2" by 5mm bar, make a tenon 1 1/2" wide, to fit the slot just created.

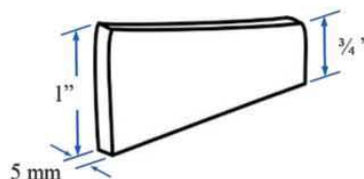


8. Punch and drift a 1" hole, a bit over the 1" line. Drift to 5mm width.



Third Part: Wedge

9. Make a tapered wedge from 5mm steel.

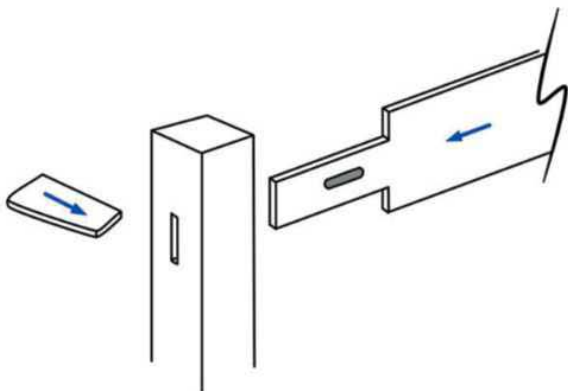


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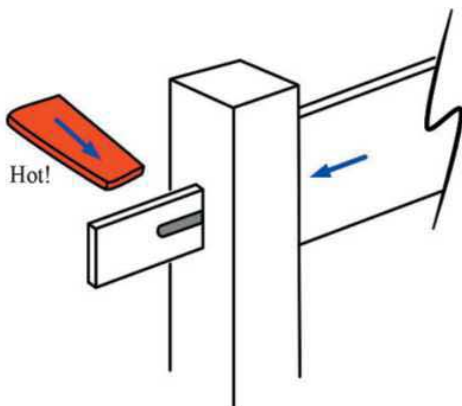
Double Union

Assembly

10. Check the fit of the 3 parts.



11. Drive the wedge in, hot.



12. Let cool. The joint should look like this.

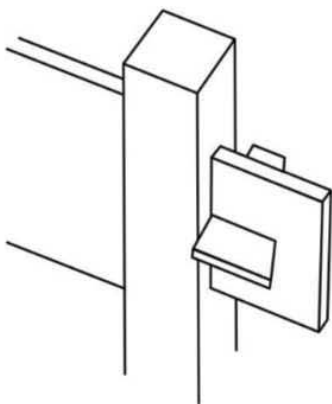


Photo Shoot At RoadRunner Forge

Numbers are keyed to Flavio's step numbers

Mark at 1" & 1 1/2". I marked both sides, to punch equally from both sides.



2.j Punched slot.



3. The drift - the centerpunch marks show where the widest, 1 1/2" section of the punch are. I used 1/4" stock, because I didn't have 5 mm stock.

This is a small drift relative to the 1" stock that we're drifting. It took a lot of abuse, it probably would have been good to have made a couple of drifts, then switch from time to time.



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Double Union

4. Drifting, using the post vise as a bolster.



6. After hammering the sides back to 1" and parallel.



The slot grew to 1 5/8".



10. The pieces, ready to assemble.



12. Completed joint.



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From the Virginia Blacksmith

Making the Slitting Chisel

The slitting chisel is a specialized hot chisel used to pierce and slit a piece of steel. Use the slitting chisel when you need to make an opening in a bar, but want to avoid losing any steel as you would when punching or drilling. Using the slitting chisel can also help you avoid the puckering that sometimes happens when you're punching a bar, especially a larger one. Slitting chisels are available for purchase from many blacksmith supply houses, but they're easy to make.

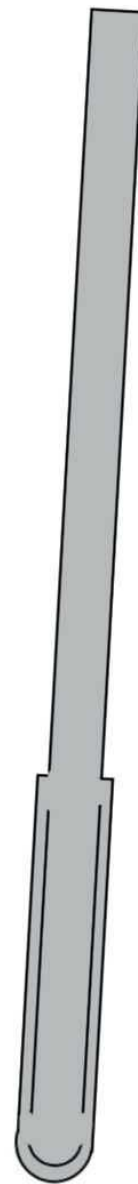
You'll need a length of tool or spring steel to make one. For a hand-held chisel, I prefer a piece 8-10 inches long. Conventional wisdom says that the cutting edge of the chisel should be $\frac{5}{8}$ - $\frac{3}{4}$ the diameter of the hole to be drifted. Keep that in mind when picking the diameter of the stock you're making the chisel from. (I usually follow the late Bill Wojcik's advice, and make my slitting chisels from the same size stock as the drift I'm using. You're almost guaranteed to end up with the correctly sized chisel that way.)

Forge out a long, thin taper. Whether you maintain the stock width throughout, or let the piece flare some, is really up to you and the needs of your project. I have and still do make them both ways, depending on the hole I'm slitting. The key here is *thin*. You'll recall that for a cold chisel, you want an edge that's fairly blunt, while a chisel for hot steel should be longer and thinner. A slitting chisel should be thinner still, perhaps 75% the thickness of a standard hot chisel.

The tip of the chisel should be crowned slightly. This allows the center to be in contact with the center of the hole as you start slitting, slowly expanding as the slit continues. This should result in a cleaner cut. How much of a crown depends on the depth of the hole. For really deep holes, you may want the crown to extend half way up the blade, while shallow holes don't need that much curve.

Forge, then file or grind, the edges and sides of the blade to an elliptical shape. This shape makes slitting easier and cleaner. Once the blade is shaped, hammer, grind or file (or all of the above) a chamfer on the striking edge of the chisel.

In my opinion, there's really no point in hardening and tempering a chisel used on hot steel. You'll quickly lose your temper anyway, especially with a tool this thin. That doesn't mean that you can ignore heat treating altogether, though. Heat the piece to critical, then let it air cool. In use, cool the tip frequently to prevent overheating. Using coal dust, beeswax or some other punching lube is a good idea, too.



Cross section of cutting edge.
Could be a little sharper.

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Pittsburgh Area Artist – Blacksmiths Association

A Cut Above!

When you want to learn from the best about blade smithing and toma-hawks, the Quad State Round-Up featured Butch Sheely as this smith that knows the answers. Butch specializes in pre-civil war knives and tomahawks. He studied with noted Jim Batson and has been successful learning from others as well as from his own mistakes! The following information can apply to the bladesmith but also used in the general blacksmith shop.



On Files:

Recommend Nicholson Files or Simonds Files. Unfortunately Nicholson Files are now made in Mexico so it is difficult to assess what material they are made from, however if you can find older ones, they may be the quality you want. Simonds files are quality files dating back to 1836. Nicholson File, "Black Diamond" are 1.25% carbon which is probably more carbon than you need, standard Nicholson files are 1095. Farrier Rasps are case hardened.

On Patina:

Mustard...yes, yellow mustard will eat the blade (metal) to give it a patina. Test it on a scrap and chart your time to see what finish you want. Some smiths use boiling bleach to achieve a desired patina. (Very dangerous technique)

Advice: "Make what you like and like what you make!"-Butch Sheely

A good approach to solving a design problem is to draw your plan to full size. If you choose to use an antler handle on an implement such as a fork, ladle, or blade as an example, find your antler first, then make your implement to fit the working end. It is very difficult to find the exact antler to work with a forged end to look complete and have a smooth continuation in design.

If you are making a blade, make it larger so that you can grind it.

Carbon Steel: Carbon Steel, 1095, has a limited temperature range– Too hot, it will burn up.– Too cold, cracks develop. Butch suggests using 5160 because it is a good steel to start with and it is more forgiving.

Butch works with approximately a 3# hammer. He tries to hit the anvil in the same place and moves the material to that location. He likes to use his hand hammer in oppose to a power hammer because he likes to see where and how the metal is moving. When making a spine on a blade or utensil, keeping the thickness uniform is imperative for further success on the item.

Scale is much harder than the steel. Scale will divot the steel on the anvil as you work. It is very important to brush off the scale on your work area. If you want a textured look to your work, use the scale as a texture additive.

When your metal is in the forge, the closer you have it placed near the air supply the more oxidation you will get. There is a tendency to get more oxidation with a gas forge.

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Butch uses a lot of water on the coal in the forge. It makes coke and binds the dust. Some smiths concern themselves with using water regarding the firepot, however if your firepot is made stout, it will last a long time.

What is a general good thickness for a blade at the cutting edge before hardening? Think of the thickness of a nickel or a dime. Keep in mind, the thinner the metal can/will cause warpage.

On Heat Treatment:

Plate Treating: Plate quenching vs. oil quench. Plate quenching helps reduce the chance of warpage on thinner blades, chef's knives, folders, and springs. Butch uses two thick aluminum plates. Bring the blade up to critical temperature (non-magnetic), place the blade on the bottom plate, place the other plate on top. This must be done before you grind the cutting edge. Works best on blade thickness below .200 thick.

Because the blade is now hardened, it will take a little longer to grind.

If you need to weld cast iron, it is important to preheat and post heat.

4140-Never quench in water, even though it has 4/10 carbon, it will crack every time!

Butch never uses his forging hammer on a tool such as a guillotine.

If you do not have a guillotine or a fuller on hand, don't give up! Use the handles on a pair of tongs. (See photo, Right)

Reality: "Packing" the edge of ferrous metal cannot be done by hand hammering.

Good source for a magnifier headset is Harbor Freight. It is less than \$10.00. When no longer useful, replace. When using a magnifier head set you might get a little motion sickness at first until you get use to it.

For pins in a handle, he uses welding rods, not stainless steel because they are hard to pein. Make sure the drilled hole is cleaned out with a tapered reamer.

When you are forging a blade, keep the cutting edge of the blade up—out of the forge!

Check your forging shape against your pattern as you progress through your project. This will help you keep true to your plan and vision for your project. Note: Butch only had to check his once and it was dead on! Experience helps!

Scotch Brite wheel— use a gray, medium grit. You can also use them to take the edges off antler handles. It is good for cleaning bolsters.



Using Dyes for color:

For wood handles, Fiebing's Leather Dye is a good choice. It is recognized as the most penetrating, alcohol-based leather dye in the world.

For Curly Maple. Dunlap Woodcrafts, Magic Maple works great. The acid in the dye works on the sugars in the wood and produces great color. The original formula was produced by Ken Thompson of Slippery Rock, PA and has been sold commercially since 1955. info@dunlapwoodcrafts.com

The best results Butch has found to get great color is to use the sun! Daylight and the UV rays, he believes has a positive effect. You can also use the heat of a wood stove which works.

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Turn Right at the Corner! By Bob Elliott

Bob Elliott (PAABA/ABA member) was the featured demonstrator at Dave Vincenty's shop this fall. Square corners using square and round stock can be a real challenge, but there have been ways Bob has discovered to streamline the process. Bob did a great demo showing the "traditional" technique but also the technique he uses which simplifies the work load and has an excellent result. The traditional technique as Bob said, "Will make you sweat more!" There are a number of approaches to square corners including cutting the material on a 450 and welding together and cleaning. If your work and budget permits forged corners, you may like to add this forged approach to honor your handcrafted work.



Bob recommended Otto Schmiler's book, *Werk ud Werkzeugdes Kunststschmieds*, 1981 as a reference. The book has clear photos and pictures that help with learning difficult techniques. There is also a YouTube by Lee Sauder, "Forging Square Corners" 12:06 minutes that will also be helpful when you give this a try.

Square Stock Making Square Corners

1. Bob used 1/2" square material for his demonstration and marked the center with a centerpunch.
2. Heat and fold over. You will see a "bulge" on both sides of the fold. This extra material is important to add mass to the corner to create the square bend. Using a cross pein hammer, hammer the "bulge" of extra material to the point. (see drawing)
3. Hammer on the top bend and push material to the point.
4. Do NOT hammer past the taper point, then unfold ...Voila, square corner and clean up.
5. While forming the taper, do not hammer past the end of the fold. You will receive a loss of material and correction will involve upsetting the metal from the end to "fill in" the loss. (See next photo, Below/Right)

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6. Clean up— Use a rasp and work the material from the two directions toward the point.

Above left: Bob with square corner checking with a square.

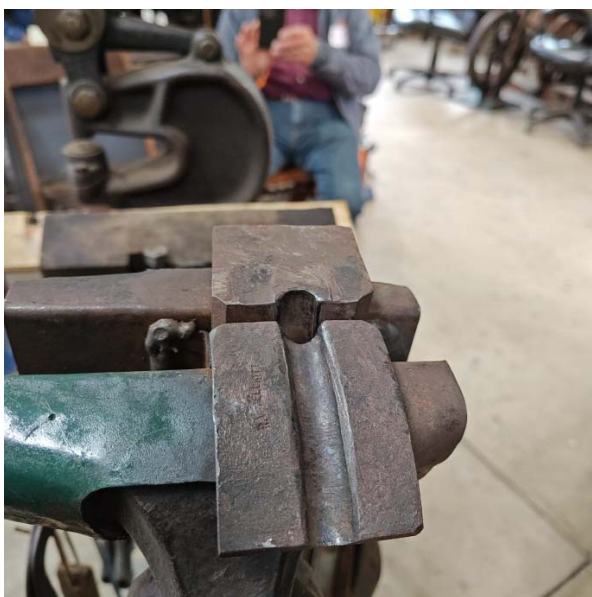
Above Right: Material folded

over, extra material appears and is used in making the corner.

Left: Drawing shows area to hammer into the point. Note: Do not hammer past the taper, it will cause a loss of material. Right: Bob Pickens looks at what happens IF you hammer past the taper. Loss of material is seen on top of the square corner

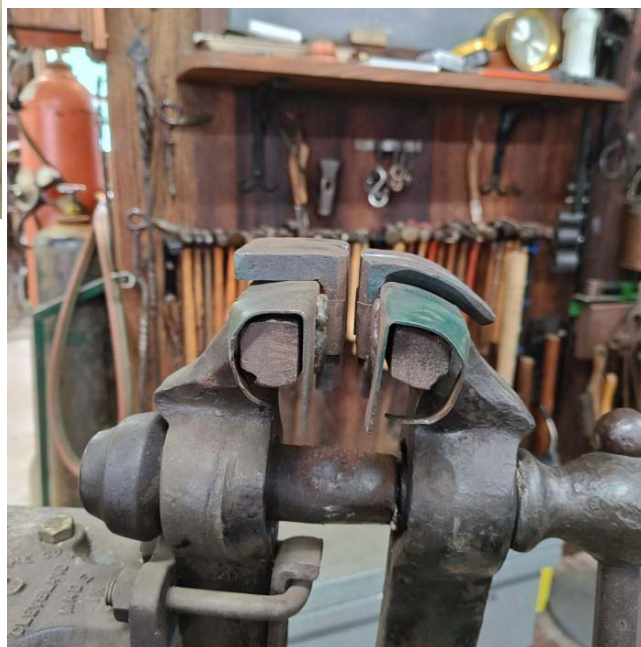


Round Stock Making Square Corners



This technique involves making some tooling that will permit the round material to remain round. If hammered on an anvil or flat surface of a vise, you risk or will risk the result of a flat spot developing. The tooling, (pictured) sits in a vise and one half is slightly elevated to avoid a pinch area.

1. First, upset the end of 1/2" round where the corner is going to take place. (As an Example: Upset the area about 4" from the end of the 1/2" material.) Place that end of the 1/2" material in



the tooling and bend over more than 90°.

(See photo: Bottom/Left) Hammer the end of the rod toward the vise to upset the hot area even more to drive it back onto itself. Use a 1/2" swedge that matches the bottom die in the vise to drive the corner down square.

(See photo: Bottom/ Center) You must also have a swedge on your anvil for adjusting the material as you work the metal. If you work the metal on the anvil, you will flatten the round material.

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2. Watch for flat areas developing. When finished it should be a 900 corner. Watch for a cold shut developing on the inside corner.
3. The design of the tooling in the vise has a curve. The curve is so the material moves out of the way as you use the top fuller.
4. When you are in your shop, you might like to use a torch to isolate the heat to work on the center areas.
5. These corners look best after hot rasping.

Photo Above/Left: Tooling in vise that needs to be created to accomplish a square corner using round stock. Above/Center: Note the one part of the set must protrude slightly above the right part of the tooling. The reason is to avoid a pinch area. Photo Above/Right: Tooling out of vise. Photo Below/Left: Bending material past 900. Photo Below/Center: Use a swedge on your vise so you avoid flat areas. Photos Below/Right: Example of square corners using round stock!



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MENTORING CENTER HAPPENINGS

September Demonstrator Dan Partin:

Simple Padlocks

By Dan Partin dustbunnyforge@gmail.com

The September "Simple Padlocks" Mentoring Center demonstration was based on the lock found in Denis Frechette's book "The New Spruce Forge Manual of Locksmithing." This is a pretty basic project. The "specifications" are very loose and mostly based on what I had on hand and what I thought looked ok. This is not your usual locksmith project that needs tight specs. If something doesn't line up or seems like it fits right, fiddle, file, heat, hit it, it will be fine.

Francis Whitaker, when asked how one begins to be a blacksmith, used to say, "Just get it hot and hit it."



STOCK

Body of lock – Schedule 40 black pipe, 3/4" ID, 4" long

Shackle – 1/2" round stock (square is an option), 8" long.

Locking Screw – commercial bolt, 3/8 NC thread, Thread should be roughly 1" long, unthreaded portion (not including the head) ~ 1/2."

Key – 3/8" round stock, 4" long.

Rivet - 1/4" x 1"

TOOLING

Center Punch

Drift – 1/4" (this can also just be a chunk of round stock)

Die – 3/8 NC thread.

Drills - 1/4" (for the rivet) and 5/16" (for threading the shaft to accept the locking bolt)

File

1/2"x1/2" or 1" rectangular stock for a spacer, long enough that you can hold it while the body of the lock is hot.

Small piece of 1/2" thick wood for spacer while drilling.

Bending fork.

A couple of nuts that fit the locking bolt, use to hold the bolt while filing.

The usual blacksmithy type stuff, you know, hammer, anvil, forge, magnificent beard, you know, standard stuff.

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PROCESS

Lock.

Start with the body of the lock, this will allow it to cool while the shackle is formed in the following steps.

On the pipe, use a center punch to mark 1" from the end.

Drill a small hole. The size is not that important, bigger than the kerf of a hacksaw blade. This will help align the following.

Make a mark perpendicular to the pipe, crossing the hole (1" in) and approximately 1/2 way across the pipe.

This is what we will be marking and cutting on the end of the pipe for the pivot.



Cut from the end of the pipe down to the pre-drilled hole. Try not to cut the other side of the pipe in the process.

Cut the perpendicular line, crossing the "T" at the drilled hole. Again, only about half way.

Into the forge, opening up the body for the pivot of the shackle.

Get the cut end hot, then open up the cut. A hardy, hot cut, tongs. The significant thing is that the two "ears" are symmetrical when completed. Reheats will be needed, do, as necessary.

Open enough that your 1/2" spacer will fit.

Use the spacer to adjust the opening such that it is a loose fit on 1/2,"

symmetrical, and aligned with the body of the lock.

Set aside to cool. The next process it will get will be cold work.

Shackle.

Section off about 1/2" and draw out using half faced blows. We are looking for a thickness of 1/4" and 1 1/4" long. This is not centered on the bar, but off to one side. This will be the hinge portion of the shackle when complete.

Math here (you can skip this part if you'd like). We're using 1/4" rivets. Our "stock" that we will wrap this is 1/4" thick. We measure the diameter as the shaft diameter (1/4) and from the center of the thickness of the wrapping stock ($2 \times 1/4 \times 0.5 = 1/4$) so we need circumference = $\pi \times$ diameter. We're blacksmiths, so $\pi = 3.141592653589793238462643383279...$ is 3, just 3. length of the drawn-out part 1.5" total.

Once the end is drawn out, and squared up, it should be under 1.5." This allows us to chamfer the end to allow a cleaner hinge action. See illustration for chamfer orientation.



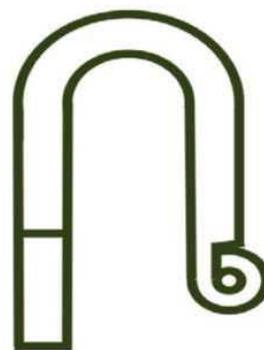
Roll the drawn-out portion such that it will tuck into the half-faced recess on the shackle. Try to get it about 1/4" in diameter and tucked into the shoulder.



Use the drift to clean up the hinge body, make sure the hole is perpendicular to the shackle stock. This may take a bit of fiddling, and there will be more later, but getting this correct now will make future you less mad at past you.

Heat the other end and flatten down about 1" of the length, keeping the width at 1/2", only flatten enough that you can get a 1/4" drill to cut a hole. This will be threaded later and is how the padlock is secured. This should be aligned with the hinge end.

Now the fun bit. Get a good heat on the shackle. We are going to put the bend in. Once hot, you may want to cool the hinge end in water to avoid damaging it (too much). With bending forks in the vise, bend the shackle, we are looking for about 1 1/2" inside diameter, and the flattened end about 1/2" longer than the hinge end. If the flattened end is a bit long, no worries, better than too short. The ends of the shackle should be parallel. You will likely need to heat and adjust a couple of times.



Set aside to cool.

Back to the body, which should be cool, so cool, cool as ice, ice, baby (I'm truly sorry).

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Center punch the pivot "ears."
The point should be about ½ way lengthwise, and down enough to support the shackle, about ½," but having enough meat and not so much that the shackle binds is what we are after. Use the metal spacer to support the pivot opening while center punching. Do both sides. Make sure they are reasonably aligned.

Drill one ear, using the wood spacer to support the opening.

Drill the other.

Then run the bit all the way through, without the spacer. This should correct for any misalignment.

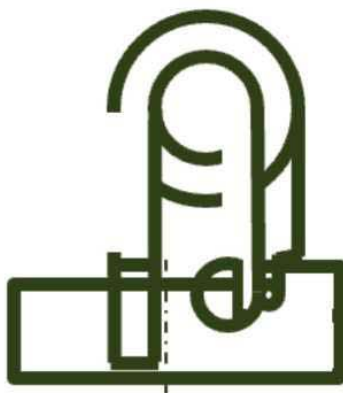
You can grind the points of the ears at this point, if you'd like, makes no functional difference, personal preference.

If the shackle is cool, as cold as ice, willing to sacrifice our love (I'm just a bit sorry), do a dry fit. Use the ¼" drift or a rivet. If the pivot is too tight, loosen it up, not too much, we don't want a wobbly fit, though it will tighten up with the riveting.

Use the dry fit shackle to mark on the body the far end of where the opening will be. The squared-up end of the shackle will be at its longest when just touching the body.



Remove the shackle. Now put the shackle back on, but outside of the pivot ear. This will allow you to mark where the close to the pivot end of the hole will need to be.



Now use the flattened end of the shackle to mark the width of the hole.

Cutting the receiving hole.

Use a hacksaw to cut a series of cuts perpendicular to the body. Get them as close together as you can. This will help with the removal of the stock with the chisel. They should be down to the depth of the marked area to receive the shackle. A bit over sized is ok, and will make life a bit easier, but don't overdo it.

With a cold chisel, knock out remaining bits from the hole (sounds easier than I've found it to be). Clean up a bit with a file.

At this point, the shackle probably doesn't quite fit. You can file, chisel, and fuss if you'd like. The easiest I've found is to heat up that area and use

the metal spacer that you used earlier to open up and clean up the edges. The spacer may need to have the end chamfered a bit to ease this process.

Dry fit and make sure all is aligned, and the ends of the shackle are the proper length. Grind the flattened end, adjust the shackle bend to make the sides parallel, etc., if needed.

Once you're happy with the fit up, put the shackle in place as if it was locked. Use a marker to mark where the shackle will be drilled (then tapped) to accept the locking bolt. This should be down from the top of the inside of the pipe enough to allow clearance of the key. It doesn't have to (or want to be) a tight fit.

Remove the shackle, center punch, and drill. We need this hole to be in line with the shackle and lock body.

Tap (Fred Astaire or Gregory Hines, your preference, just not that Tom Cruise movie, just no).

Dry fit, test with the bolt that will be used for the lock. There may need be some adjustments, maybe use the ¼" drill to clean up the hinge, do the things. Once you're happy (with the lock), rivet the shackle in place.

It's likely to be locked up now where the shackle doesn't pivot smoothly, or at all. Heat and wiggle, just like when making tongs.

Locking bolt. (or just use the bolt as is, skip this)

Put the nuts on the bolt. These will allow you to clamp the bolt for filing without damaging the threads.

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Cut off the head of the bolt, leaving about $\frac{3}{4}$ " of unthreaded shaft.

File $\frac{3}{8}$ " from the end into a triangle with rough dimensions shown below. A bit smaller will make fitting the key easier vs. a bit larger. If the triangle is equilateral, it will make the key work in any orientation.



Chamfer the end of the bolt. This will make fitting to the key easier.

Key.

I've pre-drilled the end of the key when I teach this workshop, as it can be fiddly, and shared shop drill presses may not be square. It is a $\frac{1}{4}$ " hole down the center, approx. $\frac{1}{2}$ " deep. A lathe would make this easier, but with care, a drill press isn't too bad.

Mount the threaded bolt vertically in a vise using the nuts to avoid damaging threads, triangle up.

Heat the key and ease it (tap, tap, tap) over the bolt end. This may take some fiddling and multiple heats. If the bolt triangle is too big, this will be difficult. If that is the case, it is probably easier to refile the bolt.

Once you are happy with the fit, heat the other end and make it like you wish. Draw out a taper and wrap around or slit and open up, whatever you'd like.

Heat components, wire brush, and apply wax finish.

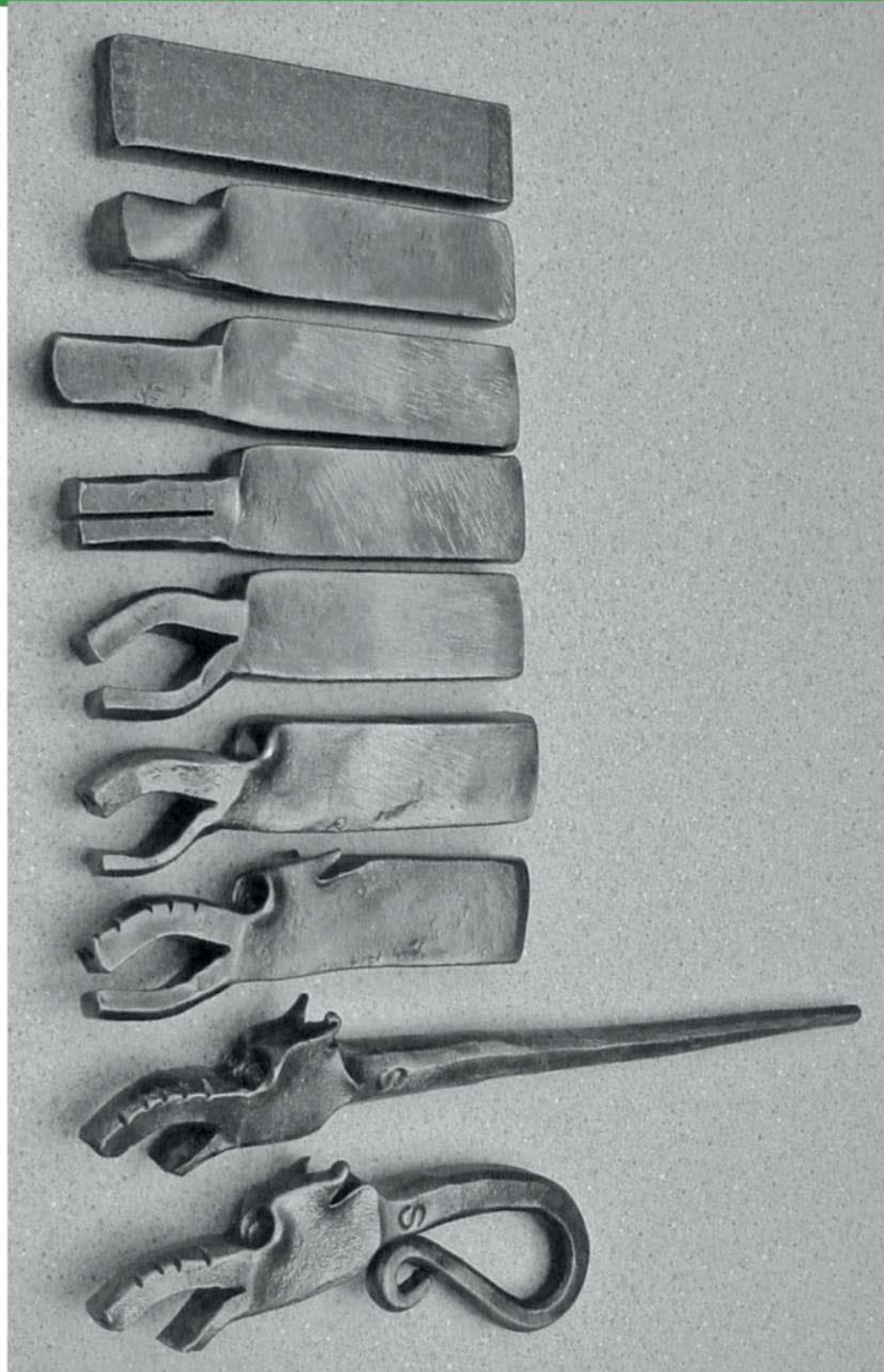
I wrote this up for a workshop that I ran at the NWBA mentoring center last summer. I've updated it a bit, but not significantly. I'm teaching two classes at the Cascadia Center for the Arts up on Mt. Hood this summer, July 12 and 13. The first class (12th) is a beginner, where students will make a coat hanger and a simple blacksmith puzzle. The hanger will involve hammer control, drawing out, punching, taper, curls, upsetting, etc. The second class, which should be doable by most beginners, will be making the lock shown above. Some additional tooling will be made in each of the classes specific to the projects, but the tools will be of general use for blacksmiths (I'm thinking of a punch and chisel scheme of things). As of writing, the class sign up has not gone live, but information can be found here: <https://cascadiaart.org/blacksmithing/>



Reprinted from the Northwest Blacksmiths Hot Iron News First Quarter 2025

Storyboard - Dragon Bottle Opener

from Ray Spiller, Mount Sharon Forge Facebook



New Jersey Blacksmiths Newsletter

NJBA Membership Renewal and Volunteers' List

Mail completed renewal form along with check for dues, to:

NJBA, 663 Casino Drive, Howell, NJ 07731

Name _____

Address _____

City, State, Zip _____

Phone Numbers: Day _____ Eve. _____ Cell _____

Email address _____

My check is enclosed: [] **\$30** (regular membership dues), or [] **\$50** (business membership dues)

NJBA Volunteers List

"Please put my name on the list of potential volunteers:" (Circle all that apply.)

Availability: Saturdays, Sundays, Weekdays

Interests: Demonstrating, Coaching, Novices, Assisting at Workshops

Experience: Novice, Intermediate, Experienced, Professional